

# Manufacturing Profiles

1997

Issued August 1999

MP/97

**Current  
Industrial  
Reports**



U S C E N S U S B U R E A U

*Helping You Make Informed Decisions*

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU



## ACKNOWLEDGMENTS

This report was prepared in the Manufacturing and Construction Division (formerly Industry Division). **Judy Dodds**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of this project. Planning and the compilation of data were under the direction of **Michael Zampogna**, Chief, Manufactured Nondurables Branch assisted by **Allen Foreman, Robert Miller, Robert Reinard, Nat Shelton, Suzanne Conard, Kim Credito, Kay Hanks, Karen Harshbarger, Nancy Higgins, Walter Hunter, James Jamski, Evelyn Jordan, Andy Kraynak, Joyce Pomeroy, Venita Powell, Sue Sundermann, Ronanne Vinson, Kristin Williams, Lissene Witt,** and **Michael Yamaner; Kenneth I. Hansen**, Chief, Manufactured Durables Branch, assisted by **Mike Brown, Renee Coley, Raphael Corrado, Milbren Thomas, Brian Appert, Zoraida Arledge, Stanis Batton, Carol Beasley, Chris Blackburn, Larry Blumberg, Brenda Campbell, Vance Davis, Mary Ellickson, Merry Glascoe, Vera Harris-Bourne, James Hinckley, Keith McKenzie, Philippe Morris, JoAnna Nguyen, Betty Pannell, Arminta Quash, Cindi Ramsey, Chris Savage, Wanda Sledd, Ann Truffa, Keeley Voor, Richard Wiesler** and **Tempie Whittington**.

Coordination of the publication process was under the direction of **Mendel D. Gayle**, Chief, Forms, Publications, and Customer Services Branch. **Lillie M. Skinner** implemented various phases of the publication process, assisted by **Paula Capoen, Harriet Lee,** and **Enid Winters**.

The staff of Administrative and Customer Services Division, **Walter C. Odom**, Chief, performed planning, design, composition, editorial review, and printing planning and procurement for publications, Internet products, and report forms. **Margaret A. Smith** coordinated and edited the publication.

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**U.S. Department of Commerce**  
**William M. Daley,**  
Secretary

**Robert L. Mallett,**  
Deputy Secretary

**Economics and Statistics Administration**  
**Robert J. Shapiro,**  
Under Secretary for  
Economic Affairs

**U.S. CENSUS BUREAU**  
**Kenneth Prewitt,**  
Director

SUGGESTED CITATION

U.S. Bureau of the Census,  
*Manufacturing Profiles: 1997*, MP/97,  
U.S. Government Printing Office,  
Washington, DC, 1999.



**Economics  
and Statistics  
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**Robert J. Shapiro,**  
Under Secretary  
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**U.S. CENSUS BUREAU**

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Deputy Director

**Paula J. Schneider,**  
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for Economic Programs

**Thomas L. Mesenbourg,**  
Assistant Director  
for Economic Programs

**William G. Bostic Jr.,**  
Chief, Manufacturing  
and Construction Division

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# Introduction

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## GENERAL

This publication presents all the data compiled in the Current Industrial Reports (CIR) program for data year 1997. These data were originally released electronically from March through December 1998. This publication replaces all of the individual reports issued in the CIR series for 1997.

Current data are released electronically on Internet for all individual surveys as they become available. Use <http://www.census.gov/econ/www/manumenu.html>. Individual reports can be accessed by choosing "Current Industrial Reports (CIRs)," clicking on "Report Number Index"; from the "Industrial Products by Numeric Index," choose the survey of interest. Follow the menu to view the text (ASCII) file or Portable Data File (PDF) or to download the worksheet file (WK format) to your personal computer. Several years of data are presented for each individual survey. A printed "compendium" publication, including data from all of the individual surveys, will be produced at the end of the data year.

The CIR program has been providing monthly, quarterly, and annual measures of industrial activity for many years. Since 1904, with its cotton and fats and oils surveys, the CIR program has formed an essential part of an integrated statistical system involving the quinquennial census of manufactures and the annual survey of manufactures. The CIR surveys, however, provide current statistics at a more detailed product level than either of the other two statistical programs.

The primary objective of the CIR program is to produce timely, accurate data on production and shipments of selected products. The data are used to satisfy economic policy needs and for market analysis, forecasting, and decision-making in the private sector. The product-level data generated by these surveys are used extensively by individual firms, trade associations, and market analysts in planning or recommending marketing and legislative strategies, particularly if their industry is significantly affected by foreign trade. Although production and shipments information are the two most common data items collected, the CIR program collects other measures also such as inventories, orders, and consumption. These surveys measure manufacturing activity in important commodity areas such as textiles and apparel, chemicals, primary metals, computer and electronic components, industrial equipment, aerospace equipment, and consumer goods.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the census of manufactures. The census of manufactures provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is too large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. The CIR program includes a group of mandatory and voluntary surveys. Typically the monthly and quarterly surveys are conducted on a voluntary basis. Those companies that choose not to respond to the voluntary surveys are required to submit a mandatory annual counterpart corresponding to the more frequent survey.

## FUNDING

The Census Bureau funds most of the surveys. However, a number of surveys are paid for either fully or partially by other Federal Government agencies or private trade associations. A few surveys are mandated, but all are authorized by Title 13 of the United States Code.

## RELIABILITY OF DATA

Survey error may result from several sources including the inability to obtain information about all cases in the survey, response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding the reported data, and other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to these nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is the imputing of data for nonrespondents, for late reporters, and for data that fail logic edits. Missing figures are imputed based on period-to-period movements shown by reporting firms. A figure is considered to be an impute if the value was not directly reported on the questionnaire,

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directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are suppressed or footnoted. The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

### DATA REVISIONS

Statistics for previous years may be revised as the result of corrected figures from respondents, late reports for which imputations were originally made, or other corrections. Data that have been revised by more than 5 percent from previously published data are indicated by footnotes.

### DISCLOSURE

The Census Bureau operates under Title 13 of the United States Code, which prohibits the bureau from making "any publication whereby the data furnished by any particular establishment or individual under this title can be identified." This rule prohibits the Census Bureau from publishing data that enables a data user to derive detailed information about an individual respondent. Therefore, in the publication, a "D" appears in place of the sensitive data value.

### EXPLANATION OF GENERAL TERMS

**Capacity.** The maximum quantity of a product that can be produced in a plant in 1 day if operating for 24 hours. Includes the capacity of idle plants until the plant is reported to be destroyed, dismantled, or abandoned.

**Consumption.** Materials used in producing or processing a product or otherwise removing the product from the inventory.

**Exports.** Includes all types of products shipped to foreign countries, or to agents or exporters for reshipment to foreign countries.

**Gross shipments.** The quantity or value of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

**Interplant transfers.** Shipments to other domestic plants within a company for further assembly, fabrication, or manufacture.

**Inventories.** The quantity or value of finished goods, work in progress, and materials on hand.

**Machinery in place.** The number of machines of a particular type in place as of a particular date whether the machinery was used for production, prototype, or sampling, or was idle. Machinery in place includes all machinery set up in operating positions.

**Net receipts.** Derived by subtracting the materials held at the end of the previous month from the sum of materials used during the current month.

**Production.** The total volume of products produced, including: products sold; products transferred or added to inventory after adjustments for breakage, shrinkage, and obsolescence, plus any other inventory adjustment; and products that undergo further manufacture at the same establishment.

**Quantities produced and consumed.** Quantities of each type of product produced by a company for internal consumption within that same company.

**Quantity and value of new orders.** The sales value of orders received during the current reporting period for products and services to be delivered immediately or at some future date. Also represents the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those that are supported by binding legal documents such as signed contracts or letter contracts.

**Quantity and value of shipments.** The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

**Stocks.** Total quantity of ending finished inventory.

**Unfilled orders (backlog).** Calculated by adding net new orders and subtracting net sales from the backlog at the end of the preceding year.



# Chapter 1. Food Products

## FLOUR MILLING PRODUCTS (M20A)

### INTRODUCTION

The data on flour milling products are from a survey that covers all firms in the United States operating wheat and rye flour mills. Some very small specialty mills are only canvassed annually.

### EXPLANATION OF TERMS

**Wheat ground for flour.** Represents the purchased weight of wheat ground, including the weight of foreign material (dockage). Includes the milling of Canadian wheat in bond. Measured in bushels of 60 pounds.

**Rye ground for flour.** Represents the purchased weight of rye ground, including the weight of foreign materials (dockage). Measured in bushels of 56 pounds.

**Millfeed.** Includes bran, middlings, shorts, and other milling byproducts intended principally for use as feed materials.

**Cwt. sacks.** Represents 100-pound sacks of flour. The actual average weight of the "100-pound sacks" is published below.

**Capacity.** Represents maximum quantity of flour that can be produced in a mill in 1 day if operating for 24 hours. Includes the capacity of idle mills until the mills are reported to be destroyed, dismantled, or abandoned.

**Stocks of flour.** Represents mill stocks in all positions, sold and unsold.

Table 1. **Summary of Commercial Wheat Milling Production: 1987 to 1997**

Year	Wheat flour production (1,000 cwt sacks)	Wheat ground for flour (1,000 bushels)	Millfeed production (1,000 tons)	Average pounds per cwt sacks of flour	
				Wheat	Millfeed
1997 .....	404,143	885,843	6,886	131.5	34.1
1996 .....	397,776	878,070	7,042	132.4	35.4
1995 .....	388,689	869,296	7,144	134.2	36.8
1994 .....	392,519	884,707	7,186	135.2	36.6
1993 .....	387,419	871,408	6,963	135.0	35.9
1992 .....	370,829	833,339	6,707	134.8	36.2
1991 .....	362,311	808,966	6,436	134.0	35.5
1990 .....	354,348	788,186	6,109	133.5	34.5
1989 .....	342,762	761,021	6,072	133.2	35.4
1988 .....	344,154	769,699	6,163	134.2	35.8
1987 .....	341,565	767,507	6,260	134.8	36.7

Table 2. **Commercial Wheat Milling Production by Month: 1997 and 1996**

Month	Wheat flour production (1,000 cwt sacks)	Wheat ground for flour (1,000 bushels)	Millfeed production (1,000 tons)	Daily (24-hour) capacity in wheat flour <sup>1</sup> (1,000 cwt sacks)	Wheat flour mill stocks <sup>1</sup> (1,000 cwt sacks)	Average pounds per cwt sack of flour	
						Wheat	Millfeed
<b>1997</b>							
<b>Total .....</b>	<b>404,143</b>	<b>885,843</b>	<b>6,886,228</b>	<b>(X)</b>	<b>(X)</b>	<b>131.5</b>	<b>34.1</b>
December .....	34,043	74,618	587,232	1,449	<sup>†</sup> 6,343	131.5	34.5
November .....	34,326	75,058	582,281	(NA)	(NA)	131.2	33.9
October .....	37,750	82,392	644,701	(NA)	(NA)	131.0	34.2
September .....	35,514	78,077	605,811	1,433	<sup>†</sup> 6,330	131.9	34.1
August .....	34,687	75,591	584,811	(NA)	(NA)	130.8	33.7
July .....	34,497	76,140	595,190	(NA)	(NA)	132.4	34.5
June .....	32,866	72,062	557,292	1,434	<sup>†</sup> 5,820	131.6	33.9
May .....	33,021	72,289	559,500	(NA)	(NA)	131.4	33.9
April .....	33,671	73,078	562,611	(NA)	(NA)	130.2	33.4
March .....	32,002	70,398	549,086	1,432	<sup>†</sup> 6,040	132.0	34.3
February .....	30,072	66,788	518,692	(NA)	(NA)	133.3	34.5
January .....	31,694	69,352	539,021	(NA)	(NA)	131.3	34.0
<b>1996</b>							
<b>Total .....</b>	<b>397,776</b>	<b>878,070</b>	<b>7,041,882</b>	<b>(X)</b>	<b>(X)</b>	<b>132.4</b>	<b>35.4</b>
December .....	31,970	71,326	568,008	1,411	6,671	133.9	35.5
November .....	33,056	73,694	583,262	(NA)	(NA)	133.8	35.3
October .....	37,495	82,670	648,846	(NA)	(NA)	132.3	34.6
September .....	34,645	75,099	593,831	1,406	6,350	130.1	34.3
August .....	35,579	77,406	618,335	(NA)	(NA)	130.5	34.8
July .....	33,909	73,619	593,353	(NA)	(NA)	130.3	35.0
June .....	30,636	67,655	542,867	1,405	6,400	132.5	35.4
May .....	33,203	72,605	592,380	(NA)	(NA)	131.2	35.7
April .....	31,227	69,391	558,821	(NA)	(NA)	133.3	35.8
March .....	32,201	72,124	583,618	1,415	6,927	134.4	36.2
February .....	32,285	72,373	585,593	(NA)	(NA)	134.5	36.3
January .....	31,570	70,108	572,968	(NA)	(NA)	133.2	36.3

NA Not available. <sup>†</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Collected quarterly.

**Table 3. Commercial Rye Milling Production by Month: 1997 and 1996**

Month	Rye flour production (1,000 cwt sacks)	Rye ground for flour (1,000 bushels)	Millfeed production (tons)	Daily (24-hour) capacity <sup>1</sup> (1,000 cwt sacks)	Stocks of rye flour <sup>1</sup> (1,000 cwt sacks)	Average pounds ground per cwt sack of flour	
						Rye	Millfeed
<b>1997</b>							
<b>Total .....</b>	<b>'1,396</b>	<b>'3,291</b>	<b>'12,384</b>	<b>(X)</b>	<b>(X)</b>	<b>132.0</b>	<b>17.7</b>
December .....	'144	327	'1,183	12	21	127.2	16.4
November .....	'115	'263	'912	(NA)	(NA)	128.1	15.9
October .....	'128	'298	'1,148	(NA)	(NA)	130.4	17.9
September .....	'127	'305	'1,274	12	'26	134.5	20.1
August .....	'108	'266	'1,110	(NA)	(NA)	137.9	20.6
July .....	'110	'256	'909	(NA)	(NA)	130.3	16.5
June .....	'104	'241	'829	12	'27	129.8	15.9
May .....	'114	'265	'1,160	(NA)	(NA)	130.2	20.4
April .....	'119	'280	'879	(NA)	(NA)	131.8	14.8
March .....	'102	'243	'861	12	(D)	133.4	16.9
February .....	'111	'272	'1,007	(NA)	(NA)	137.2	18.3
January .....	'114	'275	'1,112	(NA)	(NA)	135.1	19.5
<b>1996</b>							
<b>Total .....</b>	<b>1,484</b>	<b>3,557</b>	<b>16,426</b>	<b>(X)</b>	<b>(X)</b>	<b>134.2</b>	<b>22.1</b>
December .....	134	308	1,203	11	(D)	128.7	18.0
November .....	137	316	(D)	(NA)	(NA)	129.2	19.7
October .....	152	349	(D)	(NA)	(NA)	128.6	20.9
September .....	133	318	(D)	11	(D)	133.9	23.4
August .....	130	305	(D)	(NA)	(NA)	131.4	21.2
July .....	121	281	(D)	(NA)	(NA)	130.0	18.5
June .....	95	247	(D)	11	(D)	145.6	28.6
May .....	121	286	(D)	(NA)	(NA)	132.4	22.7
April .....	118	298	(D)	(NA)	(NA)	141.4	26.4
March .....	118	291	(D)	11	(D)	138.1	26.9
February .....	107	269	(D)	(NA)	(NA)	140.8	25.2
January .....	118	289	(D)	(NA)	(NA)	137.2	20.4

D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Collected quarterly.

Table 4. **Summary of Commercial Wheat Milling Production by Geographic Area: 1997 and 1996**

Geographic area	1997			1996		
	Total (1,000 cwt sacks)	Wheat flour production		Total (1,000 cwt sacks)	Wheat flour production	
		Wheat ground for flour (1,000 bushels)	Daily (24-hour) capacity <sup>1</sup> (cwt sacks)		Wheat ground for flour (1,000 bushels)	Daily (24-hour) capacity <sup>1</sup> (cwt sacks)
<b>United States</b> .....	<b>404,143</b>	<b>885,843</b>	<b>1,448,878</b>	<b>397,776</b>	<b>878,070</b>	<b>1,410,625</b>
California and Hawaii .....	30,105	66,783	103,280	29,099	64,334	101,130
Florida .....	9,264	20,629	31,800	9,066	20,429	31,800
Georgia .....	(D)	(D)	(D)	(D)	(D)	(D)
Illinois .....	19,510	44,789	67,218	18,841	42,591	67,218
Indiana .....	(D)	(D)	(D)	(D)	(D)	(D)
Iowa .....	(D)	(D)	(D)	(D)	(D)	(D)
Kansas .....	39,175	85,809	154,560	37,600	83,538	150,760
Michigan .....	7,856	17,702	32,000	7,894	17,618	31,900
Minnesota .....	34,410	76,196	120,480	34,266	75,248	117,280
Missouri .....	27,697	60,558	98,250	28,924	63,268	98,300
New York .....	28,198	62,636	105,874	29,192	63,122	105,850
North Carolina .....	12,155	25,817	40,075	11,715	25,179	37,125
Ohio .....	23,791	53,192	84,868	23,778	53,379	80,468
Oklahoma .....	8,312	19,590	30,500	9,341	21,327	30,500
Oregon and Washington .....	13,473	29,895	51,472	14,048	31,021	53,840
Pennsylvania .....	16,178	36,074	58,622	14,658	34,497	57,622
Tennessee .....	15,597	35,731	54,859	15,537	36,085	54,705
Texas .....	15,073	33,510	50,060	15,484	35,027	50,160
All other states .....	78,137	160,386	282,285	72,841	154,132	260,267

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Capacity as reported for December of each year.

**Table 5. Quantity of Wheat Flour Produced by Geographic Area: 1997 and 1996**

[1,000 cwt sacks]

Geographic area	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1997</b>													
<b>United States.....</b>	<b>404,143</b>	<b>31,694</b>	<b>30,072</b>	<b>32,002</b>	<b>33,671</b>	<b>33,021</b>	<b>32,866</b>	<b>34,497</b>	<b>34,687</b>	<b>35,514</b>	<b>37,750</b>	<b>34,326</b>	<b>34,043</b>
California and Hawaii .....	30,105	2,399	2,276	2,435	2,468	2,489	2,460	2,580	2,470	2,638	2,812	2,530	2,548
Florida .....	9,264	813	687	786	798	772	675	799	747	804	845	716	822
Georgia .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Illinois .....	19,510	1,502	1,444	1,546	1,614	1,557	1,544	1,554	1,693	1,710	1,891	1,712	1,743
Indiana .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Iowa .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Kansas .....	39,175	3,068	2,966	3,344	3,152	3,106	3,140	3,234	3,454	3,564	3,634	3,393	3,120
Michigan.....	7,856	584	574	610	641	623	655	637	675	725	804	693	635
Minnesota .....	34,410	2,837	2,525	2,756	2,871	2,741	2,697	2,926	2,865	2,989	3,176	2,967	3,060
Missouri .....	27,697	2,117	2,003	2,105	2,321	2,190	2,237	2,413	2,421	2,418	2,673	2,412	2,387
New York.....	28,198	2,153	2,052	2,228	2,331	2,259	2,336	2,473	2,468	2,490	2,718	2,347	2,343
North Carolina.....	12,155	911	903	953	1,119	975	1,003	1,085	1,029	1,055	1,167	997	958
Ohio .....	23,791	1,815	1,777	1,563	1,873	1,870	2,000	2,050	2,086	2,239	2,430	2,096	1,992
Oklahoma .....	'8,312	'648	'603	'670	'668	'685	'706	'709	'673	'732	'790	'737	'691
Oregon and Washington...	13,473	1,099	1,058	1,048	1,122	1,102	1,134	1,161	1,145	1,171	1,228	1,115	1,090
Pennsylvania.....	16,178	1,158	1,237	1,378	1,424	1,452	1,205	1,412	1,365	1,342	1,490	1,312	1,403
Tennessee.....	'15,597	'1,224	'1,162	'1,211	'1,287	'1,239	'1,223	'1,279	'1,412	'1,412	'1,442	'1,382	'1,324
Texas .....	15,073	1,223	1,133	1,274	1,239	1,220	1,318	1,279	1,268	1,287	1,286	1,345	1,201
All other states .....	'78,137	'6,330	'5,957	'6,251	'6,675	'6,630	'6,387	'6,759	'6,642	'6,637	'6,976	'6,315	'6,578
<b>1996</b>													
<b>United States.....</b>	<b>397,776</b>	<b>31,570</b>	<b>32,285</b>	<b>32,201</b>	<b>31,227</b>	<b>33,203</b>	<b>30,636</b>	<b>33,909</b>	<b>35,579</b>	<b>34,645</b>	<b>37,495</b>	<b>33,056</b>	<b>31,970</b>
California and Hawaii .....	29,099	2,338	2,308	2,342	2,287	2,408	2,236	2,498	2,505	2,549	2,709	2,483	2,436
Florida .....	9,066	765	848	789	720	723	641	732	769	705	802	731	841
Georgia .....	(D)	(D)	(D)	(D)	(D)	653	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Illinois .....	18,841	1,397	1,541	1,567	1,459	1,579	1,335	1,553	1,762	1,646	1,889	1,634	1,479
Indiana .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Iowa .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Kansas .....	37,600	2,964	2,835	3,064	2,952	3,022	2,798	3,414	3,499	3,391	3,508	3,016	3,137
Michigan.....	7,894	611	660	670	654	710	615	608	706	689	793	616	562
Minnesota .....	34,266	2,703	2,887	2,878	2,681	2,745	2,655	2,947	3,010	3,027	3,136	2,800	2,797
Missouri .....	28,924	2,310	2,275	2,330	2,155	2,484	2,292	2,551	2,616	2,551	2,748	2,415	2,197
New York.....	29,192	2,353	2,365	2,312	2,229	2,534	2,370	2,599	2,604	2,630	2,712	2,253	2,231
North Carolina.....	11,715	928	921	911	936	1,001	952	1,073	1,079	986	1,117	956	855
Ohio .....	23,778	2,008	1,916	1,961	1,790	2,022	1,815	1,882	2,051	2,043	2,319	2,074	1,897
Oklahoma .....	9,341	747	780	705	743	768	745	844	849	859	854	743	704
Oregon and Washington...	14,048	1,175	1,099	1,124	1,110	1,240	1,129	1,227	1,264	1,232	1,301	1,115	1,032
Pennsylvania.....	14,658	1,058	1,364	1,172	1,134	1,234	1,002	1,265	1,306	1,272	1,422	1,247	1,182
Tennessee.....	15,537	1,318	1,336	1,296	1,188	1,311	1,193	1,252	1,364	1,318	1,361	1,282	1,318
Texas .....	15,484	1,261	1,284	1,274	1,242	1,259	1,239	1,248	1,366	1,310	1,397	1,281	1,323
All other states .....	72,841	5,634	5,919	5,880	5,967	6,046	5,709	5,923	6,446	6,144	6,956	6,232	5,985

D Withheld to avoid disclosing data for individual companies. 'Revised by 5 percent or more from previously published data.

Note: Detail may not add to total because of independent rounding.

**Table 6. Quantity of Wheat Ground for Flour by Geographic Area: 1997 and 1996**

[1,000 cwt sacks]

Geographic area	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1997</b>													
<b>United States.....</b>	<b>885,843</b>	<b>69,352</b>	<b>66,788</b>	<b>70,398</b>	<b>73,078</b>	<b>72,289</b>	<b>72,062</b>	<b>76,140</b>	<b>75,591</b>	<b>78,077</b>	<b>82,392</b>	<b>75,058</b>	<b>74,618</b>
California and Hawaii .....	66,783	5,347	5,095	5,335	5,409	5,471	5,424	5,665	5,457	5,924	6,289	5,613	5,754
Florida .....	20,629	1,828	1,501	1,710	1,749	1,733	1,531	1,780	1,671	1,803	1,890	1,594	1,839
Georgia .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Illinois .....	44,789	3,469	3,301	3,538	3,698	3,559	3,477	3,912	3,808	3,884	4,290	3,921	3,932
Indiana .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Iowa .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Kansas .....	85,809	<sup>1</sup> 6,714	6,524	7,325	6,918	6,823	6,947	7,148	7,526	7,798	7,943	7,380	6,763
Michigan.....	17,702	1,319	1,299	1,361	1,445	1,392	1,497	1,475	1,527	1,630	1,822	1,558	1,377
Minnesota .....	76,196	6,184	5,913	6,263	6,268	6,039	5,918	6,404	6,339	6,640	7,038	6,521	6,669
Missouri .....	<sup>1</sup> 60,558	<sup>1</sup> 4,613	<sup>1</sup> 4,374	<sup>1</sup> 4,591	<sup>1</sup> 5,062	<sup>1</sup> 4,785	<sup>1</sup> 4,881	5,318	<sup>1</sup> 5,296	<sup>1</sup> 5,319	5,803	<sup>1</sup> 5,287	5,229
New York.....	62,636	<sup>1</sup> 4,847	4,492	4,986	5,184	5,034	5,170	5,531	5,351	5,600	5,953	5,275	5,213
North Carolina.....	25,817	1,899	1,902	2,059	2,252	2,128	2,111	2,407	2,170	2,245	2,494	2,114	2,036
Ohio .....	53,192	4,069	4,018	3,557	4,250	4,204	4,409	4,586	4,626	4,971	5,370	4,670	4,462
Oklahoma .....	<sup>1</sup> 19,590	<sup>1</sup> 1,516	<sup>1</sup> 1,419	<sup>1</sup> 1,597	<sup>1</sup> 1,464	<sup>1</sup> 1,626	<sup>1</sup> 1,676	<sup>1</sup> 1,689	<sup>1</sup> 1,587	<sup>1</sup> 1,721	<sup>1</sup> 1,842	<sup>1</sup> 1,733	<sup>1</sup> 1,720
Oregon and Washington...	29,895	2,441	2,359	2,346	2,606	2,411	2,516	2,549	2,510	2,588	2,692	2,450	2,427
Pennsylvania.....	36,074	2,568	2,765	3,065	3,166	3,244	2,711	3,182	3,042	2,997	3,303	2,912	3,119
Tennessee.....	<sup>1</sup> 35,731	<sup>1</sup> 2,834	<sup>1</sup> 2,679	<sup>1</sup> 2,775	<sup>1</sup> 2,948	<sup>1</sup> 2,845	<sup>1</sup> 2,792	<sup>1</sup> 2,953	<sup>1</sup> 3,249	<sup>1</sup> 3,246	<sup>1</sup> 3,310	<sup>1</sup> 3,117	<sup>1</sup> 2,983
Texas .....	33,510	2,651	2,584	2,778	2,715	2,713	2,852	2,782	2,867	2,919	2,897	3,033	2,719
All other states .....	160,386	12,629	12,276	12,615	<sup>1</sup> 13,416	13,669	13,457	14,030	13,606	13,749	14,342	12,947	13,650
<b>1996</b>													
<b>United States.....</b>	<b>878,070</b>	<b>70,180</b>	<b>72,373</b>	<b>72,124</b>	<b>69,391</b>	<b>72,605</b>	<b>67,655</b>	<b>73,619</b>	<b>77,406</b>	<b>75,099</b>	<b>82,670</b>	<b>73,694</b>	<b>71,326</b>
California and Hawaii .....	64,334	5,214	5,186	5,188	5,058	5,306	4,941	5,485	5,487	5,558	6,010	5,451	5,450
Florida .....	20,429	1,718	1,940	1,786	1,623	1,629	1,470	1,654	1,731	1,596	1,832	1,600	1,850
Georgia .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Illinois .....	42,591	3,167	3,521	3,594	3,308	3,517	3,039	3,415	3,954	3,655	4,281	3,738	3,402
Indiana .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Iowa .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Kansas .....	83,538	6,664	6,432	6,851	6,645	6,670	6,218	7,456	7,623	7,308	7,791	6,804	7,076
Michigan.....	17,618	1,347	1,448	1,479	1,444	1,607	1,351	1,359	1,585	1,549	1,789	1,398	1,262
Minnesota .....	75,248	5,894	6,406	6,406	5,920	5,920	5,835	6,434	6,606	6,564	6,862	6,231	6,170
Missouri .....	63,268	5,092	5,069	5,187	4,769	5,282	4,908	5,369	5,539	5,333	6,139	5,577	5,004
New York.....	63,122	4,935	5,152	5,109	4,739	5,277	5,191	5,563	5,578	5,566	5,934	5,074	5,004
North Carolina.....	25,179	2,045	2,050	2,023	2,040	2,106	2,014	2,160	2,241	2,114	2,443	2,045	1,898
Ohio .....	53,379	4,585	4,334	4,460	3,999	4,565	3,988	4,128	4,546	4,549	5,198	4,712	4,315
Oklahoma .....	21,327	1,722	1,817	1,638	1,739	1,703	1,669	1,851	1,838	1,876	1,991	1,787	1,696
Oregon and Washington...	31,021	2,614	2,494	2,538	2,480	2,654	2,446	2,596	2,681	2,626	2,899	2,598	2,395
Pennsylvania.....	34,497	2,503	3,192	2,756	2,650	2,855	2,731	2,931	3,033	2,932	3,259	2,893	2,762
Tennessee.....	36,085	3,111	3,117	2,985	2,797	3,046	2,786	2,908	3,156	3,046	3,027	3,021	3,085
Texas .....	35,027	2,916	2,971	3,022	2,843	2,847	2,814	2,856	3,049	2,916	3,133	2,784	2,876
All other states .....	154,132	12,100	12,659	12,608	12,724	12,928	12,004	12,532	13,534	12,968	14,619	13,030	12,498

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 7. Production and Mill Stocks of Wheat Flour by Quarter: 1997 and 1996**

[1,000 cwt sacks]

Quarter	Production	Mill stocks <sup>1</sup>
<b>1997</b>		
<b>Total</b> .....	<b>404,143</b>	<b>'6,343</b>
First quarter .....	93,768	'6,040
Second quarter .....	99,558	'5,820
Third quarter .....	104,698	'6,330
Fourth quarter .....	106,119	'6,343
<b>1996</b>		
<b>Total</b> .....	<b>397,776</b>	<b>6,671</b>
First quarter .....	96,056	6,927
Second quarter .....	95,066	6,400
Third quarter .....	104,133	6,350
Fourth quarter .....	102,521	6,671

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Total represents end-of-month's stocks for fourth quarter.

**Table 8. Durum Wheat Products by Month: 1997 and 1996**

Product description	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1997</b>													
Durum wheat ground.....	64,663	5,761	5,732	4,724	5,441	4,959	5,177	5,155	5,156	5,445	5,763	5,742	5,608
Straight semolina.....	'29,47	2,701	2,641	2,168	2,492	'2,272	'2,361	'2,395	'2,379	'2,492	'2,666	'2,492	'2,417
Blended semolina.....	(D)	-	-	-	-	-	-	-	(D)	-	(D)	-	(D)
<b>1996</b>													
Durum wheat ground.....	70,069	5,755	6,513	6,448	5,503	5,976	5,473	5,183	5,688	5,791	6,599	5,689	5,451
Straight semolina.....	32,623	2,621	2,956	2,928	2,547	2,734	2,589	2,496	2,674	2,701	3,120	2,682	2,575
Blended semolina.....	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

D Withheld to avoid disclosing data for individual companies.

'Revised by 5 percent or more from previously published data.

**HISTORICAL NOTE**

The current M20A series of monthly reports, with annual summaries of wheat ground and wheat milling products, originated in May 1923. Data, by states, have been published monthly since 1927. Beginning in 1931 and ending with the June 1947 report, monthly wheat flour production by capacity groups was published. The annual summary report during the years 1931 to 1964 also contained a table showing production by capacity groups. Historical data may be obtained from the Current Industrial Reports (called Facts for Industry before 1959)

available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

Since 1990, part of the cost of this survey has been paid by "Milling and Baking News" published by Sosland Publishing Company.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Venita Powell, 301-457-1320.

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## CONFECTIONERY (MA20D)

### INTRODUCTION

The data on confectionery are from a survey that covers all manufacturers in the United States producing consumer type confectionery and chocolate products. Manufacturers of cough drops, medicated candy, roasted peanuts, unsweetened popcorn, and fountain syrup are excluded from the survey. Small firms that manufacture confectionery for sale at retail on the premises are classified in retail trade and are also excluded from this survey. Data for chewing gum were included for the first time in the 1993 survey, but were excluded from all data prior to that time.

Table 9 summarizes the quantity and value of manufacturers' shipments of total confectionery products over the last decade. It also shows the average quantity and value of confectionery consumed, on a per capita basis, in the United States. Table 10 shows the quantity and value of shipments of confectionery and nonconfectionery by the type of product. Table 11 shows the quantity and value of the materials that were consumed in the manufacturing process. Apparent consumption figures are derived in table 12 by subtracting the exports from the total manufacturers' shipments plus the imports.

### SUMMARY OF FINDINGS

Total quantity of shipments of confectionery products (excluding chewing gum, bubble gum, and chewing gum base) for 1997 was 6,451.3 million pounds, compared to 6,364.6 million pounds in 1996, an increase of 1.4 percent. Total value of shipments of confectionery products (excluding chewing gum, bubble gum, and chewing gum base) for 1997 was \$13,166.5 million compared to \$12,211.2 million in 1996, an increase of 7.8 percent.

The quantity of chocolate and chocolate-type confectionery shipped increased 0.8 percent, while the quantity of nonchocolate-type confectionery increased by 2.0 percent. The value of chocolate-type confectionery shipped increased 7.0 percent, while the value of nonchocolate-type confectionery increased 9.6 percent.

### EXPLANATION OF TERMS

**Chocolate type products.** Products that contain, as an ingredient, either real chocolate or a chocolate compound containing substitute raw material ingredients such as cocoa butter extenders. Products that include a mixture of chocolate type and nonchocolate type pieces (such as certain boxed assortments) are included in chocolate type assortments.

**Solid.** Includes hollow molded and contains no additional foods of any kind. Examples are chocolate stars, Easter bunnies, hollow chocolate Santas, and solid chocolate candy bars.

**Solid with inclusions.** Solid chocolate mixed with other foods such as dried fruits, nuts, and rice.

**Enrobed or molded with bakery product center.** Molded or enrobed chocolate exterior with a baked cookie or wafer center. May or may not have additional confectionery layers or ingredients.

**Enrobed or molded with candy, nuts, or fruit center.** Examples are chocolate covered cherries, and candy bars covered in chocolate with centers of nougat, caramel, and peanuts.

**Panned.** Products manufactured using the panning process. Examples are bridge mix, sugar panned chocolate centers, chocolate covered nuts, and dried fruit made by the panning process.

**Assortments and others.** Products comprising an assortment of two or more of the above subcategories, and/or products that do not fall into any of the above subcategories. Examples are packages or boxes containing combinations of product types.

**Nonchocolate type products.** All other confectionery products that do not contain either real chocolate or chocolate compound as an ingredient.

**Hard candy.** Comprising a sugar mass that is processed to be nongrained, a sugar mass that is grained through serration, and brittles that frequently contain nuts. Examples are pops, lemon drops, pressed mints, dessert mints, candy canes, and sour balls.

**Chewy candy.** Comprising a plastic-textured grained or nongrained caramel that is sometimes mixed with corn or other foods, toffee that is less plastic than caramel, taffies that vary from hard chewy to soft chewy, and grained and nongrained nougats. Examples are caramel covered popcorn and caramels.

**Soft candy.** Comprising crystallized and noncrystallized creams, fudges, grained and nongrained marshmallows, soft jellies, and gums. Examples are candy corn and orange slices.

**Iced coated.** Enrobed, formed, or deposited nonchocolate confectioner's coated candies. Examples are bark, "white chocolate," and coconut bonbons.

**Panned.** Products manufactured using the panning process. Examples are jelly beans and Boston baked beans.

**Licorice and licorice-type.** Sugar and starch based (products) flavored with licorice extract and colored black. Other flavors and colors may be substituted in licorice-type. Examples are licorice twists, licorice shoelaces, and nuggets.



**Other chocolate products.** Comprised of coatings, both chocolate and compound, including baking chocolate sold in bars and chips through retail outlets; chocolate chips and other chocolate coatings sold to bakers, ice cream manufacturers, biscuit and cracker manufacturers, and other outlets; chocolate liquor, cocoa butter melted, and cocoa cake and powder.

**Chewing gum.** An emulsion consisting of a polymer base, bulk fillers, and flavors. Includes chewing gum, bubble gum, and chewing gum base.

**Milk products.** Includes all milk products such as fluid milk and cream; condensed, evaporated, and dried milk; and creamery butter.

**Fats and oils.** Includes margarine, hydrogenated shortenings, corn, cottonseed, coconut, soybean and peanut oils, etc; excludes slab oils.

**Table 9. Summary of Manufacturers' Shipments of Confectionery Products: 1986 to 1997**

[Quantity in millions of pounds. Value in millions of dollars]

Year	Total				Excluding chewing gum			
	Pounds	Value	Per capita consumption <sup>1</sup> (pounds)	Per capita consumption <sup>1</sup> (dollars)	Pounds	Value	Per capita consumption <sup>1</sup> (pounds)	Per capita consumption <sup>1</sup> (dollars)
1997.....	6,881	14,539	26.7	55.2	6,451	13,166	24.9	49.9
1996.....	6,813	13,635	<sup>1</sup> 26.5	<sup>1</sup> 52.0	6,365	12,211	<sup>1</sup> 24.6	<sup>1</sup> 46.6
1995.....	6,572	12,918	25.7	50.0	6,065	11,535	23.8	44.7
1994.....	6,253	12,208	24.5	47.1	5,750	10,837	22.5	41.8
1993.....	5,988	11,894	23.6	46.4	5,572	10,670	21.9	41.5
1992.....	(NA)	(NA)	(NA)	(NA)	5,387	10,428	21.5	41.1
1991.....	(NA)	(NA)	(NA)	(NA)	4,989	9,710	20.3	38.9
1990.....	(NA)	(NA)	(NA)	(NA)	4,840	9,004	20.1	36.7
1989.....	(NA)	(NA)	(NA)	(NA)	4,852	8,682	20.4	35.8
1988.....	(NA)	(NA)	(NA)	(NA)	4,570	8,278	19.2	34.4
1987.....	(NA)	(NA)	(NA)	(NA)	4,231	7,678	18.3	32.3
1986.....	(NA)	(NA)	(NA)	(NA)	4,201	7,280	18.4	31.3

NA Not applicable. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Production plus imports minus exports divided by population, including armed forces abroad, as of July 1, 1997.

Source of population data: U.S. Census Bureau, U.S. Population Estimates, Series PPL-41 (July 1, 1997, population was 267,901,000).

**Table 10. Quantity and Value of Shipments of Confectionery and Nonconfectionery by Type of Product: 1997 and 1996**

[Quantity in thousands of pounds. Value in thousands of dollars]

Product description	1997		1996	
	Quantity	Value	Quantity	Value
<b>CONFECTIONERY</b>				
<b>Shipments</b> .....	<b>6,881,499</b>	<b>14,538,682</b>	<b>6,813,176</b>	<b>13,635,404</b>
Chocolate and chocolate-type confectionery .....	3,124,631	8,096,810	3,100,045	7,573,407
Solid .....	402,640	914,806	434,069	909,624
Solid with inclusions .....	280,052	811,809	276,688	730,198
Enrobed or molded:				
With candy, fruit, nut, or granola center .....	1,336,282	3,417,912	1,324,298	3,253,508
With bakery product center .....	197,731	495,153	214,677	517,684
Panned .....	573,101	1,330,095	549,919	1,218,466
Assortments and other .....	334,825	1,127,035	300,394	943,927
Chocolate type, n.s.k. ....	-	-	-	-
Nonchocolate-type confectionery .....	3,107,769	4,632,588	3,047,849	4,225,468
Hard candy .....	761,414	1,241,544	766,743	1,224,548
Chewy candy, including granola bars .....	799,197	1,469,544	625,328	1,106,809
Soft candy .....	806,195	861,925	843,416	825,672
Iced/Coated .....	17,091	37,587	10,633	23,805
Panned .....	485,343	750,586	545,222	751,158
Licorice and licorice type .....	238,529	271,402	256,507	293,476
Nonchocolate type, n.s.k. ....	-	-	-	-
Chewing gum, bubble gum, and chewing gum base .....	430,236	1,372,226	(S)	1,424,210
Confectionery, n.s.k. <sup>1</sup> .....	218,863	437,058	216,696	412,319
<b>NONCONFECTIONERY</b>				
<b>Shipments</b> .....	<b>1,491,904</b>	<b>1,499,403</b>	<b>1,476,313</b>	<b>1,425,351</b>
Chocolate products other than confectionery:				
Baking chocolate (bars or blocks) .....	13,091	21,506	16,240	21,508
Chocolate coatings (blocks, wafers, liquid) .....	339,892	400,230	308,646	329,543
Chocolate liquor .....	61,507	71,498	49,573	53,635
Cocoa butter .....	18,253	26,586	22,359	35,136
Compound coatings (blocks, wafers, liquid) .....	201,753	154,384	192,167	134,307
Chocolate chips and baking pieces .....	344,288	452,086	370,149	474,025
Cocoa powder, syrup/toppings, and other .....	513,120	373,113	517,179	377,197
Nonconfectionery chocolate, n.s.k. ....	-	-	-	-

- Represents zero. n.s.k. Not specified by kind. <sup>1</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards.  
<sup>1</sup>Represents estimated data for small companies, typically those with fewer than five employees, that were not included on the mailing panel.

**Table 11. Consumption of Selected Ingredients by the U.S. Confectionery Industry: 1997 and 1996**

[Quantity in thousands of pounds. Value in thousands of dollars]

Materials	1997		1996	
	Quantity	Value	Quantity	Value
<b>Materials consumed</b> .....	<b>(X)</b>	<b>3,884,908</b>	<b>(X)</b>	<b>3,663,937</b>
Sugar (cane-beet) .....	2,820,707	842,031	2,924,910	759,467
Cocoa beans .....	595,344	432,362	535,244	372,653
Corn syrup, including HFCS and dextrose .....	1,840,324	228,261	1,825,364	227,606
Chocolate liquor, imported .....	26,711	21,088	32,895	30,133
Chocolate liquor, domestic .....	46,779	48,168	35,355	36,421
Cocoa powder composition coatings .....	31,721	20,893	41,701	20,893
Cocoa cake or powder .....	128,536	47,335	133,632	50,236
Cocoa butter .....	365,484	417,409	339,684	357,953
Chocolate coatings, milk .....	239,809	260,231	218,297	238,137
Chocolate coatings, other than milk .....	93,710	89,402	104,734	103,136
Fats and oils .....	269,280	133,451	247,868	124,104
Gum base .....	61,152	73,779	(D)	(D)
Milk and milk products .....	551,312	371,726	503,398	374,604
Peanuts, shelled basis .....	339,683	225,622	344,931	226,993
Almond kernels .....	40,150	96,424	44,081	109,614
Other nuts and nut meats (kernels) .....	18,088	51,115	18,719	48,439
Coconut meat .....	19,589	18,124	20,606	14,760
Other edible materials <sup>1</sup> .....	689,362	506,625	755,136	493,079
Materials, n.s.k. ....	(X)	862	(X)	(D)

D Withheld to avoid disclosing data for individual companies. n.s.k. Not specified by kind. <sup>1</sup>Revised by 5 percent or more from previously published data.  
 X Not applicable.

<sup>1</sup>Includes corn starch, essential oils, eggs and egg products, fruits, jams, and other materials on which specific data were not collected.

Note: Materials such as parts and containers consumed in the manufacturing process are not reported in this survey. This information will be available in the 1992 Census of Manufactures report for industries 2064 and 2066. Specifically excluded in this report are freight charges and other direct charges incurred by the establishment, fuels consumed, parts, containers, scrap, electric energy purchases, work done by others on materials or parts furnished by other establishments (contract work), and cost of products bought and resold in the same condition.

**Table 12. Shipments, Exports, Imports, and Apparent Consumption of Confectionery Products: 1997 and 1996**

[Quantity in thousands of kilograms. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>2</sup>		Percent exports to manufacturers' shipments		Imports for consumption <sup>3</sup>		Apparent consumption <sup>5</sup>		Percent imports to apparent consumption	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value <sup>4</sup>	Quantity	Value	Quantity	Value
20642, 20662	Confectionery: Chocolate-type confectionery . . . . .	1,417,333	8,096,810	85,456	297,744	6.0	3.7	87,798	341,605	1,419,675	8,140,671	6.2	4.2
	1996 . . . . .	1,406,180	7,573,407	78,400	270,576	5.6	3.6	79,927	300,127	1,407,707	7,602,958	5.7	3.9
20643	Nonchocolate-type confectionery . . . . .	1,409,684	4,632,588	82,973	227,792	5.9	4.9	177,119	388,887	1,503,830	4,793,683	11.8	8.1
	1996 . . . . .	1,382,504	4,225,468	70,135	185,702	5.1	4.4	157,783	350,229	1,470,152	4,389,995	10.7	8.0
20648	Chewing gum, sugar, and nonsugar . . . . .	195,155	1,372,226	20,185	65,592	10.3	4.8	41,081	97,732	216,051	1,404,366	19.0	7.0
	1996 . . . . .	(S)	1,424,210	15,487	50,939	(S)	3.6	38,883	79,711	(S)	1,452,982	(S)	5.5
20669 81	Nonconfectionery: Cocoa butter . . . . .	8,280	26,586	3,886	15,590	46.9	58.6	87,689	349,511	92,083	360,507	95.2	96.9
	1996 . . . . .	10,142	35,136	2,861	11,310	28.2	32.2	68,762	257,629	76,043	281,455	90.4	91.5
20661 11, 21	Chocolate coatings, blocks, wafers, or liquid confectionery . . . . .	245,690	554,614	2,757	3,619	1.1	0.7	7,932	11,740	250,865	562,735	3.2	2.1
	1996 . . . . .	227,168	463,850	2,276	2,140	1.0	0.5	6,602	10,536	231,494	472,246	2.9	2.2
20661 14, 20669 12, 13, 61	Other chocolate and cocoa products . . . . .	422,758	918,203	50,497	114,242	11.9	12.4	241,227	340,966	613,488	1,144,927	39.3	29.8
	1996 . . . . .	432,344	936,365	53,816	115,202	12.4	12.3	211,983	287,968	590,511	1,109,131	35.9	26.0

S Does not meet publication standards.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption*.

<sup>4</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>5</sup>Apparent consumption is derived by subtracting exports from the total manufacturers' shipments plus imports.

Note: "Confectionery, n.s.k." is excluded from this table.

**HISTORICAL NOTE**

Data on confectionery products have been collected by the Census Bureau since 1926. In 1989, data tables showing the quantity and value of shipments of chocolate and nonchocolate-type confectionery, by type of product and package, were discontinued. Also discontinued in 1989 were data showing the sales and resales of confectionery by type of customer.

Starting with the 1990 report, data showing the quantity and value of shipments by type of product of other chocolate products (nonconfectionery) were added. Starting with the 1993 report, data for chewing gum were added.

Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

Since 1990, this survey has been conducted under the sponsorship of the National Confectioners Association and the Chocolate Manufacturers Association.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Nat Shelton, 301-457-4643.

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## FATS AND OILS—OILSEED CRUSHINGS (M20J)

### INTRODUCTION

Data on the fats and oilseed crushings were collected by mail on Census Bureau monthly form M20J, Oilseeds, Beans, and Nuts (Primary Processors) from a sample of about 183 establishments. Approximately 168 of these establishments are included in the monthly panel. An additional 15 small crushers report data annually. Monthly data for these small crushers are estimated based on their annual reports and trends reported by those in the monthly panel.

Statistics from the M20J forms show the amount of selected raw materials crushed along with the production and stocks of the byproducts extracted (crude oil and cake and meal) during the crushing process. The crushing facilities are referred to as the Primary Processors. The data are published monthly. Data on soybeans and cottonseeds are shown for selected states.

### SUMMARY OF FINDINGS

For the 1997 calendar year, soybean crushings were 44,571.2 thousand short tons. This showed an increase of 6.7 percent, from the 1996 figure of 41,763.8 thousand short tons. The production of crude soybean oil was 16,308.8 million pounds. This showed an increase of 5.6 percent from the 1996 figure of 15,447.6 million pounds for crude oil.

At the same time, cottonseed crushings were 3,875.2 thousand short tons. This represented a 2.5-percent increase from the 1996 figure of 3,779.5 thousand

pounds. The production of crude cottonseed oil was 1,224.0 million pounds. This represented a 0.3-percent increase from the 1996 figure of 1,219.8 million pounds for crude cottonseed oil.

The production of crude corn oil was 2,253.9 million pounds. This represented a 3-percent increase from the 1996 figure of 2,187.5 million pounds for crude corn oil.

### EXPLANATION OF TERMS

**Net receipts at mills (current month).** Figures under this heading are derived by subtracting stocks held at the end of the previous month from the sum of materials crushed during the current month and stocks held at the end of the current month.

**Shipments and transfers (current month).** Figures under this heading are derived by subtracting stocks held at the end of the current month from the sum of stocks held at the end of the previous month and production during the current month.

**Linters.** The fuzz or short fibers that adhere to cottonseed after ginning.

**Hulls.** The outer covering of cottonseeds or soybeans.

**Cake and meal.** The residue left after the oil is extracted from a seed, nut, or kernel.

**Crude vegetable oils.** Oil until it has been processed by an alkali or caustic wash or by some equivalent operation.

**Lecithin.** A mixed phosphatide product obtained from soybean oil in the degumming process.

**Table 13. Receipts, Crushings, and Stocks of Major Raw Materials at Oil Mills: 1997**

[Thousands of short tons]

Product code	Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
00116 11	Soybeans: Receipts at mills .....	44,698.0	<sup>r</sup> 4,171.0	4,220.7	6,947.7	3,587.2	2,651.9	2,573.5	2,840.3	2,988.9	2,975.5	3,383.3	4,042.2	4,315.8
	Crushed or used .....	44,571.2	4,591.8	4,283.8	4,266.4	3,324.3	3,113.2	3,182.9	3,266.7	3,321.4	3,445.4	3,902.7	3,754.0	4,118.6
	Stocks <sup>1</sup> .....	3,308.1	<sup>r</sup> 3,308.1	3,728.9	3,792.0	1,110.7	847.8	1,309.1	1,918.5	2,344.9	2,677.4	3,147.3	3,666.7	3,378.5
00131 01	Cottonseed: Receipts at mills .....	3,803.2	576.2	1,396.0	1,243.6	165.6	74.9	(54.4)	(31.8)	<sup>r</sup> (13.1)	42.7	61.9	116.9	224.7
	Crushed or used .....	3,875.2	381.3	374.5	329.7	178.6	244.4	294.0	280.8	351.3	334.4	362.2	362.8	381.2
	Stocks <sup>1</sup> .....	2,470.6	2,470.6	2,275.7	1,254.2	340.3	353.3	522.8	871.2	1,183.8	1,548.2	1,839.9	2,140.2	2,386.1
00139 23	Peanuts: Receipts at mills .....	199.5	18.1	13.7	16.6	3.0	7.1	13.9	24.7	21.1	21.7	16.9	21.7	21.0
	Crushed or used .....	211.8	17.2	14.0	16.4	8.6	15.2	13.4	19.0	16.3	24.7	23.7	19.1	24.2
	Stocks <sup>1</sup> .....	4.1	4.1	(D)	3.6	3.4	9.0	17.0	16.5	10.8	6.1	(D)	(D)	(D)
00119 11	Linseed: Receipts at mills .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Crushed or used .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
00119 22	Sunflower: Receipts at mills .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Crushed or used .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
00119 33	Safflower: Receipts at mills .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Crushed or used .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
00119 18	Rapeseed: Receipts at mills .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Crushed or used .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>r</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Calculated at end of the period.

**Table 14. Production and Stocks of Major Crude Vegetable Oils at Mills: 1997**

[Millions of pounds]

Product code	Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
20751 11	Soybean:													
	Production . . .	16,308.8	1,689.3	1,579.9	1,590.6	1,230.8	1,141.3	1,175.9	1,195.7	1,216.1	1,253.7	1,412.6	1,348.4	1,474.5
	Stocks <sup>1</sup> . . . . .	863.6	863.6	841.0	798.7	813.9	915.2	1,043.2	1,087.1	1,074.5	1,074.4	1,107.3	1,075.8	1,045.1
20741 11	Cottonseed:													
	Production . . .	1,224.0	119.6	120.3	97.8	66.0	80.6	85.9	86.9	109.8	103.7	114.7	114.8	123.9
	Stocks <sup>1</sup> . . . . .	20.4	20.4	21.3	16.6	18.5	17.9	18.2	18.4	19.5	22.0	23.1	28.0	23.7
20762 52	Peanut:													
	Production . . .	167.8	14.0	11.6	12.2	6.1	12.0	9.9	16.0	13.3	17.9	18.8	16.1	19.9
	Stocks <sup>1</sup> . . . . .	7.0	7.0	6.7	7.7	17.8	21.3	22.6	22.2	21.9	28.5	29.5	28.4	32.2
20460 61	Corn:													
	Production . . .	2,253.9	202.0	207.5	199.2	182.2	180.6	174.0	184.3	182.5	188.3	209.9	170.9	172.5
	Stocks <sup>1</sup> . . . . .	34.6	34.6	38.6	42.2	34.1	37.6	44.7	47.4	45.2	43.2	41.6	38.8	32.9
20761 11	Linseed:													
	Production . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20762 35	Sunflower:													
	Production . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20762 99	Safflower:													
	Production . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20762 71	Rapeseed:													
	Production . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Calculated at end of the period.



Table 16. **Crushings and Stocks of Cottonseed (00131 11) at Oil Mills by Selected States: 1997**

[Thousands of short tons]

State	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>United States:</b>													
Receipts at mills...	4,337.5	590.2	1,405.2	1,326.9	172.5	129.7	47.6	44.9	84.4	69.5	113.7	148.6	204.3
Crused or used...	3,875.2	381.3	374.5	329.7	178.6	244.4	294.0	280.8	351.3	334.4	362.2	362.8	381.2
Stocks <sup>1</sup> .....	2,470.6	2,470.6	2,275.7	1,254.2	340.3	353.3	522.8	871.2	1,183.8	1,548.2	1,839.8	2,140.2	2,386.1
<b>Arkansas:</b>													
Crushed or used.....	519.1	45.8	48.1	(D)	(D)	32.5	50.5	46.7	43.0	47.9	50.2	44.8	49.0
Stocks <sup>1</sup> .....	317.7	317.7	317.1	(D)	14.8	(D)	71.8	128.1	181.4	236.9	282.2	316.4	344.1
<b>Pacific and Mountain states:</b>													
Crushed or used.....	290.5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	213.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	90.0	119.2	150.4	193.3	219.9
<b>Mississippi:</b>													
Crushed or used.....	645.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	275.3	(D)	(D)	(D)	(D)	(D)	46.7	74.3	111.0	156.4	195.2	223.8	251.1
<b>Texas:</b>													
Crushed or used.....	1,387.1	155.1	143.3	105.1	(D)	104.1	98.0	101.0	110.9	107.5	119.6	124.2	138.9
Stocks <sup>1</sup> .....	1,021.1	1,021.1	839.4	411.4	245.8	193.6	(D)	(D)	523.2	656.5	780.1	910.9	1,013.1

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Calculated at the end of period.



**Table 17. Production and Stocks at Oil Mills by Selected States: 1997**

[Thousands of short tons]

State	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>COTTONSEED CRUDE OIL (20741 00)</b>													
<b>United States:</b>													
Production .....	1,224.0	119.6	120.3	97.8	66.0	80.6	85.9	86.9	109.8	103.7	114.7	114.8	123.9
Stocks <sup>1</sup> .....	20.4	20.4	21.3	16.6	18.5	17.9	18.2	18.4	19.5	22.0	23.1	28.0	23.7
<b>Arkansas:</b>													
Production .....	151.0	13.6	14.4	12.7	(D)	9.4	14.7	13.6	12.6	14.0	14.7	13.1	14.4
Stocks <sup>1</sup> .....	2.0	(D)	(D)	2.5	1.1	2.0	2.9	1.9	1.4	2.8	(D)	3.4	(D)
<b>California:</b>													
Production .....	75.2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	5.9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Mississippi:</b>													
Production .....	186.6	16.0	16.2	18.4	(D)	(D)	16.4	14.5	16.3	15.4	17.6	15.6	16.5
Stocks <sup>1</sup> .....	1.8	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Texas:</b>													
Production .....	(D)	49.6	46.4	30.8	(D)	34.4	29.0	32.9	37.0	34.9	42.4	43.4	50.4
Stocks <sup>1</sup> .....	6.3	6.3	5.7	5.4	9.8	6.1	3.3	5.4	3.9	5.2	6.5	11.3	9.9
<b>COTTONSEED CAKE AND MEAL (20744 14)</b>													
<b>United States:</b>													
Production .....	1,781.0	178.2	168.7	147.8	92.1	128.2	123.2	128.6	160.7	152.2	162.1	164.6	174.6
Stocks <sup>1</sup> .....	37.3	37.3	42.0	24.4	26.0	62.7	64.9	85.6	82.1	49.6	43.5	37.4	27.5
<b>Arkansas:</b>													
Production .....	(D)	21.2	21.5	23.1	(D)	14.0	21.6	20.1	19.7	21.0	22.9	20.6	21.7
Stocks <sup>1</sup> .....	2.3	(D)	5.7	(D)	(D)	(D)	(D)	6.0	6.1	4.3	5.5	2.9	2.9
<b>California:</b>													
Production .....	106.8	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	3.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Mississippi:</b>													
Production .....	288.9	24.5	24.3	27.1	(D)	(D)	24.9	21.7	24.9	23.3	27.5	23.6	26.0
Stocks <sup>1</sup> .....	1.9	1.9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.1
<b>Texas:</b>													
Production .....	(D)	73.7	65.3	47.4	(D)	52.7	38.9	47.4	51.3	49.3	52.6	57.2	64.0
Stocks <sup>1</sup> .....	8.6	8.6	10.5	8.0	11.3	21.6	19.2	22.5	17.2	8.7	9.0	10.5	7.1
<b>COTTONSEED HULLS (20744 51)</b>													
<b>United States:</b>													
Production .....	1,089.9	105.0	103.8	87.4	62.4	73.6	84.3	76.2	95.3	93.7	102.8	101.1	104.3
Stocks <sup>1</sup> .....	37.8	37.8	34.9	19.1	20.5	22.4	27.7	32.1	35.5	29.4	27.5	24.2	24.4
<b>Arkansas:</b>													
Production .....	(D)	11.8	13.0	11.6	(D)	9.6	14.2	13.1	11.4	13.4	13.0	11.6	13.1
Stocks <sup>1</sup> .....	2.9	2.9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.3	(D)	2.9	2.5
<b>California:</b>													
Production .....	46.6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	4.7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Mississippi:</b>													
Production .....	188.0	17.1	17.2	16.3	(D)	(D)	18.4	12.7	16.5	14.9	17.9	14.6	16.3
Stocks <sup>1</sup> .....	3.7	(D)	3.2	1.7	(D)	(D)	(D)	3.6	4.8	1.9	1.9	1.0	0.7
<b>Texas:</b>													
Production .....	(D)	42.1	38.5	29.0	(D)	29.1	28.1	29.2	29.6	30.4	34.7	37.0	37.8
Stocks <sup>1</sup> .....	11.8	11.8	10.1	5.1	7.8	4.7	1.9	3.2	8.1	9.2	8.7	8.3	8.5

See footnotes at end of table.

Table 17. **Production and Stocks at Oil Mills by Selected States: 1997**

[Thousands of short tons]

State	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>COTTONSEED LINTERS FIRST CUT (20743 13), SECOND CUT (20743 15), AND MILL RUN (20743 17)<sup>2</sup></b>													
<b>United States:</b>													
Production .....	1,012.7	100.0	99.4	(D)	(D)	(D)	(D)	72.2	90.9	86.7	(D)	(D)	104.0
Stocks <sup>1</sup> .....	40.6	40.6	44.7	18.1	28.9	37.1	(D)	43.0	50.6	53.9	68.3	70.9	67.4
<b>Arkansas:</b>													
Production .....	95.7	8.4	8.5	8.4	(D)	(D)	(D)	8.5	8.0	9.1	9.8	8.6	9.3
Stocks <sup>1</sup> .....	(D)	(D)	(D)	0.1	(D)	(D)	(D)	(D)	7.7	9.5	10.4	11.4	9.7
<b>California:</b>													
Production .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Mississippi:</b>													
Production .....	120.1	10.0	9.8	11.4	7.0	(D)	(D)	(D)	10.3	9.8	11.2	10.0	11.0
Stocks <sup>1</sup> .....	1.6	1.6	1.4	1.1	(D)	(D)	(D)	(D)	2.4	2.4	2.9	2.4	(D)
<b>Texas:</b>													
Production .....	216.1	24.4	23.7	16.2	18.2	14.8	14.4	15.0	16.3	15.2	16.8	18.9	22.2
Stocks <sup>1</sup> .....	9.0	9.0	9.6	5.0	3.7	5.3	(D)	(D)	6.3	6.0	8.3	8.7	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Calculated at the end of period.

<sup>2</sup>Thousands of bales: Linter bales vary in weight according to kind of cut: First cut, 626 lb; second cut, 635 lb; and mill run, 622 lb.

**Table 18. Net Receipts, Crushings, and Stocks of Soybeans (001161 11) at Oil Mills by Selected States: 1997**

[Thousands of short tons]

State	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>United States:</b>													
Receipts at mills . . . . .	44,961.1	4,434.0	4,220.7	6,947.7	3,587.2	2,652.0	2,573.5	2,840.3	2,988.8	2,975.5	3,383.4	4,042.2	4,315.8
Crushed or used . . . . .	44,571.2	4,591.8	4,283.8	4,266.4	3,324.3	3,113.2	3,182.9	3,266.7	3,321.4	3,445.4	3,902.7	3,754.0	4,118.6
Stocks <sup>1</sup> . . . . .	3,308.1	3,308.1	3,728.9	3,792.0	1,110.7	847.8	1,309.1	1,918.5	2,344.9	2,677.4	3,147.3	3,666.7	3,378.5
<b>Arkansas:</b>													
Receipts at mills . . . . .	1,511.4	153.3	(D)	(D)	69.5	63.9	68.0	(D)	123.8	105.7	120.3	127.7	(D)
Crushed or used . . . . .	(D)	161.9	147.0	148.1	107.3	114.1	108.5	(D)	120.8	105.1	151.4	142.0	158.3
Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	11.5	(D)	(D)	(D)	(D)	(D)	167.9	199.0	213.2
<b>Georgia:</b>													
Receipts at mills . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Crushed or used . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Illinois:</b>													
Receipts at mills . . . . .	7,535.5	661.4	539.5	1,324.1	668.2	445.2	432.4	430.4	433.8	438.0	583.1	722.8	856.7
Crushed or used . . . . .	7,570.5	811.2	751.2	782.8	608.3	453.0	551.6	534.7	518.7	536.5	666.3	647.4	708.9
Stocks <sup>1</sup> . . . . .	406.9	406.9	556.7	768.3	227.1	167.1	174.9	294.2	398.5	483.4	581.8	665.1	589.6
<b>Indiana:</b>													
Receipts at mills . . . . .	3,356.3	317.9	327.9	761.8	330.0	126.6	184.4	223.7	235.1	133.8	109.8	338.7	266.8
Crushed or used . . . . .	3,240.7	373.0	340.1	320.7	256.4	157.9	224.3	239.6	268.8	262.8	266.3	258.3	272.5
Stocks <sup>1</sup> . . . . .	507.2	507.2	562.2	(D)	(D)	(D)	91.2	131.1	147.0	180.7	309.7	466.2	385.8
<b>Iowa:</b>													
Receipts at mills . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Crushed or used . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Kansas:</b>													
Receipts at mills . . . . .	1,773.1	(D)	130.7	260.4	(D)	131.0	117.2	105.0	(D)	(D)	(D)	155.9	167.7
Crushed or used . . . . .	1,845.6	190.9	179.9	163.6	92.6	149.8	133.0	139.9	152.5	153.9	159.9	157.1	172.6
Stocks <sup>1</sup> . . . . .	74.9	(D)	(D)	152.3	(D)	(D)	44.1	59.9	94.8	104.2	139.3	141.2	142.4
<b>Minnesota:</b>													
Receipts at mills . . . . .	2,948.4	291.4	234.4	321.2	(D)	201.9	165.5	(D)	243.0	219.6	(D)	275.1	296.0
Crushed or used . . . . .	2,930.5	281.7	261.3	270.0	262.6	202.8	180.5	240.7	255.6	227.0	252.9	236.1	259.4
Stocks <sup>1</sup> . . . . .	91.6	91.6	81.9	(D)	57.5	33.3	(D)	(D)	75.7	88.2	95.7	149.3	110.2
<b>Missouri:</b>													
Receipts at mills . . . . .	2,366.2	190.1	196.8	405.3	188.7	160.3	88.2	140.6	135.6	155.1	226.7	219.4	259.4
Crushed or used . . . . .	2,396.5	268.9	255.0	249.8	(D)	(D)	(D)	(D)	(D)	191.8	228.9	223.8	246.4
Stocks <sup>1</sup> . . . . .	73.3	(D)	152.1	210.3	54.9	(D)	(D)	(D)	(D)	(D)	110.0	112.3	116.7
<b>Ohio:</b>													
Receipts at mills . . . . .	(D)	267.2	208.6	(D)	308.4	279.4	207.9	206.3	230.9	191.2	(D)	273.0	(D)
Crushed or used . . . . .	3,303.3	326.5	310.4	330.4	275.7	282.5	240.4	244.1	216.8	254.1	275.2	265.3	282.0
Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	74.2	41.5	44.6	77.1	114.9	(D)	(D)	(D)	(D)
<b>South Carolina:</b>													
Receipts at mills . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Crushed or used . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Calculated at the end of period.

Table 19. **Production and Stocks of Soybean Crude Oil, and Soybean Cake and Meal, Including Millfeed and Lecithin at Oil Mills by Selected States: 1997**

State	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>CRUDE OIL (20751 11)</b>													
<b>(Million of pounds)</b>													
<b>United States:</b>													
Production.....	16,308.8	1,689.3	1,579.9	1,590.6	1,230.8	1,141.3	1,175.9	1,195.7	1,216.1	1,253.7	1,412.6	1,348.4	1,474.5
Stocks <sup>1</sup> .....	863.6	863.6	841.0	798.7	813.9	915.2	1,043.2	1,087.1	1,074.5	1,074.4	1,107.3	1,075.8	1,045.1
<b>Arkansas:</b>													
Production.....	(D)	58.8	53.5	53.3	40.2	41.4	39.8	(D)	43.7	37.0	53.6	51.0	56.6
Stocks <sup>1</sup> .....	14.0	14.0	22.0	(D)	33.4	32.7	36.4	35.8	33.2	21.6	15.0	18.5	23.5
<b>Georgia:</b>													
Production.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Illinois:</b>													
Production.....	2,799.0	295.4	279.7	288.5	228.0	164.1	206.5	196.2	194.5	202.8	246.2	236.9	260.1
Stocks <sup>1</sup> .....	127.2	127.2	119.5	118.4	160.2	158.7	207.8	227.2	230.3	256.2	279.5	275.3	264.4
<b>Indiana:</b>													
Production.....	1,164.0	139.1	123.0	118.9	93.4	57.6	80.1	86.1	95.9	93.1	92.4	89.7	94.9
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	212.5	(D)	(D)	(D)
<b>Iowa:</b>													
Production.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Kansas:</b>													
Production.....	696.8	72.9	68.7	62.4	35.2	56.8	50.5	52.8	(D)	(D)	(D)	58.5	63.6
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Minnesota:</b>													
Production.....	1,082.8	107.0	97.2	100.7	96.5	74.8	66.7	89.9	94.1	84.0	92.7	85.1	94.2
Stocks <sup>1</sup> .....	69.1	69.1	59.8	70.4	70.7	56.2	(D)	(D)	(D)	(D)	(D)	(D)	92.5
<b>Missouri:</b>													
Production.....	885.7	102.4	97.1	96.8	66.9	55.0	46.2	54.9	49.2	68.9	81.2	80.3	87.0
Stocks <sup>1</sup> .....	(D)	(D)	75.3	68.0	49.9	61.5	(D)	(D)	(D)	(D)	108.0	104.1	(D)
<b>Ohio:</b>													
Production.....	1,160.3	113.6	108.0	118.7	98.9	100.5	84.3	87.6	76.4	89.0	95.5	91.4	96.3
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	8.7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>South Carolina:</b>													
Production.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>CAKE AND MEAL (20751 11), INCLUDING</b>													
<b>MILLFEED (20752 61)</b>													
<b>AND LECITHIN (20751 42) (Thousands of short</b>													
<b>tons)</b>													
<b>United States:</b>													
Production.....	35,258.8	3,635.3	3,401.4	3,353.2	2,617.9	2,471.7	2,525.0	2,580.4	2,624.4	2,718.0	3,097.4	2,974.6	3,259.2
Stocks <sup>1</sup> .....	262.0	262.0	412.2	232.1	209.5	258.1	303.2	317.3	256.5	280.1	322.6	198.5	263.0
<b>Arkansas:</b>													
Production.....	1,218.9	126.3	114.3	116.4	87.2	92.9	84.6	70.2	93.6	(D)	(D)	110.3	124.8
Stocks <sup>1</sup> .....	6.6	6.6	13.6	9.6	9.9	7.1	(D)	(D)	9.3	(D)	(D)	6.1	6.1
<b>Georgia:</b>													
Production.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Illinois:</b>													
Production.....	5,960.5	644.9	608.3	609.2	459.8	364.7	431.6	415.2	408.0	424.0	525.3	511.3	558.2
Stocks <sup>1</sup> .....	68.8	68.8	89.8	55.3	45.2	55.0	97.3	59.1	44.9	84.1	95.7	34.3	82.2
<b>Indiana:</b>													
Production.....	2,571.4	291.8	269.8	254.0	210.7	122.8	179.2	189.1	213.5	208.3	208.4	205.4	218.4
Stocks <sup>1</sup> .....	23.4	23.4	(D)	(D)	(D)	7.7	23.9	26.4	27.3	28.2	(D)	12.8	11.6

See footnotes at end of table.

Table 19. **Production and Stocks of Soybean Crude Oil, and Soybean Cake and Meal, Including Millfeed and Lecithin at Oil Mills by Selected States: 1997—Con.**

State	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>CAKE AND MEAL (20751 11), INCLUDING MILLFEED (20752 61) AND LECITHIN (20751 42) (Thousands of short tons)—Con.</b>													
<b>Iowa:</b>													
Production.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Kansas:</b>													
Production.....	1,460.0	149.6	141.0	129.8	73.4	119.9	106.3	111.0	120.4	121.8	125.8	124.4	136.5
Stocks <sup>1</sup> .....	10.6	10.6	(D)	7.6	(D)	(D)	(D)	(D)	7.2	8.0	10.5	5.0	5.4
<b>Minnesota:</b>													
Production.....	2,350.6	226.0	209.4	214.3	208.9	162.1	147.1	194.6	203.9	181.8	203.8	190.1	208.7
Stocks <sup>1</sup> .....	7.0	7.0	21.1	9.5	10.4	18.0	10.8	32.9	22.1	9.8	15.1	13.1	11.3
<b>Missouri:</b>													
Production.....	1,898.1	209.5	198.7	196.5	(D)	(D)	(D)	(D)	(D)	152.5	182.8	178.1	194.3
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	6.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>Ohio:</b>													
Production.....	2,637.5	262.4	249.4	259.5	221.3	227.5	189.9	193.2	172.5	202.1	227.8	211.0	220.9
Stocks <sup>1</sup> .....	(D)	(D)	(D)	10.6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>South Carolina:</b>													
Production.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Calculated at the end of period.

Table 20. **Production, Exports, Imports, and Apparent Consumption of Selected Oils: 1997**

[Quantity in millions of kilograms]

Product code	Product description	Manufacturers' production	Exports of domestic merchandise <sup>1</sup>	Percent exports to manufacturers' production	Imports for consumption <sup>2</sup>	Apparent consumption <sup>3</sup>
20751 11	Soybean:					
20752 13	Crude oil .....	7,397.7	711.3	9.6	5.9	6,692.3
	Cake and meal .....	29,724.6	6,441.2	21.7	41.3	23,324.7
	Cottonseed:					
20741 11	Crude oil .....	555.2	4.1	0.7	-	551.1
20744 14	Cake and meal .....	1,615.7	122.7	7.6	-	1,493.0
20743 13	Linters .....	290.2	84.5	29.1	15.2	220.9
	Peanut:					
20762 67	Crude oil .....	76.1	5.0	6.6	6.3	77.4
20763 92	Cake and meal .....	107.7	3.9	3.6	-	103.8
	Sunflower:					
20762 67	Crude oil .....	(D)	340.9	(NA)	9.1	(NA)
20763 92	Cake and meal .....	(D)	15.8	(NA)	0.2	(NA)
20463 53	Corn oil, crude .....	1,022.4	222.5	21.8	0.6	800.5

- Represents zero.

D Withheld to avoid disclosing data for individual companies.

NA Not available.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption*.

<sup>3</sup>Apparent consumption is equal to domestic production, plus imports, minus exports.

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**HISTORICAL NOTE**

Previously, the surveys M20J (Fats and Oils—Oilseed Crushings) and M20K (Fats and Oils—Production, Consumption, and Stocks) were published together on an annual basis. Prior to 1991, data were collected on a monthly crop year basis starting from September 1 and ending on August 31. In 1991, data were collected on a quarterly calendar year basis starting on January 1 and ending on December 31. Currently, data are collected on a monthly calendar year basis starting from January 1 and ending on December 31.

Data on fats and oils have been collected by the Census Bureau since 1919. Historical data may be obtained from the Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Nat Shelton, 301-457-4643.

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## FATS AND OILS—PRODUCTION, CONSUMPTION, AND STOCKS (M20K)

### INTRODUCTION

Data shown in this subsection were collected by mail on Census Bureau monthly forms: M20H, Animal and Vegetable Fats and Oils (Warehouse Stocks); M20L, Fats and Oils (Renderers); M20M, Animal and Vegetable Fats and Oils (Consumption and Stocks); and M20N, Animal and Vegetable Fats and Oils (Production, Consumption, and Stocks).

The statistics from the M20H, M20L, M20M, and M20N forms are published in the monthly report series M20K, Fats and Oils—Production, Consumption, and Stocks. This report focuses on the production and stocks of rendered animal fats, along with the production and stocks of specified primary fats and oils and end products produced during the year. Also collected are the quantities of crude oil consumed in the production of once-refined oil.

The universe for this survey was the 1992 Census of Manufactures. Approximately 600 establishments are included in the monthly mail panel. Additionally, approximately 580 small establishments report on an annual basis. Monthly data for these small establishments are estimated based on data reported annually and the trend of other establishments reporting monthly.

### SUMMARY OF FINDINGS

For the 1997 calendar year, the production of refined soybean oil was 12,619.3 million pounds. This showed a 2.8-percent increase from the 1996 figure of 12,274.1 million pounds for refined soybean oil. The consumption of soybean oil in end products was 12,813.6 million pounds, a 4.0-percent increase from the 1996 figure of 12,322.3 million pounds. The production of refined cottonseed oil was 796.4 million pounds in 1997. This represented a 9.1-percent decrease from the 1996 figure of 875.8 million pounds for refined cottonseed oil.

The production of refined corn oil was 899.1 million pounds in 1997. This represented a 6.0-percent decrease from the 1996 figure of 956.7 million pounds for refined corn oil.

Also, for the calendar year 1997, the production of refined peanut oil decreased 3.0 percent and the production of refined coconut oil decreased 8.7 percent. The production of refined rapeseed oil increased 56.3 percent. At the same time, the consumption in end products of peanut oil decreased 3.6 percent, while the consumption in end products of coconut oil decreased 7.8 percent.

### SCOPE OF SURVEY

This survey covers all firms producing or consuming major edible and inedible fats and oils, and warehouses storing these products. Following is a description of the types of establishments included in this survey:

1. Establishments that use alkali refining or similar processes to clarify crude vegetable oils and remove excess fatty acids.
2. Establishments that use animal fats or once-refined vegetable oils in the production of edible fats and oils, such as baking or salad or cooking oil, margarine, frying fats (shortening, melleorine fats, monoglycerides, and diglycerides). In general, establishments consuming fully-refined edible fats and oils in the further manufacture of food products are not included. In this regard, salad dressing plants that use fully-refined deodorized vegetable oils (salad oils) are not included; nor are bakeries, salad oil blending plants, or potato chip plants. However, similar establishments that refine their own oils are included. With minor exceptions, reporting establishments are those equipped for fats and oils processing that either remove undesirable material, or on a commercial scale, alter the color, odor, or melting point.
3. Establishments using crude or once refined fats and oils in such industrial products as soap, paint, varnish, plastics, or other products containing substantial amounts of fats and oils.
4. Establishments that render crude material into lard, edible and inedible tallow and grease, either as their primary operation or as an adjunct to meat packing.
5. Terminals and warehouses storing fats and oils in bulk or in drums, including public and private storage. Warehouses storing only end products such as packaged salad oil, lard, and shortening are not included.

### EXPLANATION OF TERMS

**Refined vegetable oils.** Includes oils that have undergone an alkali or caustic wash or a similar process but have not passed through a further stage of refinement.

**Baking and frying fats.** Baking and frying fats, commonly known as shortening, are animal or vegetable fats or oils or combinations thereof, that have been deodorized or hydrogenated and deodorized and that are sold entirely for baking or frying purposes. They exhibit consistencies that may be fluid, plastics, or solid at room temperature.

**Salad or cooking oils.** Salad or cooking oils are vegetable oil products, completely liquid at room temperature, that have been deodorized or winterized and deodorized.

**Margarine.** Includes only margarines which are ready for table use or use by bakers.

**Table 21. Fats and Oils—Production, Consumption, and Stocks: 1997**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>COTTONSEED OIL</b>													
Production:													
Crude oil . . . . .	1,224.0	119.6	120.3	97.8	66.0	80.6	85.9	86.9	109.8	103.7	114.7	114.8	123.9
Refined oil <sup>1</sup> . . . . .	796.4	74.8	71.0	48.3	38.1	57.4	53.6	56.4	76.9	75.2	78.1	80.7	85.9
Consumption:													
Crude in refining . . . . .	821.4	77.2	73.1	49.8	39.2	59.0	55.3	58.4	79.2	77.4	80.8	83.3	88.7
In end product . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In edible products . . . .	522.8	34.0	37.4	35.3	36.5	44.9	37.7	50.7	54.1	46.5	49.8	45.2	50.7
Baking and frying fats . . . . .	256.5	17.4	18.6	19.8	20.6	24.5	18.3	24.3	24.8	22.3	22.9	19.5	23.5
Salad and cooking oil . . . . .	248.3	15.2	17.3	13.7	14.2	18.9	17.9	25.0	27.9	22.7	25.8	24.4	25.3
In inedible products . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks:													
Crude oil . . . . .	25.1	25.1	23.9	20.0	22.0	21.7	24.2	25.1	26.3	31.2	32.5	37.0	29.8
Refined oil <sup>2</sup> . . . . .	80.2	80.2	62.5	48.5	44.4	56.3	61.7	78.3	89.8	100.5	104.9	96.6	91.1
<b>SOYBEAN OIL</b>													
Production:													
Crude oil . . . . .	16,308.8	1,689.3	1,579.9	1,590.6	1,230.8	1,141.3	1,175.9	1,195.7	1,216.1	1,253.7	1,412.6	1,348.4	1,474.5
Refined oil <sup>1</sup> . . . . .	12,619.3	1,110.1	1,156.3	1,173.9	1,072.5	1,094.3	1,019.1	984.8	1,026.2	1,023.7	1,047.1	921.5	959.8
Consumption:													
Crude in refining . . . . .	13,109.4	1,154.2	1,198.6	1,221.5	1,118.1	1,144.3	1,057.3	1,026.1	1,070.7	1,066.8	1,089.8	957.2	1,004.8
In end products . . . . .	12,813.6	1,092.1	1,104.3	1,132.8	1,072.1	1,130.4	995.7	999.6	1,038.4	1,064.7	1,109.2	984.0	1,090.3
In edible products . . . .	12,420.3	1,054.9	1,071.6	1,099.4	1,043.1	1,097.2	960.9	967.0	1,004.7	1,029.2	1,075.5	953.2	1,063.6
Baking and frying fats . . . . .	4,517.2	369.9	377.2	419.8	394.0	415.3	364.8	370.1	369.8	364.2	377.5	337.8	356.8
Salad and cooking oil . . . . .	6,191.9	525.6	547.9	517.8	496.4	544.5	463.1	468.1	506.1	521.3	553.7	479.6	567.8
Margarine . . . . .	1,649.6	154.6	141.9	156.6	147.2	132.6	127.4	123.8	123.8	138.2	139.1	130.8	133.6
Other edible products . . . . .	61.6	'4.8	'4.6	'5.2	'5.5	'4.8	'5.6	'5.0	'5.0	'5.5	'5.2	'5.0	'5.4
In inedible products . . .	393.3	'37.2	'32.7	'33.4	'29.0	'33.2	'34.8	'32.6	'33.7	'35.5	'33.7	'30.8	'26.7
Paint and varnish . . .	52.0	3.2	3.6	5.1	3.3	4.2	5.0	5.3	4.9	4.6	5.2	4.4	3.2
Resins and plastics . . .	136.0	9.8	9.9	11.8	10.3	13.6	11.7	11.8	11.3	13.6	12.6	10.2	9.4
Stocks:													
Crude oil . . . . .	1,439.8	1,439.8	1,303.6	1,307.0	1,321.1	1,492.8	1,760.3	1,917.8	1,919.4	1,930.0	1,938.2	1,982.6	1,928.5
Refined oil <sup>2</sup> . . . . .	239.8	239.8	221.9	218.6	199.0	207.1	217.8	220.1	223.9	233.9	233.1	220.6	243.8
<b>CORN OIL</b>													
Production:													
Crude oil . . . . .	2,253.9	202.0	207.5	199.2	182.2	180.6	174.0	184.3	182.5	188.3	209.9	170.9	172.5
Refined oil <sup>1</sup> . . . . .	899.1	94.6	78.9	82.3	55.0	85.4	81.6	75.3	71.4	67.2	75.1	66.9	65.4
Consumption:													
Crude in refining . . . . .	956.2	100.6	83.8	87.5	58.5	90.8	86.9	80.4	76.1	71.4	79.5	71.0	69.7
In end products . . . . .	498.4	44.3	40.7	41.6	36.6	44.8	39.5	43.6	38.0	37.7	51.9	40.3	39.3
In edible products . . . .	498.3	44.3	40.7	41.6	36.6	44.8	39.5	43.6	38.0	37.7	51.9	40.3	39.3
Baking and frying fats . . . . .	74.1	6.0	6.7	7.1	7.9	7.7	6.9	4.7	5.0	5.1	5.6	5.9	5.5
Salad and cooking oil . . . . .	363.6	31.2	29.6	29.2	26.0	32.2	28.6	32.2	28.2	26.4	39.5	31.2	29.3
In inedible products . . .	0.1	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Stocks:													
Crude oil . . . . .	119.5	119.5	104.9	100.3	101.1	82.9	115.6	105.0	94.5	91.5	89.4	85.5	91.5
Refined oil <sup>2</sup> . . . . .	85.4	85.4	21.9	32.2	27.7	41.8	54.9	43.9	32.8	30.6	34.7	57.3	69.5
<b>PEANUT OIL</b>													
Production:													
Crude oil . . . . .	167.8	14.0	11.6	12.2	6.1	12.0	9.9	16.0	13.3	17.9	18.8	16.1	19.9
Refined oil <sup>1</sup> . . . . .	127.3	8.3	11.4	9.5	10.8	12.1	10.0	8.2	12.2	11.4	10.3	13.2	10.6

See footnotes at end of table.



Table 21. **Fats and Oils—Production, Consumption, and Stocks: 1997—Con.**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>PEANUT OIL—Con.</b>													
Consumption:													
Crude in refining .....	134.9	8.8	12.1	10.1	11.5	12.9	10.6	8.8	13.1	11.8	10.6	13.7	10.9
In end products .....	132.5	9.4	13.0	10.7	11.4	12.0	9.2	9.1	12.3	13.0	9.7	11.1	11.6
In edible products ....	131.4	9.3	12.9	10.6	11.3	11.9	9.1	9.0	12.2	12.9	9.7	11.0	11.5
In inedible products...	1.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.1	0.1
Stocks:													
Crude oil .....	42.6	42.6	38.4	48.0	69.0	77.5	80.3	79.8	75.5	89.7	89.7	87.9	91.6
Refined oil <sup>2</sup> .....	3.0	3.0	3.5	4.4	5.6	5.5	5.4	4.8	6.1	5.6	6.5	5.7	3.1
<b>LARD</b>													
Production .....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Consumption:													
In end products <sup>2</sup> .....	380.8	'36.3	'37.4	'34.9	'33.3	'30.9	'32.0	'32.1	'35.8	'32.4	'26.9	'26.4	'22.4
In edible products ....	284.0	24.9	28.7	28.8	25.1	23.5	23.6	22.0	27.0	24.8	19.2	18.3	18.1
Baking and frying fats .....	271.6	23.7	27.9	27.8	24.2	22.8	22.7	21.1	25.5	23.9	18.0	17.3	16.7
In inedible products...	96.8	'11.4	'8.7	'6.1	'8.2	'7.4	'8.4	'10.1	'8.8	'7.6	'7.7	'8.1	'4.3
Lubricants .....	14.4	0.7	1.2	1.2	1.2	1.7	1.4	1.5	1.1	1.1	1.0	1.2	1.1
Other inedible products .....	82.4	'10.7	'7.5	'4.9	'7.0	'5.7	'7.0	'8.6	'7.7	'6.5	'6.7	'6.9	'3.2
Stocks .....	27.1	27.1	19.7	21.3	19.9	21.5	23.2	23.0	18.7	18.9	19.2	18.5	16.3
<b>EDIBLE TALLOW</b>													
Production .....	1,488.1	'123.9	'118.7	'123.2	'124.1	'123.6	'125.8	'123.8	133.1	'122.5	'118.9	'122.1	128.4
Consumption:													
In end products <sup>2</sup> .....	642.7	'52.9	'53.5	'55.3	'60.9	'57.1	'55.1	'53.6	'49.8	'53.9	'48.1	'48.7	'53.8
In edible products ....	316.8	24.0	25.2	26.4	29.8	27.3	25.2	26.4	27.2	30.5	22.9	24.8	27.1
Baking and frying fats .....	311.8	23.6	24.6	25.9	29.6	27.0	24.9	25.8	26.8	30.1	22.6	24.4	26.5
In inedible products...	325.9	'28.9	'28.3	'28.9	'31.1	'29.8	'29.9	'27.2	'22.6	'23.4	'25.2	'23.9	'26.7
Stocks .....	51.8	51.8	50.2	47.8	48.0	50.6	54.8	51.0	51.1	44.5	41.5	43.9	39.4
<b>COCONUT OIL</b>													
Production:													
Crude oil .....	-	-	-	-	-	-	-	-	-	-	-	-	-
Refined oil <sup>1</sup> .....	360.4	38.5	40.1	34.7	17.3	41.6	25.2	34.0	35.5	32.4	16.7	22.0	23.3
Consumption:													
Crude in refining .....	376.8	40.3	41.7	36.2	18.0	43.2	26.3	35.5	37.1	33.9	17.4	22.9	24.3
In end products <sup>2</sup> .....	589.5	48.0	43.9	53.4	66.9	48.3	49.9	49.4	41.9	46.1	52.8	44.8	44.1
In edible products ....	121.7	11.1	9.5	10.7	9.9	10.4	9.0	11.7	9.9	9.4	11.0	9.5	9.6
In inedible products...	467.8	36.9	34.4	42.7	57.0	37.9	40.9	37.7	32.0	36.7	41.8	35.3	34.5
Soap .....	87.7	8.1	6.4	8.1	8.1	7.0	8.5	6.9	7.3	7.7	6.9	6.0	6.7
Resins and plastics.	3.4	0.4	0.1	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2
Stocks:													
Crude oil .....	221.9	221.9	144.0	102.9	99.6	91.8	91.6	87.7	161.3	116.5	127.8	72.6	84.1
Refined oil <sup>2</sup> .....	52.3	52.3	50.2	59.2	50.0	62.5	51.8	56.0	88.5	58.0	76.8	68.5	63.3
<b>VEGETABLE OIL FOOTS</b>													
Production .....	286.3	24.1	22.0	25.9	26.8	29.9	26.0	23.6	22.9	22.5	22.1	19.9	20.6
Consumption:													
In end products <sup>2</sup> .....	92.1	7.6	8.5	8.6	9.8	6.6	5.9	8.0	8.3	8.3	7.4	7.0	6.1
In inedible products...	92.1	7.6	8.5	8.6	9.8	6.6	5.9	8.0	8.3	8.3	7.4	7.0	6.1
Feed .....	82.3	6.8	7.6	7.7	8.7	6.0	4.8	7.3	7.7	7.4	6.6	6.5	5.2
Other inedible products .....	9.8	0.8	0.9	0.9	1.1	0.6	1.1	0.7	0.6	0.9	0.8	0.5	0.9
Stocks .....	9.0	9.0	9.3	9.0	9.6	10.0	10.3	9.6	8.5	10.1	8.2	8.2	8.2

See footnotes at end of table.

Table 21. **Fats and Oils—Production, Consumption, and Stocks: 1997—Con.**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>CASTOR OIL</b>													
Production.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Consumption:													
In end products <sup>2</sup> .....	50.0	4.4	4.4	3.3	5.1	3.8	3.9	3.9	4.0	4.5	4.3	4.7	3.7
In inedible products... ..	50.0	4.4	4.4	3.3	5.1	3.8	3.9	3.9	4.0	4.5	4.3	4.7	3.7
Resins and plastics.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Lubricants.....	3.4	0.3	0.5	0.5	0.4	0.4	0.2	0.2	0.3	0.2	0.1	0.1	0.2
Other inedible products.....	38.5	3.6	3.6	2.5	4.2	2.8	3.3	3.3	2.7	3.3	2.8	3.7	2.7
Stocks.....	19.7	19.7	25.4	24.2	25.1	20.7	17.4	27.8	14.2	24.2	7.2	15.2	23.6
<b>SUNFLOWER OIL</b>													
Production:													
Crude oil.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Refined oil <sup>1</sup> .....	63.7	(D)	(D)	5.7	(D)	3.6	(D)	(D)	9.1	(D)	7.8	(D)	5.3
Consumption:													
Crude in refining.....	64.4	(D)	(D)	5.8	(D)	3.6	(D)	(D)	9.2	(D)	7.9	(D)	5.4
In end products <sup>2</sup> .....	108.3	10.1	9.0	10.2	10.2	10.2	6.5	8.7	9.7	7.7	8.8	10.6	6.6
In edible products.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In inedible products... ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks:													
Crude oil.....	31.5	31.5	135.7	113.8	87.0	51.9	80.4	132.4	143.5	157.5	201.6	195.7	167.1
Refined oil <sup>2</sup> .....	1.8	<sup>1</sup> 1.8	4.5	6.9	6.1	7.3	4.8	9.4	9.2	8.9	10.6	9.7	8.3
<b>TALL OIL</b>													
Production:													
Crude oil.....	1,493.1	135.4	115.0	122.7	131.6	132.8	135.0	116.4	116.6	118.5	125.1	119.9	124.1
Refined oil <sup>3</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Consumption:													
Crude in refining.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In end products <sup>2</sup> .....	1,359.1	<sup>1</sup> 106.7	<sup>1</sup> 105.6	<sup>1</sup> 105.5	<sup>1</sup> 103.0	<sup>1</sup> 112.7	<sup>1</sup> 122.0	<sup>1</sup> 124.1	<sup>1</sup> 115.3	<sup>1</sup> 117.8	<sup>1</sup> 109.3	<sup>1</sup> 107.3	<sup>1</sup> 129.8
In inedible products... ..	1,359.1	<sup>1</sup> 106.7	<sup>1</sup> 105.6	<sup>1</sup> 105.5	<sup>1</sup> 103.0	<sup>1</sup> 112.7	<sup>1</sup> 122.0	<sup>1</sup> 124.1	<sup>1</sup> 115.3	<sup>1</sup> 117.8	<sup>1</sup> 109.3	<sup>1</sup> 107.3	<sup>1</sup> 129.8
Resins and plastics.....	20.4	1.3	1.4	0.8	1.3	2.0	1.9	2.0	2.4	2.0	2.2	1.4	1.7
Lubricants.....	11.7	<sup>1</sup> 0.9	<sup>1</sup> 0.8	<sup>1</sup> 1.2	<sup>1</sup> 1.0	<sup>1</sup> 0.8	<sup>1</sup> 1.0	<sup>1</sup> 0.9	<sup>1</sup> 1.0	<sup>1</sup> 1.3	<sup>1</sup> 0.9	<sup>1</sup> 1.1	<sup>1</sup> 0.8
Fatty acids.....	1,156.5	<sup>1</sup> 96.9	<sup>1</sup> 97.3	<sup>1</sup> 97.9	<sup>1</sup> 94.9	<sup>1</sup> 96.5	<sup>1</sup> 101.5	<sup>1</sup> 101.9	<sup>1</sup> 96.4	<sup>1</sup> 93.9	<sup>1</sup> 82.2	<sup>1</sup> 90.0	<sup>1</sup> 107.1
Stocks:													
Crude oil.....	293.6	<sup>1</sup> 293.6	209.7	187.9	208.6	242.2	248.5	237.5	187.3	220.6	200.8	196.0	173.0
Refined oil.....	31.6	<sup>1</sup> 31.6	34.9	25.6	32.3	16.6	13.2	32.0	20.9	31.7	17.4	26.5	6.5
<b>INEDIBLE TALLOW AND GREASE</b>													
Production.....	6,249.3	546.4	511.5	571.8	534.3	514.8	525.4	513.2	516.1	516.8	497.0	472.3	529.7
Inedible tallow.....	3,504.4	297.3	292.4	319.7	297.1	291.3	291.4	286.8	296.1	292.9	276.6	267.0	295.8
Grease.....	2,706.6	246.3	216.4	249.3	234.5	220.8	230.9	222.7	216.3	219.8	217.1	202.1	230.4
Inedible tallow and grease, n.s.k.....	38.3	2.8	2.7	2.8	2.7	2.7	3.1	3.7	3.7	4.1	3.3	3.2	3.5
Consumption:													
In end products <sup>2</sup> .....	3,398.6	288.6	270.9	322.4	297.5	271.5	292.8	279.6	295.3	287.3	260.3	255.8	276.6
In inedible products... ..	3,398.6	288.6	270.9	322.4	297.5	271.5	292.8	279.6	295.3	287.3	260.3	255.8	276.6
Soap.....	245.0	19.0	17.6	24.5	22.9	16.6	24.7	21.3	21.3	21.8	18.8	18.4	18.1
Feed.....	2,400.9	220.1	191.0	230.0	210.0	195.3	204.6	192.8	207.5	202.2	174.5	176.0	196.9
Lubricants.....	83.6	6.6	6.4	8.0	6.8	6.9	7.3	6.6	7.3	7.3	6.5	7.1	6.8
Fatty acids.....	620.3	36.8	51.6	55.4	53.6	49.3	52.5	54.9	54.8	52.1	56.2	51.3	51.8
Other inedible products.....	48.8	<sup>1</sup> 6.1	<sup>1</sup> 4.3	<sup>1</sup> 4.5	<sup>1</sup> 4.2	<sup>1</sup> 3.4	<sup>1</sup> 3.7	<sup>1</sup> 4.0	<sup>1</sup> 4.4	<sup>1</sup> 3.9	<sup>1</sup> 4.3	<sup>1</sup> 3.0	<sup>1</sup> 3.0
Stocks:													
Inedible tallow.....	221.4	221.4	212.3	227.9	220.2	225.3	203.0	235.0	219.4	197.4	220.0	208.6	273.8
Grease.....	113.6	113.6	125.8	125.1	136.8	134.0	118.3	103.3	112.1	95.8	121.1	109.2	98.2
Inedible tallow and grease, n.s.k.....	4.1	4.1	4.2	4.1	4.9	4.3	3.9	3.8	4.4	4.1	5.0	4.2	4.8

See footnotes at end of table.

Table 21. **Fats and Oils—Production, Consumption, and Stocks: 1997—Con.**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>LINSEED OIL</b>													
Production:													
Crude oil . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Consumption:													
Crude in refining . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In end products <sup>2</sup> . . . . .	83.0	'5.7	'6.8	'6.0	'7.9	'7.0	'8.2	'7.8	'8.2	'7.6	'5.4	'6.4	'6.0
In inedible products . . . . .	83.0	'5.7	'6.8	'6.0	'7.9	'7.0	'8.2	'7.8	'8.2	'7.6	'5.4	'6.4	'6.0
Paint and varnish . . . . .	22.7	'0.9	'2.0	'1.6	'1.9	'2.1	'2.2	'1.8	'2.7	'2.0	'1.7	'1.9	'1.9
Resins and plastics . . . . .	40.0	'2.4	'2.2	'2.9	'2.9	'3.7	'4.5	'4.7	'3.8	'4.2	'3.1	'3.0	'2.6
Other inedible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks:													
Raw and boiled . . . . .	23.7	'23.7	24.6	23.0	23.3	18.2	19.3	19.3	28.3	27.4	31.0	29.9	27.1
Refined oil . . . . .	17.2	17.2	15.7	15.6	9.9	12.1	15.8	15.8	17.3	17.1	19.5	24.0	21.0
<b>PALM OIL</b>													
Production:													
Refined oil <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Consumption:													
Crude in refining . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In end products <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In edible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In inedible products . . . . .	94.2	8.4	8.8	9.4	9.1	7.5	8.6	8.7	8.7	6.3	6.2	6.2	6.3
Stocks:													
Crude oil . . . . .	12.7	12.7	10.1	10.3	9.9	10.8	12.0	11.9	11.8	17.0	8.2	10.2	10.2
Refined oil . . . . .	51.4	51.4	33.8	38.0	37.3	37.0	38.5	34.9	34.3	27.6	47.3	48.6	52.5
<b>PALM KERNAL OIL</b>													
Production:													
Refined oil <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Consumption:													
Crude in refining . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In end products <sup>2</sup> . . . . .	208.1	20.5	19.1	20.6	20.4	16.6	17.0	15.8	15.6	16.4	17.0	15.1	14.0
In edible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In inedible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks . . . . .	61.3	61.3	53.1	48.0	50.0	61.5	63.7	74.1	53.9	65.1	69.7	90.8	80.6
<b>TUNG OIL</b>													
Consumption:													
In end products <sup>2</sup> . . . . .	19.4	1.2	0.9	1.1	1.3	1.3	2.6	2.0	1.3	2.2	2.7	1.9	0.9
In inedible products . . . . .	19.4	1.2	0.9	1.1	1.3	1.3	2.6	2.0	1.3	2.2	2.7	1.9	0.9
Paint and varnish . . . . .	3.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.2	0.2
Resins and plastics . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other inedible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks . . . . .	2.9	'2.9	2.3	2.3	2.5	2.5	1.6	2.2	2.3	2.1	2.8	3.4	2.8
<b>FISH OIL</b>													
Consumption:													
In end products <sup>2</sup> . . . . .	28.1	'2.3	'2.6	'2.4	'2.6	'2.3	'2.3	'2.4	'2.4	'2.2	'2.2	'2.2	'2.2
In inedible products . . . . .	28.1	'2.3	'2.6	'2.4	'2.6	'2.3	'2.3	'2.4	'2.4	'2.2	'2.2	'2.2	'2.2
Resins and plastics . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Lubricants . . . . .	(D)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
<b>SAFFLOWER OIL</b>													
Production:													
Crude oil . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Refined oil <sup>1</sup> . . . . .	20.4	'2.0	'2.2	'2.0	'2.0	'1.7	'1.7	'1.7	'1.7	'1.7	'1.2	'1.2	'1.2

See footnotes at end of table.

Table 21. **Fats and Oils—Production, Consumption, and Stocks: 1997—Con.**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>SAFFLOWER OIL—Con.</b>													
Consumption:													
Crude in refining . . . . .	21.2	12.1	12.3	12.1	12.1	11.8	11.8	11.8	11.8	11.8	11.2	11.2	11.2
In end products <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In edible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Salad and cooking oil . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In inedible products . . . . .	(D)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Stocks:													
Crude oil . . . . .	31.5	31.5	33.6	36.5	26.3	40.2	41.6	36.5	42.7	46.6	42.4	40.1	37.7
Refined oil <sup>2</sup> . . . . .	1.8	11.8	1.6	1.4	1.1	0.3	0.4	0.4	0.4	0.4	0.1	1.1	1.1
<b>RAPSEED OIL</b>													
Production:													
Crude oil . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Refined oil . . . . .	263.6	21.6	23.5	30.5	24.8	31.7	20.5	26.9	19.0	23.1	19.9	13.6	8.7
Consumption:													
Crude in refining . . . . .	269.5	22.1	24.1	31.2	25.2	32.4	20.9	27.5	19.4	23.6	20.3	13.9	8.9
In selected end products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In edible products . . . . .	418.2	34.2	36.6	35.9	36.8	53.0	34.2	36.2	28.9	34.0	27.9	28.3	32.2
Salad and cooking oil . . . . .	301.1	24.9	27.2	25.4	24.9	41.6	24.6	26.2	19.0	24.7	19.6	19.7	23.3
In inedible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Stocks:													
Crude oil . . . . .	44.2	44.2	47.1	33.5	46.2	38.6	42.2	65.5	63.5	51.3	56.4	58.0	53.7
Refined oil . . . . .	21.0	121.0	17.5	24.6	21.6	20.4	19.4	19.8	19.5	19.7	24.0	20.2	19.9
<b>OTHER OILS</b>													
Consumption:													
In selected end products <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In edible products . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
In inedible products . . . . .	39.4	4.8	3.9	4.2	3.7	5.3	5.2	4.2	2.3	1.5	1.4	1.0	1.9
Stocks . . . . .	6.8	16.8	5.1	6.6	4.0	4.9	5.5	5.3	3.1	7.0	4.6	2.5	1.7

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. n.s.k. Not specified by kind.  
 1Revised by 5 percent or more from previously published data. Z Less than .05 million pounds.

<sup>1</sup>Production of refined oils covers only once-refined oils. Degummed soybean oil is reported as crude oil.  
<sup>2</sup>Includes hydrogenated fats (vegetable and animal) and other fats and oils in process (for example, refined cottonseed including stocks of stearin).  
<sup>3</sup>Production of refined tall oil and distilled tall oil containing less than 90-percent free fatty acids, not including resin acids.

Note: Detail may not add to total because of independent rounding.

**Table 22. Production and Stocks of Fat and Oil Products: 1997**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sep.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>Baking and frying fats:</b>													
<b>Vegetable oil:</b>													
Production .....	5,034.3	407.8	417.1	461.7	441.3	464.7	404.8	413.9	417.7	406.8	419.5	377.1	401.9
Stocks <sup>1</sup> .....	1,063.4	79.4	90.8	87.8	103.0	101.5	85.4	86.8	86.5	85.5	87.5	89.2	80.0
<b>Animal fats or blends:</b>													
Production .....	621.7	51.6	56.9	58.4	54.8	52.7	49.2	50.8	54.3	57.1	45.2	46.4	44.3
Stocks <sup>1</sup> .....	11.9	11.9	11.6	12.2	10.1	8.4	7.8	8.5	9.1	13.3	7.2	7.5	8.1
<b>Soybean salad and cooking oils:</b>													
Production .....	6,166.5	523.7	545.5	515.5	494.3	542.3	461.2	466.2	504.1	519.1	551.4	477.7	565.5
Stocks <sup>1</sup> .....	81.0	81.0	90.0	73.8	72.8	79.8	59.8	65.7	78.1	64.4	65.1	63.8	60.9
<b>Other salad and cooking oils:</b>													
Production .....	1,266.0	101.0	106.0	99.2	96.1	123.3	96.3	111.6	106.3	104.6	110.7	104.5	106.4
Stocks <sup>1</sup> .....	25.9	25.9	30.4	31.4	34.8	29.9	27.7	42.1	43.0	46.7	43.8	43.9	51.4
<b>Margarine:</b>													
Production .....	2,366.8	223.8	202.3	223.8	207.0	189.9	182.0	180.6	178.7	199.8	201.8	185.4	191.7
Stocks <sup>1</sup> .....	44.3	'44.3	'54.6	'65.0	'52.6	'42.1	'36.0	'43.3	'41.1	'42.6	'38.5	'42.2	'41.5
<b>Glycerine crude:</b>													
Production .....	359.1	'31.7	'34.0	'30.5	'29.3	'27.9	'29.7	'31.9	'28.0	'28.4	'30.0	'26.9	'30.8
Used in refining .....	383.8	'33.3	'33.2	'32.9	'33.4	'32.7	'32.1	'31.9	'27.8	'28.7	'33.0	'33.5	'31.3
Stocks <sup>1</sup> .....	44.7	44.7	48.4	46.6	55.0	58.0	63.0	66.6	65.7	65.2	60.4	60.0	60.2
<b>Glycerine refined:</b>													
Production .....	382.6	'33.2	'33.1	'32.8	'33.3	'32.6	'32.0	'31.8	'27.7	'28.6	'32.9	'33.4	'31.2
Stocks <sup>1</sup> .....	17.0	17.0	14.5	13.6	13.9	13.2	12.9	12.4	11.7	13.6	15.6	12.6	10.5
<b>Fatty acids:</b>													
Production .....	2,038.1	'167.8	'170.3	'175.0	'185.6	'163.5	'168.3	'174.5	'163.2	'168.5	'174.7	'161.7	'165.0
Stocks <sup>1</sup> .....	147.0	'147.0	104.2	97.9	99.9	94.2	94.6	105.0	95.9	101.7	106.3	93.5	95.8
<b>Meat meal and tannage:</b>													
Production .....	5,676.9	498.7	472.6	494.6	455.8	458.8	478.2	457.2	474.2	465.7	456.5	472.3	492.3
Meat and bone meal ..	4,252.2	388.7	369.3	383.0	353.9	347.5	367.5	346.3	346.7	351.7	349.2	267.0	381.4
Dry rendered tannage .	1,353.5	105.3	98.7	106.4	96.6	106.0	105.4	102.3	118.8	106.9	100.7	202.1	104.3
Meat and bone meal, n.s.k. ....	69.7	4.7	4.6	5.1	5.3	5.3	5.3	7.3	8.7	7.2	6.5	3.1	6.6
Stocks: <sup>1</sup>													
Meat and bone meal ..	53.2	53.2	64.0	61.9	51.9	55.6	48.8	51.7	46.5	48.7	45.8	51.4	53.4
Dry rendered tannage .	12.7	12.7	12.6	10.6	11.0	10.4	13.1	9.3	12.7	16.6	11.1	12.4	13.3
<b>All other products:</b>													
Production .....	2,208.4	'184.8	'172.8	'203.1	'186.9	'187.0	'194.2	'184.6	'183.5	'184.3	'174.6	'168.7	'183.9
Stocks <sup>1</sup> .....	22.4	'22.4	25.4	26.2	23.5	22.5	23.9	22.9	23.5	27.4	22.6	23.4	18.8

n.s.k. Not specified by kind. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>Includes only stocks located at producer plants and warehouses. Information on stocks held by consumers is not collected.

Note: Detail may not add to total because of independent rounding.

**Table 23. Selected Fats and Oils Consumed in End Products: 1997**

[Millions of pounds]

Product description	Total all fats and oils	Cotton-seed	Soybean	Corn	Peanut	Safflower seed	Coconut	Linseed	Sunflower	Tall	
<b>Total .....</b>	<b>21,706.8</b>	<b>(D)</b>	<b>12,813.6</b>	<b>498.4</b>	<b>132.5</b>	<b>(D)</b>	<b>589.5</b>	<b>83.0</b>	<b>108.3</b>	<b>1,359.1</b>	
Consumption in edible products .....	15,171.7	522.8	12,420.3	498.3	131.4	(D)	121.7	-	(D)	-	
Baking and frying fats .....	5,678.8	256.5	4,517.2	74.1	(D)	-	(D)	-	(D)	-	
Salad or cooking oil .....	7,462.9	248.3	6,191.9	363.6	(D)	(D)	(D)	-	59.8	-	
Margarine .....	1,732.6	(D)	1,649.6	60.6	-	(D)	-	-	-	-	
Other edible products .....	297.4	(D)	61.6	-	(D)	(D)	(D)	-	-	-	
Consumption in inedible products .....	6,535.1	(D)	393.3	0.1	1.1	(D)	467.8	83.0	(D)	1,359.1	
Soap .....	567.0	-	(D)	-	-	-	87.7	-	-	(D)	
Paint and varnish .....	93.1	-	52.0	-	-	(D)	-	22.7	-	(D)	
Feed .....	2,645.3	(D)	76.4	-	-	-	-	-	-	-	
Resins and plastics .....	206.5	-	136.0	-	-	(D)	3.4	40.0	(D)	20.4	
Lubricants .....	125.2	-	(D)	-	-	-	-	-	-	11.7	
Fatty acids .....	2,341.0	-	(D)	-	(D)	-	(D)	(D)	-	1,156.5	
Other inedible products .....	557.1	(D)	71.6	0.1	(D)	(D)	(D)	(D)	(D)	(D)	
	Castor	Tung	Palm	Palm kernel	Fish	Lard <sup>1</sup>	Edible tallow <sup>1</sup>	Inedible tallow	Veg-etable oil foots	Rape-seed	Other fats and oils
<b>Total .....</b>	<b>50.0</b>	<b>19.4</b>	<b>(D)</b>	<b>208.1</b>	<b>28.1</b>	<b>380.8</b>	<b>642.7</b>	<b>3,398.6</b>	<b>92.1</b>	<b>(D)</b>	<b>(D)</b>
Consumption in edible products .....	-	-	(D)	(D)	-	284.0	316.8	-	-	418.2	(D)
Baking and frying fats .....	-	-	(D)	(D)	-	271.6	311.8	-	-	(D)	-
Salad or cooking oil .....	-	-	(D)	-	-	-	-	-	-	301.1	(D)
Margarine <sup>1</sup> .....	-	-	-	-	-	(D)	(D)	-	-	(D)	-
Other edible products .....	-	-	(D)	(D)	-	(D)	(D)	-	-	-	(D)
Consumption in inedible products .....	50.0	19.4	94.2	(D)	28.1	96.8	325.9	3,398.6	92.1	(D)	39.4
Soap .....	(D)	-	(D)	(D)	-	-	(D)	245.0	-	-	-
Paint and varnish .....	7.4	3.2	-	-	2.0	-	-	-	-	-	(D)
Feed .....	-	-	(D)	-	(D)	(D)	(D)	2,400.9	82.3	-	(D)
Resins and plastics .....	(D)	(D)	-	-	(D)	-	-	-	-	-	-
Lubricants .....	3.4	-	-	-	(D)	14.4	-	83.6	-	(D)	(D)
Fatty acids .....	-	-	(D)	(D)	(D)	(D)	(D)	620.3	-	(D)	(D)
Other inedible products .....	38.5	(D)	(D)	-	5.7	(D)	(D)	48.8	9.8	-	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Includes 13.9 million pounds of lard and edible tallow consumed in margarine for 1997.

Note: Detail may not add to total because of independent rounding.

**Table 24. Total Consumption in Edible and Inedible Products: 1997 and 1996**

[Millions of pounds]

Product description	Total	Dec.	Nov.	Oct.	Sep.	Aug.	July	June	May	April	March	Feb.	Jan.
<b>1997</b>													
Consumption in edible products <sup>1</sup> .....	15,171.7	1,280.0	1,302.9	1,330.0	1,271.9	1,350.8	1,171.7	1,203.4	1,240.3	1,262.6	1,306.1	1,168.3	1,283.7
Baking or frying fats ....	5,678.8	461.2	475.9	522.2	498.1	519.5	455.8	466.6	473.9	465.8	466.6	425.2	448.0
Salad or cooking oil ....	7,462.9	627.2	654.1	617.2	592.8	668.3	559.7	580.1	613.0	626.2	664.8	584.7	674.8
Margarine .....	1,732.6	163.8	148.1	163.8	151.7	139.0	133.2	132.2	130.8	146.3	147.7	135.7	140.3
Other edible products <sup>2</sup> ..	297.4	27.8	24.8	26.8	29.3	24.0	23.0	24.5	22.6	24.3	27.0	22.7	20.6
Consumption in inedible products <sup>1</sup> .....	6,535.1	552.2	524.9	583.2	573.2	534.0	574.7	554.5	549.3	546.8	512.9	496.0	533.5
Soap.....	567.0	47.6	43.5	54.3	52.5	43.4	52.1	48.1	47.8	49.6	41.2	42.5	44.4
Paint and varnish.....	93.1	<sup>1</sup> 5.3	<sup>1</sup> 6.6	<sup>1</sup> 7.9	<sup>1</sup> 6.5	<sup>1</sup> 7.7	<sup>1</sup> 8.4	<sup>1</sup> 8.2	<sup>1</sup> 9.8	<sup>1</sup> 9.2	<sup>1</sup> 9.0	<sup>1</sup> 7.6	<sup>1</sup> 6.4
Feed.....	2,645.3	253.2	214.6	252.0	233.6	215.6	223.0	211.8	226.6	220.1	191.7	192.1	211.2
Resins and plastics.....	206.5	14.2	14.0	16.3	15.2	20.0	18.9	19.3	18.6	21.1	18.7	15.7	14.5
Lubricants .....	125.2	<sup>1</sup> 9.5	<sup>1</sup> 10.1	<sup>1</sup> 12.0	<sup>1</sup> 10.4	<sup>1</sup> 10.6	<sup>1</sup> 11.0	<sup>1</sup> 10.1	<sup>1</sup> 10.6	<sup>1</sup> 10.9	<sup>1</sup> 9.4	<sup>1</sup> 10.5	<sup>1</sup> 9.7
Fatty acids .....	2,341.0	<sup>1</sup> 179.0	<sup>1</sup> 196.3	<sup>1</sup> 203.0	<sup>1</sup> 212.2	<sup>1</sup> 193.8	<sup>1</sup> 209.5	<sup>1</sup> 201.9	<sup>1</sup> 191.5	<sup>1</sup> 186.2	<sup>1</sup> 185.3	<sup>1</sup> 181.2	<sup>1</sup> 201.6
Other inedible products .	557.1	43.4	<sup>1</sup> 39.8	<sup>1</sup> 37.7	42.8	42.9	51.8	55.1	44.4	49.7	57.6	46.4	45.7
<b>1996</b>													
Consumption in edible products <sup>1</sup> .....	14,828.9	1,303.8	1,293.7	1,348.9	1,252.9	<sup>1</sup> 1,337.2	1,147.2	1,161.5	1,240.3	1,210.6	1,244.8	<sup>1</sup> 1,122.3	1,165.7
Baking or frying fats ....	5,934.6	497.0	<sup>1</sup> 510.1	523.4	<sup>1</sup> 484.0	561.0	<sup>1</sup> 469.7	474.6	507.2	492.9	512.5	<sup>1</sup> 450.2	452.0
Salad or cooking oil ....	6,717.4	<sup>1</sup> 619.3	<sup>1</sup> 595.2	<sup>1</sup> 621.6	581.0	<sup>1</sup> 596.5	530.0	523.2	556.2	541.8	534.8	493.5	524.3
Margarine .....	1,816.2	162.6	163.7	175.6	156.5	151.9	124.8	132.6	140.9	141.0	160.1	148.2	158.3
Other edible products <sup>2</sup> ..	360.7	24.9	24.7	28.3	31.4	27.8	22.7	31.1	36.0	34.9	37.4	30.4	31.1
Consumption in inedible products <sup>1</sup> .....	6,018.2	492.2	482.1	522.2	495.0	524.4	509.9	489.6	540.6	523.9	497.7	483.5	457.1
Soap.....	468.9	32.8	36.0	45.9	41.0	41.2	33.1	34.0	38.6	37.6	38.3	44.9	45.5
Paint and varnish.....	86.6	6.1	6.8	6.6	7.4	8.3	6.4	7.7	7.4	7.3	8.5	6.9	7.2
Feed.....	2,429.5	194.6	190.3	205.7	196.0	211.3	227.2	190.4	222.5	210.9	200.6	188.1	191.9
Resins and plastics.....	206.1	12.9	12.8	15.8	16.6	23.0	20.7	19.1	20.9	17.1	17.5	14.9	14.8
Lubricants .....	124.5	8.8	9.8	12.6	9.9	10.3	10.6	9.7	10.7	10.0	10.4	10.2	11.5
Fatty acids .....	1,920.7	160.1	163.2	160.3	155.0	167.6	151.6	158.1	175.4	172.1	161.5	159.7	136.1
Other inedible products .	781.9	76.9	63.2	75.3	69.1	62.7	60.3	70.6	65.1	68.9	60.9	58.8	50.1

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Includes hydrogenated fats (vegetable and animal) and other fats and oils in process.

<sup>2</sup>Includes confectioner's fats.

Note: Detail may not add to total because of independent rounding.

Table 25. **Shipments, Exports, Imports, and Apparent Consumption of Animal and Vegetable Fats and Oils: 1997**

[Quantity in millions of kilograms]

Product description	Manufacturers' production	Exports of domestic merchandise <sup>1</sup>	Percent exports to manufacturers' production	Imports for consumption <sup>2</sup>	Apparent consumption <sup>3</sup>
Cottonseed:					
Crude .....	555.2	4.1	-	-	551.1
Refined .....	361.2	71.8	0.2	-	289.4
Soybean:					
Crude .....	7,397.7	711.3	0.1	5.9	6,692.3
Refined .....	5,724.1	32.8	-	-	5,691.3
Corn oil (crude and refined) .....	1,430.2	226.5	0.2	0.6	1,204.3
Peanut:					
Crude .....	76.1	5.0	0.1	6.3	77.4
Refined .....	57.7	3.8	-	0.3	54.2
Edible tallow .....	675.0	83.9	0.1	2.9	594.0
Inedible tallow .....	1,589.6	766.2	0.5	29.9	853.3

- Represents zero.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption*.

<sup>3</sup>Apparent consumption represents new domestic supply and is derived by subtracting exports from the sum of manufacturers' shipments plus imports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.



**Table 26a. Supply and Distribution of Cottonseed Oil, Soybean Oil, Corn Oil, and Palm Oil: 1997**

[Millions of pounds]

Supply and distribution	Cottonseed oil	Soybean oil	Corn oil	Palm oil
Beginning stocks .....	106.0	2,027.1	154.3	70.9
Production (crude) .....	1,224.0	16,308.8	2,253.9	(X)
Imports .....	-	13.0	1.3	295.9
<b>A. Total supply (+) .....</b>	<b>1,330.0</b>	<b>18,348.9</b>	<b>2,409.5</b>	<b>366.8</b>
Ending stocks .....	105.3	1,679.6	204.9	64.1
Production of foots <sup>1</sup> .....	25.0	490.1	57.1	(D)
Exports <sup>2</sup> .....	167.0	1,637.0	498.3	8.6
Domestic consumption <sup>3</sup> .....	(D)	12,813.6	498.4	(D)
<b>B. Total distribution (-) .....</b>	<b>(D)</b>	<b>16,620.3</b>	<b>1,258.7</b>	<b>(D)</b>
Statistical discrepancy (A-B) <sup>4</sup> .....	(D)	1,728.6	1,150.8	(D)
Discrepancy as a percent of total supply .....	(D)	9.4	47.8	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. X Not applicable.

<sup>1</sup>Represents difference between crude oil consumed in refining and refined oil production.

<sup>2</sup>Represents crude and once-refined oil only; excludes exports of fully refined oil.

<sup>3</sup>Consumption of once-refined oils plus direct consumption of crude in end products.

<sup>4</sup>Represents difference between several elements of supply and distribution due to timing of production and stock reported, goods in transit, etc.

**Table 26b. Supply and Distribution of Selected Fats and Oils: 1997**

[Millions of pounds]

Supply and distribution	Cottonseed		Soybean		Inedible tallow and grease
	Crude	Once-refined <sup>1</sup>	Crude	Once-refined <sup>1</sup>	
Beginning stocks .....	35.0	71.0	1,805.1	222.0	266.2
Production (crude) .....	1,224.0	796.4	16,308.8	12,619.3	6,249.3
Imports .....	-	-	13.0	-	65.8
<b>A. Total supply (+) .....</b>	<b>1,259.0</b>	<b>867.4</b>	<b>18,126.9</b>	<b>12,841.3</b>	<b>6,581.3</b>
Ending stocks .....	25.1	80.2	1,439.8	239.8	339.1
Exports .....	9.1	158.0	1,564.9	72.2	1,685.7
Reported domestic consumption .....	821.4	(D)	13,109.4	12,813.6	3,398.6
<b>B. Total distribution (-) .....</b>	<b>855.6</b>	<b>(D)</b>	<b>16,114.1</b>	<b>13,125.6</b>	<b>5,423.4</b>
Statistical discrepancy (A-B) <sup>2</sup> .....	403.4	(D)	2,012.8	(284.3)	1,157.9
Discrepancy as a percent of total supply .....	32.0	(D)	11.1	(2.2)	17.6

- Represents zero. D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Includes once-refined oil consumed in making salad oil, some of which is subsequently exported.

<sup>2</sup>Represents difference between several elements of supply and distribution due to timing of production and stock reports, goods in transit, etc.

**HISTORICAL NOTE**

Previously, the surveys M20J (Fats and Oils—Oilseed Crushings) and M20K (Fats and Oils—Production, Consumption, and Stocks) were published together on an annual basis. Prior to 1991, data were collected on a monthly crop year basis starting from September 1 and ending on August 31. In 1991, data were collected on a quarterly calendar year basis starting on January 1 and ending on December 31. Currently, data are collected on a monthly calendar year basis starting from January 1 and ending on December 31.

Data on fats and oils have been collected by the Census Bureau since 1919. Historical data may be obtained from the Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Nat Shelton, 301-457-4643.

# Chapter 2.

## Textiles, Apparel, and Footwear

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### GENERAL INFORMATION

This chapter of the Manufacturing Profiles document contains data for textiles, apparel, and footwear. In this chapter data are provided that cover most of the major segments of the textile industry. Data on selected finished products, such as shirts, pants, carpet, or towels, and data on the various stages of production are also included.

The first “step” in making most textile products is to make yarn. Staple yarn is a bunch of fibers twisted and spun together into a long, continuous strand. Staple fiber is the term used to identify lengths of fibers which require spinning and twisting in the manufacture of yarn. Staple fibers are either natural fibers or manmade fibers cut to a specific length. The Current Industrial Report entitled MA22F, Yarn Production, collects data on the quantity of yarn produced.

There are many different spinning systems used to make yarn from staple fibers. The three most common spinning systems are the cotton system, the woolen system, and the worsted system. Data are compiled on fiber staples consumed on these three systems in the following Current Industrial Reports: M22P, Consumption on the Cotton System and Stocks, and MQ22D, Consumption on the Woolen and Worsted Systems.

The next phase of the textile manufacturing process is fabric formation. Most fabric is either woven or knitted. Current Industrial Reports have two series that collect these data, MQ22T, Broadwoven Fabrics, and MA22K, Knit Fabrics.

The last major phase is to cut the fabric and then sew the pieces together into garments or other textile products. The Current Industrial Reports have a report entitled MQ23A, Apparel, which provides data for most major garment categories. The series also has data on MA22Q, Carpet and Rugs, MA23D, Gloves and Mittens, and the MQ23X, Bed and Bath Furnishings.

### EXPLANATION OF TERMS

**Blends and mixtures.** Fabrics made from more than one fiber are classified in the same way as other fabrics, i.e., according to whether the fabric is chiefly cotton, wool, or manmade fiber. For example, a fabric which is 55 percent cotton and 45 percent rayon is classified in the cotton section; a fabric which is 40 percent cotton, 30 percent rayon, and 30 percent acetate is classified in the manmade fibers section. Blends and mixtures which are by weight 50 percent natural fiber and 50 percent manmade fiber are classified as manmade fibers fabrics.

**Canton flannel.** Fabric woven with a four-harness warp face twill with heavy, soft filling yarn, and a medium count warp. A long nap is raised on the back.

**Commission.** Includes fabrics made from yarns owned by others.

**Cotton fabrics.** Includes fabrics that are wholly or chiefly, by weight, made of cotton.

**Cotton system.** This term originally referred to the equipment and machinery used in the process of manufacturing cotton fiber into yarn. The cotton spinning system is now also used extensively for manmade fiber staple and cotton/manmade fiber blends. It includes the general operations of opening, picking, carding, drawing, roving, and ring or open end spinning.

**Denim, all other.** Includes sport denims and all other denim not included in blue denim.

**Denim, blue.** Fabrics of 3- or 4-thread twill, including broken twill, warp faced (the warp yarns which are dyed blue and the weft yarns that are unbleached, bleached, dyed gray or colored a lighter shade of blue than that of the warp yarns).

### Distribution Channels:

*Branded retail.* Sales of company brands including premium goods, drop (closeouts), and seconds sold to domestic consumers through all types of retailers.

*Private ticket retail.* Sales with retail identification with or without a manufacturer's corporate identification, but not with a manufacturer's brand name.

*Other (institutional).* Includes domestic distribution only and includes all Federal and state contract business commercial accounts (e.g., hotels) which are sold on a contract basis, and shipments to dealers who are involved in resale to the institutional trade.

**Duck.** Fabrics weighing more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric), with average yarn number of 15 or lower, napped or not; and a plain weave where the warp or filling or both, consist of multiple (folded) or cabled yarns.

**Filament yarn fabrics.** Includes all fabrics that contain 85 percent or more filament yarns.

**Flat fabrics.** Fabrics containing yarns having less than 12 turns per inch.

**For sale.** Products which are produced for the purpose of selling them to other companies.

### **Garments, Men's and Boy's:**

*Tailored uniform suits.* Includes military, guards, band, police, fire, etc. Nontailored work-type suits, such as delivery drivers and gas station attendants, are included under work clothing and washable service apparel.

*Trios.* Includes tailored suits with a matching and contrasting pair of pants.

*Tailored suit type sport coats and jackets.* Includes only tailored separate suit-type coats, including tailored uniform and separate formal jackets.

*Overcoats and top coats.* Includes only tailored items, including uniform, reversible zipper-lined, fingertip, and wool water-repellent coats. Excludes raincoats.

*Raincoats.* Includes waterproof outercoats and water-repellent coats of cotton and manmade fibers, including uniforms. Wool and chiefly wool water-repellent coats and capes are included with overcoats and top coats.

*Heavy nontailored outer jackets, including uniform.* Includes lumberjacks and mackinaws. Excludes ski jackets.

*Light nontailored outer jackets, including uniform.* Includes golf-type zip front and snorkel jackets for outdoor outerwear.

*Separate vests, including uniform.* Includes vests that are not part of suits. Excludes sweater vests.

*Separate dress and sport trousers, including uniform.* Includes all pants except jeans, jean-cut casuals, dungarees, and work pants.

*Jeans and dungarees.* Includes all pants of jean-type construction which are made from denim fabric. Excludes waistband overalls.

*Jean-cut casual slacks.* Includes all pants of jean-type construction made from fabrics other than denim, to be worn as sportswear (e.g., corduroy).

*Dress and business shirts.* Includes open front shirts designed primarily for dress or business wear, usually with a collar band. Sleeve length may or may not be sized in inches. Neck may be sized or feature a convertible collar and may include shirts sized S-M-L-XL.

*Work pants, excluding jeans and dungarees.* Includes utility trousers in a sturdy fabric designed for hard wear, and work pants with closed-seam construction and a waistband in the same fabric as the shell. Also includes waistband overalls.

*Work shirts.* Includes open front or pullover shirts in a sturdy fabric, designed for work and ease of movement.

*Washable service apparel.* Includes nontailored washable work apparel designed for use by waiters, gas station attendants, hospital staff, and other uniformed service workers.

*Overall and work jackets.* Includes utility jackets in a sturdy fabric, designed for hard work and ease of movement, usually with closed seam construction.

*Team sports uniform.* Clothing designed to be worn as a uniform in team athletic games, such as baseball, football, soccer, and hockey.

### **Garments, Women's, Misses', and Junior's:**

*Suits.* Includes tailored suits and uniforms but excludes pantsuits, jumpsuits, and coordinate suit sets that can be purchased as separate pieces, e.g., shirt, vest, blouse, and pants. Excludes nurses', maids', and medical uniforms which are included in washable service apparel.

*Pantsuits.* Includes jumpsuits and pantsuits sold as a unit. Excludes coordinates which are sold as separates.

*Dresses.* Includes suit type dresses, formal, work, house, etc.

*Coats and capes.* Includes toppers, car coats, suburban coats, plastic coats, reversible coats, and wool water-repellent coats, but excludes raincoats.

*Jeans and dungarees.* Includes all pants of jean-type construction that are made from denim fabric.

*Slacks, including jean-cut casuals.* Includes all pants other than denim jeans, e.g., tailored pants and pants with an elastic waistband.

**Ginghams, plaids, and checks.** Yarn-dyed fabrics composed of two or more colors in the warp and two or more colors in the filling.

**Girls'.** Includes subteen and teenage girls', usually sizes 7 through 16. Also includes little girls' sizes 4 through 6x and toddler girls' sizes 2T through 4T.

**High tenacity yarn fabric.** Fabric made from yarns having a tenacity, expressed in centinewtons per tex (cN/tex) greater than 60 cN/tex for multiple (folded) or cabled yarns of nylon or polyester; or 27 cN/tex for multiple (folded), cabled, or singles yarns of viscose rayon.

**Infants'.** Includes all garments, sizes 0-24 months.

**Kitchen accessories.** Includes items such as terry cloth aprons, pot holders, dish cloths, and toaster covers.

**Lawns, voiles, and batistes.** Fabrics of plain weave weighing not more than 5 ounces per square yard (chiefly

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cotton fabric) consisting of more than 85 warp ends and filling picks per square inch, of square construction, and of average yarn number 41 or higher, napped or not napped.

**Little boys'.** Includes little boys' sizes 4 through 7 and toddler boys' sizes 2T through 4T.

**Manmade fiber fabrics.** Includes fabrics that are wholly or chiefly, by weight, made of manmade fibers.

**Men's and junior boys'.** Includes all men's sizes and junior boys', preps' (cadets), and students' sizes. These usually include boys', junior boys', and preps' sizes 6-20, chest 22-36 and waist 23-30; and students' sizes, chest 35-42 and waist 28-36.

**Oxfords.** Fabrics weighing not more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric), napped, or not. They are woven as a plain weave fabric except that two or more warp ends are woven as one (taped warp). Oxford cloth is not to be classified as a plain weave fabric.

**Plain weave fabrics.** A fabric construction in which each yarn of the weft passes alternately over and under successive yarns of the warp and each yarn of the warp passes alternately over and under successive yarns of the weft.

**Poplin and broadcloth.** Fabrics of plain weave, not of square construction, whether or not napped. These fabrics do not include the following: fabrics weighing not more than 5.9 ounces per square yard, containing 85 or less warp ends and filling picks per square inch; or fabrics weighing more than 5.9 ounces per square yard, with average yarn number of 15 or lower.

**Print cloth.** Fabrics of plain weave, weighing not more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric) with average yarn numbers of 26-40; consisting of more than 85 single yarns per square inch; and with square construction, whether or not of yarns of different colors (yarn dyed), and whether or not napped.

**Sateens.** Fabrics woven with a satin weave, whether or not napped, in which the surface of the cloth consists almost entirely of warp or filling floats; that is, in the repeat of a weave pattern, each yarn of one system passes over several yarns of the other system before interlacing.

**Sheeting.** Fabrics of plain weave, whether or not napped, of the following types: (1) Fabrics weighing not more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric), of square construction containing more than 85 warp end and filling picks per square inch, with average yarn number of 40 or lower, but not including print cloth. (2) Fabrics weighing

more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric), but not including fabrics of which the warp or filling, or both, consist of multiple (folded) or cabled yarns, with average yarn number of 15 or lower or fabrics with average yarn number of 16 or higher, not of square construction.

**Sheet sets.** Packages of at least two sheets and one pillowcase which may contain additional sheets, pillowcases, or other items.

**Shirting, jacquard or doobby.** Fabrics weighing not more than 5 ounces per square yard (chiefly manmade fiber) or 5.9 ounces per square yard (chiefly cotton fiber), whether or not napped, or woven wholly or in part with jacquard or doobby attachment.

**Spun/filament combinations.** Includes fabrics that are combinations of spun and filament yarn where neither the spun or the filament yarns exceed 85 percent.

**Spun yarn fabrics.** Includes all fabrics that contain 85 percent or more spun yarns.

**Stripes.** Yarn-dyed fabrics composed of any number of colors in the warp but only one color in the filling.

**Table damask.** Fabrics, whether or not napped, woven wholly or in part with jacquard or doobby attachment and characterized by elaborate decorative designs, usually of floral patterns. The designs are reversible and are formed by warpface satin weave. Table damask is generally all white, although it is sometimes made with colored stripes or in solid pastel shades.

**Taped warp duck.** Fabrics weighing more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric), with average yarn number of 15 or lower, whether or not napped. The fabrics have a plain weave, except that two or more warp ends are woven as one (tape warp) whether or not they contain multiple (folded) or cabled yarns.

**Textured yarns.** Yarns produced by looping, bulking, curling, or twisting to enhance the volume or elasticity. They include yarns made by the false twist principle, the conventional twist method (twist and detwist procedures), the stuffer crimp method, and the filament loop method. Yarns that are thrown only are excluded.

**Tobacco, cheese, and bandage cloth.** Fabrics of plain weave, weighing not more than 5 ounces per square yard (chiefly manmade fabric) or 5.9 ounces per square yard (chiefly cotton fabric) consisting of 85 or less warp ends and filling picks per square inch, whether or not napped.

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**Towel blanks.** Includes towels sold for further processing elsewhere. The figure reported for finished terry woven towels includes towel blanks; thus, both sets of data are not additive.

**Twill weave fabrics.** Fabrics in which the warp and filling yarns are interlaced in such a manner as to produce a diagonal or bias effect on the face of the fabric.

### Types of Finish

*Solids (sheets).* Includes solid color sheets with attached hems or piping.

*Fancies.* Towels include jacquards, mixed color or pattern weaves, prints, embroidered, and attached or embellished hems. Excludes solid color, white dobby, and white cam. Sheets include prints and solids with embroidery, lace, or other embellishments, except attached hems or piping.

**Women's, misses' and junior's.** Includes all women's, misses' and junior's sizes.

**Woolen system.** Refers to the machinery and processes used to produce yarn from shorter wools and manmade fiber. The fibers are carded two or three times, and then go directly to the spinning frame. The system is used widely to produce both machine and hand knitting yarns, as well as weaving yarns where softness and bulk are desired.

**Wool fabrics.** Includes fabrics that are wholly or chiefly, by weight, made of wool, reprocessed wool, or reused wool.

**Wool, reprocessed wool, and reused wool.** These terms are used in accordance with the definitions in the Wool Products Labeling Act of 1939.

**Wool tops.** Figures on top production include only first combings and exclude recombed materials. Mixed tops are classified according to chief fiber content.

**Worsted system.** Refers to the machinery and process used to manufacture yarn from medium to long wools, alpaca, and mohair, as well as manmade fibers and blends. In the worsted system, the short fibers or noils are removed by combing in order to produce a compact yarn. The three basic worsted spinning systems are Bradford, French, and American.

**Yarn dyed.** Fabrics woven from yarns that have been dyed.

### TEXTILE MACHINERY IN PLACE

There are data for three basic types of machinery in this chapter : (1) cotton system spindles, (2) weaving machines, and (3) knitting machines. Generally, the information collected is the number of machines in place and the number of hours operated during the period.

"Machines in place" are the number of machines that are in producing positions at the end of the survey period, regardless of whether they are actually operating. In the case of spindles, the data are for the number of spindles in place, not the number of spinning frames.

Where it is available, the hours of operation refer to the number of hours the equipment was actually in use during the survey period.

The information shown on spinning equipment is for cotton system spinning machinery only. This type of information is not collected for woolen, worsted, or other spinning systems.

These data are compiled from information collected on our MA22K, Knit Fabric Production; M22P, Consumption on the Cotton System and Stocks; and MQ22T, Broadwoven Fabrics (Gray) surveys.

Table A. **Textile Machinery in Place: End of Year 1997**

Product description	Machines in place
Total looms .....	68,939
Shuttle type looms .....	7,529
Single shuttle cam looms .....	5,737
Single shuttle dobby looms .....	524
Multiple shuttle box or head motion looms .....	924
Double shuttle pile and plush, and jacquard looms .....	344
Shuttleless looms and weaving machines .....	61,410
Single filling insertion capability .....	34,718
Air jet looms .....	16,832
Water jet looms .....	4,888
Projectile looms .....	11,034
Rapier looms .....	1,964
Multiple filling insertion capability .....	25,844
Air jet looms .....	(D)
Water jet looms .....	(D)
Projectile looms .....	7,271
Rapier looms .....	12,042
Pile and plush looms .....	848
Cotton system spindles in place .....	5,558
Active, spinning 100 percent cotton fibers .....	2,609
Ring spindles .....	2,055
Air jet position .....	-
Open end position (rotors) .....	554
Active, spinning 100 percent manmade fibers .....	828
Ring spindles .....	788
Air jet position .....	(D)
Open end position (rotors) .....	(D)
Active, spinning cotton/manmade blends .....	1,809
Ring spindles .....	1,387
Air jet position .....	(D)
Open end position (rotors) .....	(D)
Knitting machines .....	17,886
Warp knitting machines (over 12 inches in length) .....	4,676
Pile fabrics .....	1,382
Elastic fabrics .....	728
All other warp knit fabrics .....	2,566
Warp knitting machines (12 inches or less in length) .....	528
Elastic fabrics .....	287
All other warp knit fabrics .....	241
Weft knitting machines (over 12 inches in length) .....	13,210
Pile fabrics .....	382
Elastic fabrics .....	139
Single circular knit .....	8,641
Double knit and interlock .....	1,996
Rib, other than double knit and interlock .....	2,052
Weft knitting machines (12 inches or less in length) .....	527
Elastic fabrics .....	162
All other weft knit fabrics .....	365
Knitting garment lengths, trimmings, and collars .....	2,583
Knit garment lengths, made on sweater-strip, V-bed strip, and full-fashioned machines .....	1,215
Knit trimmings and collars .....	1,368

- Represents zero. D Withheld to avoid disclosing data for individual companies.

**Table B. Textile Machines in Place and Hours Operated by Quarter: 1997**

[Looms in thousands of hours units. Spindles in millions of hours units]

Product description	Hours, year-to-date	First quarter		Second quarter		Third quarter		Fourth quarter	
		Machines	Hours	Machines	Hours	Machines	Hours	Machines	Hours
Total looms . . . . .	500,063	71,142	129,161	69,885	126,875	69,075	121,841	68,939	122,186
Shuttle type looms . . . . .	43,456	8,413	11,760	7,782	10,580	7,582	10,237	7,529	10,879
Single shuttle cam looms . . . . .	33,361	6,182	8,962	5,703	7,941	5,764	7,935	5,737	8,523
Single shuttle dobby looms . . . . .	2,691	737	844	685	713	524	533	524	601
Multiple shuttle box or head motion looms . . . . .	5,251	923	1,319	922	1,325	924	1,304	924	1,303
Double shuttle pile and plush, and jacquard looms . . . . .	2,153	571	635	472	601	370	465	344	452
Shuttleless looms and weaving machines . . . . .	456,607	62,729	117,401	62,103	116,295	61,493	111,604	61,410	111,307
Single filling insertion capability . . . . .	271,426	35,656	70,197	35,232	69,215	34,815	66,606	34,718	65,408
Air jet looms . . . . .	134,159	16,382	33,392	16,730	33,628	16,627	33,369	16,832	33,770
Water jet looms . . . . .	37,478	5,004	9,833	4,916	9,681	4,952	9,267	4,888	8,697
Projectile looms . . . . .	86,883	12,017	23,512	11,424	22,370	11,256	20,937	11,034	20,064
Rapier looms . . . . .	12,906	2,253	3,460	2,162	3,536	1,980	3,033	1,964	2,877
Multiple filling insertion capability . . . . .	180,108	26,218	45,987	26,002	45,833	25,830	43,723	25,844	44,565
Air jet looms . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Water jet looms . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Projectile looms . . . . .	55,225	7,827	14,631	7,700	14,592	7,469	13,297	7,271	12,705
Rapier looms . . . . .	73,990	12,326	18,848	12,126	18,501	12,139	17,997	12,042	18,644
Pile and plush looms . . . . .	5,073	855	1,217	869	1,247	848	1,275	848	1,334
Cotton system spindles in place . . . . .	37,272	5,763	9,495	5,572	9,504	5,628	9,233	5,558	9,040
Active, spinning 100 percent cotton fibers . . . . .	19,057	2,584	4,734	2,596	4,767	2,637	4,818	2,609	4,738
Ring spindles . . . . .	14,819	2,082	3,733	2,084	3,759	2,066	3,674	2,055	3,653
Air jet position . . . . .	-	-	-	-	-	-	-	-	-
Open end position (rotors) . . . . .	4,238	502	1,001	512	1,008	571	1,144	554	1,085
Active, spinning 100 percent manmade fibers . . . . .	5,549	934	1,512	883	1,462	849	1,307	828	1,268
Ring spindles . . . . .	5,226	891	1,439	839	1,388	809	1,217	788	1,182
Air jet position . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Open end position (rotors) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Active, spinning cotton/manmade blends . . . . .	12,666	1,919	3,249	1,822	3,275	1,822	3,108	1,809	3,034
Ring spindles . . . . .	9,308	1,500	2,417	1,406	2,415	1,404	2,259	1,387	2,217
Air jet position . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Open end position (rotors) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies.

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## STAPLE FIBER CONSUMPTION

Staple fiber is the term used to identify lengths of fiber that require spinning and twisting in the manufacture of yarn. They are either natural fibers or manufactured fibers that are cut to a specific length. They are generally an inch to an inch and a half long.

This chapter contains information on the amount of fiber consumed on the cotton, woolen, and worsted spinning systems. These terms refer to the group of machinery used in the manufacture of spun yarn. Producing a yarn is the first step in the manufacture of textile products.

Although the vast majority of staple fiber is spun on the three systems for which data is collected, there is a small amount of fiber consumed on other spinning systems. There is also a small amount of staple fiber consumed without spinning, in processes such as felting. Neither the amount spun on other systems nor the amount consumed by other means are included in these data.

Since these data are for staple fiber consumption, they should account for nearly all of the cotton fiber and wool (or other fine animal hair) consumed in domestic manufacturing, but only a portion of the manufactured fibers such as rayon, acrylic, nylon, and polyester.

In the case of cotton in addition to information on the consumption of cotton fiber, information is provided on the consumption of cotton linters. Linters are the short fibers that adhere to the cotton seeds after the first ginning. These are removed from the cotton seed by a separate process and are used in the manufacture of some types of rayon and by the chemicals and paper industries.

The data on fiber consumption are collected in two surveys: MQ22D, Consumption on the Woolen System and Worsted Combing and M22P, Consumption on the Cotton System and Stocks. In all cases, the information in this chapter is presented for the consumption of a specific type of fiber. Additional information is presented depending on the fiber.



## CONSUMPTION ON THE COTTON SYSTEM (M22P)

### INTRODUCTION

The tables in this subsection present data on the fiber consumed in cotton system spinning. Cotton system spinning is a process of manufacturing cotton fiber into yarn. It includes the general operations of opening, picking, carding, drawing, roving, and spinning. In making combed yarns, three steps are added. The system is also used extensively for spinning manufactured fibers and blends.

The data in these tables are collected using two questionnaires; the M22P, Consumption on the Cotton System and Stocks, and the M22N, Cotton and Raw Linters in Public Storage. Much of the data shown reflect the interest in cotton as an important agricultural and export commodity.

The fiber data in these tables are shown in two basic units of measure, running bales and pounds. Bale weights do vary, but they average around slightly over 500 pounds for cotton and from 610 to 620 pounds for linters. Data for stocks in public storage are collected only in bales, and data for manufactured fiber are collected only in pounds.

### EXPLANATION OF TERMS

See explanation of terms at the beginning of this chapter.

**Table 1. Summary of Daily Averages of Cotton and Manmade Fibers Consumed on the Cotton System, Spindle Hours Operated, and End-of-Month Stocks, Including Stocks Held at Public Warehouses: 1997**

[Cotton in running bales. Manmade fibers in thousand pounds. Spindle hours operated in millions]

Month	Daily average consumption						Stocks		Daily average spindle hours operated
	Cotton			Manmade fibers			Cotton <sup>3</sup>	Manmade fiber staple	
	Total	Upland <sup>1</sup>	Long staple <sup>2</sup>	Total	Cellulosic	Non-cellulosic			
<b>SEASONALLY ADJUSTED</b>									
December	44,271	43,898	373	5,881	543	5,338	7,553	51,199	152
November	42,805	42,406	399	5,899	578	5,321	7,274	49,009	144
October	42,411	41,980	431	5,816	596	5,220	6,857	51,741	142
September	42,725	42,369	356	5,858	646	5,212	6,226	49,152	144
August	41,100	40,705	395	5,704	630	5,074	7,333	49,065	143
July	42,859	42,499	360	5,784	627	5,157	7,356	52,627	148
June	41,285	40,888	397	5,405	507	4,898	7,302	50,814	141
May	41,368	40,963	405	5,726	610	5,116	7,299	47,972	142
April	41,437	41,007	430	5,807	601	5,206	7,350	48,934	141
March	39,810	39,363	447	5,469	622	4,847	7,395	52,327	140
February	40,799	40,410	389	5,851	619	5,232	7,477	52,933	143
January	41,651	41,273	378	5,931	646	5,285	7,227	52,931	144
<b>NOT SEASONALLY ADJUSTED</b>									
December	38,031	37,658	373	4,900	421	4,479	12,529	51,199	129
November	42,744	42,345	399	5,720	608	5,112	11,307	49,009	145
October	43,600	43,169	431	5,866	643	5,223	7,077	51,741	145
September	44,001	43,645	356	5,899	655	5,244	2,645	49,152	144
August	43,407	43,012	395	5,984	639	5,345	3,089	49,065	148
July	39,039	38,679	360	5,357	510	4,847	3,835	52,627	134
June	41,743	41,346	397	5,690	513	5,177	4,563	50,814	144
May	42,859	42,454	405	6,106	643	5,463	5,634	47,972	148
April	42,574	42,144	430	6,028	664	5,364	6,874	48,934	147
March	41,403	40,956	447	5,716	650	5,066	8,270	52,327	146
February	41,785	41,396	389	6,042	649	5,393	9,754	52,933	151
January	41,344	40,966	378	5,819	630	5,189	11,094	52,931	142

<sup>1</sup>Upland includes American upland and foreign cotton.

<sup>2</sup>Long staple cotton includes American-Pima, Egyptian, Sudanese, and all other foreign cotton.

<sup>3</sup>Cotton in 1,000 running bales.

Table 2. **Supply and Distribution of Cotton 1996/1997 Crop Year**

[Number of bales]

Supply and distribution	Cotton
<b>SUPPLY</b>	
Stocks, July 27, 1996 .....	2,694,565
In consuming establishments .....	610,210
In public storage and at compresses .....	1,884,355
Elsewhere .....	200,000
Net imports .....	386,991
Total imports for consumption .....	386,991
Less: Re-exports .....	-
Ginnings, crop year of 1996 during crop year 1996 to 1997 .....	18,390,400
Total ginnings, crop year of 1996 .....	18,438,550
Less: Ginnings prior to August 1, 1996 .....	48,150
Ginnings, prior to August 1, 1997, crop year of 1996 .....	2,200
Aggregate supply .....	21,474,156
<b>DISTRIBUTION</b>	
Total exports .....	6,707,900
Consumption, July 28, 1996, to July 26, 1997 .....	10,702,177
Cotton lost or destroyed .....	50,000
Stocks, July 26, 1997 <sup>1</sup> .....	3,985,409
In consuming establishments .....	667,873
In public storage .....	3,167,536
Elsewhere (partially estimated) <sup>2</sup> .....	150,000
Aggregate distribution .....	21,445,486
Excess of reported supply over distribution .....	28,670

- Represents zero.

<sup>1</sup>Cotton "carry-over" in the United States as of August 1, 1997, is 3,985,409 bales. Linters are not included in this "carry-over." In addition to stocks of cotton in warehouses and in consuming establishments, these data include a partially estimated count of cotton held elsewhere.

<sup>2</sup>Includes cotton in transit to ports, warehouses, consuming establishments, and Canada; on docks, on shipboard but not cleared, and other port stocks not in warehouses or consuming establishments; and on farms, in merchant sheds, and in other private storage.

**Table 3. Consumption of Domestic and Foreign Cotton by Staple Length by Month: 1997**

Month	Domestic and foreign cotton	American upland and foreign cotton	American upland					Foreign cotton	Extra long staple <sup>1</sup>
			American upland	Staples less than 1 inch	1 inch and 1-1/32 inch staples	1-1/16 inch and 1-1/32 inch staples	Staples larger than 1-1/32 inch		
Number of running bales									
<b>Total, year ending December 27, 1997.....</b>	<b>10,876,486</b>	<b>10,773,418</b>	<b>10,714,529</b>	<b>49,075</b>	<b>1,869,102</b>	<b>8,402,792</b>	<b>393,560</b>	<b>58,889</b>	<b>103,068</b>
December.....	950,776	941,460	941,220	3,835	167,682	729,090	40,613	240	9,316
November.....	854,886	846,902	846,812	4,076	140,242	668,717	33,777	90	7,984
October.....	872,002	863,373	862,574	3,675	154,154	672,347	32,398	799	8,629
September.....	1,100,031	1,091,126	1,089,436	4,776	182,802	864,069	37,789	1,690	8,905
August.....	868,138	860,240	858,952	2,925	148,700	674,567	32,760	1,288	7,898
July.....	780,787	773,580	772,249	3,269	138,356	603,099	27,525	1,331	7,207
June.....	1,043,586	1,033,658	1,031,529	4,449	187,139	798,050	41,891	2,129	9,928
May.....	857,172	849,071	847,297	3,742	152,267	661,435	29,853	1,774	8,101
April.....	851,465	842,871	837,706	3,083	150,168	656,176	28,279	5,165	8,594
March.....	1,035,076	1,023,910	1,013,573	5,210	175,297	800,293	32,773	10,337	11,166
February.....	835,685	827,910	813,694	5,122	137,663	642,575	28,334	14,216	7,775
January.....	826,882	819,317	799,487	4,913	134,632	632,374	27,568	19,830	7,565
1,000 pounds									
<b>Total, year ending December 27, 1997.....</b>	<b>5,419,477</b>	<b>5,367,685</b>	<b>5,339,065</b>	<b>24,342</b>	<b>931,357</b>	<b>4,186,934</b>	<b>196,432</b>	<b>28,620</b>	<b>51,792</b>
December.....	472,852	468,149	468,031	1,901	83,395	362,490	20,245	118	4,703
November.....	425,032	421,002	420,958	2,022	69,829	332,252	16,855	44	4,030
October.....	434,575	430,237	429,838	1,817	76,685	335,149	16,187	399	4,338
September.....	548,449	543,988	543,148	2,367	90,960	430,908	18,913	840	4,461
August.....	433,189	429,180	428,544	1,455	74,284	336,417	16,388	636	4,009
July.....	389,542	385,923	385,274	1,628	69,073	300,822	13,751	649	3,619
June.....	520,241	515,249	514,239	2,216	93,397	397,708	20,918	1,010	4,992
May.....	426,838	422,772	421,929	1,857	75,866	329,315	14,891	843	4,066
April.....	424,868	420,555	418,039	1,526	74,831	327,557	14,125	2,516	4,313
March.....	518,382	512,784	507,758	2,580	87,369	401,467	16,342	5,026	5,598
February.....	415,124	411,237	404,273	2,533	68,583	319,065	14,092	6,964	3,887
January.....	410,385	406,609	397,034	2,440	67,085	313,784	13,725	9,575	3,776

<sup>1</sup>Includes American-Pima, Sea Island and domestic raw cotton other than American upland.

**Table 4. Consumption of Domestic and Foreign Cotton by State: 1997**

Month	Domestic and foreign total	Cotton growing states									All other states
		Total	Alabama	Georgia	North Carolina	South Carolina	Tennessee	Texas	Virginia	Other	
Number of running bales											
<b>Total, year ending December 27, 1997 ...</b>	<b>10,876,486</b>	<b>10,864,168</b>	<b>1,453,157</b>	<b>1,937,851</b>	<b>4,783,806</b>	<b>1,923,855</b>	<b>156,856</b>	<b>173,662</b>	<b>301,573</b>	<b>133,408</b>	<b>12,318</b>
December .....	950,776	949,556	117,558	165,839	424,230	173,026	13,371	14,262	29,703	11,567	1,220
November .....	854,886	853,727	112,638	146,890	385,677	151,207	12,509	11,602	22,458	10,746	1,159
October .....	872,002	871,462	118,573	151,576	385,102	151,913	12,442	16,998	23,877	10,981	540
September .....	1,100,031	1,098,667	150,138	191,162	495,497	187,586	13,834	17,498	29,096	13,856	1,364
August .....	868,138	867,451	118,917	152,780	379,866	152,334	13,765	14,829	23,963	10,997	687
July .....	780,787	779,693	100,081	133,152	355,037	136,325	11,728	12,903	21,517	8,950	1,094
June .....	1,043,586	1,042,322	131,411	191,087	463,282	187,940	14,812	10,541	29,894	13,355	1,264
May .....	857,172	856,352	115,087	157,037	370,957	153,900	12,685	14,104	22,627	9,955	820
April .....	851,465	850,779	113,133	157,909	368,077	151,066	13,006	14,346	23,776	9,466	686
March .....	1,035,076	1,033,686	140,322	188,436	447,278	184,306	14,780	16,341	29,504	12,719	1,390
February .....	835,685	834,189	115,173	152,916	355,864	149,019	11,801	16,291	22,452	10,673	1,496
January .....	826,882	826,284	120,126	149,067	352,939	145,233	12,123	13,947	22,706	10,143	598
1,000 pounds											
<b>Total, year ending December 27, 1997 ...</b>	<b>5,419,477</b>	<b>5,413,320</b>	<b>723,655</b>	<b>964,900</b>	<b>2,386,085</b>	<b>958,265</b>	<b>78,224</b>	<b>85,687</b>	<b>149,901</b>	<b>66,603</b>	<b>6,157</b>
December .....	472,852	472,242	58,307	82,448	210,928	86,331	6,664	7,078	14,754	5,732	610
November .....	425,032	424,452	55,892	73,000	191,868	75,261	6,232	5,756	11,179	5,264	580
October .....	434,575	434,305	59,036	75,430	192,077	75,691	6,201	8,452	11,913	5,505	270
September .....	548,449	547,767	74,782	95,191	247,583	93,257	6,892	8,612	14,507	6,943	682
August .....	433,189	432,846	59,314	76,220	189,831	75,874	6,860	7,283	11,949	5,515	343
July .....	389,542	388,995	50,024	66,486	176,973	68,082	5,854	6,366	10,728	4,482	547
June .....	520,241	519,609	65,501	95,442	230,803	93,726	7,369	5,211	14,868	6,689	632
May .....	426,838	426,428	57,224	78,308	184,611	76,768	6,335	6,969	11,232	4,981	410
April .....	424,868	424,525	56,909	78,750	183,522	75,172	6,525	7,106	11,795	4,746	343
March .....	518,382	517,687	69,955	93,738	225,724	91,848	7,347	8,042	14,667	6,366	695
February .....	415,124	414,376	57,191	75,915	176,863	74,058	5,892	8,050	11,084	5,323	748
January .....	410,385	410,088	59,520	73,972	175,302	72,197	6,053	6,762	11,225	5,057	297

**Table 5. Stocks of Cotton Held in Consuming Establishments and in Public Warehouses: 1997**

[Number of bales]

Month	Total <sup>1</sup>	In consuming establishments					In warehouses and compresses		
		Domestic and foreign cotton	American upland and foreign cotton			Extra long staple <sup>2</sup>	Total	American upland <sup>3</sup>	Extra long staple <sup>2</sup>
			Total	American upland	Foreign cotton				
December . . . . .	12,529,091	569,266	562,099	561,704	395	7,167	11,959,825	11,782,818	177,007
November . . . . .	11,306,698	569,160	562,647	562,135	512	6,513	10,737,538	10,587,528	150,010
October . . . . .	7,076,544	569,857	563,546	562,774	772	6,311	6,506,687	6,414,258	92,429
September . . . . .	2,644,766	610,968	603,882	603,029	853	7,086	2,033,798	2,004,210	29,588
August . . . . .	3,089,102	662,245	657,125	656,059	1,066	5,120	2,426,857	2,394,664	32,193
July . . . . .	3,835,409	667,873	663,450	662,073	1,377	4,423	3,167,536	3,123,594	43,942
June . . . . .	4,563,333	685,732	681,766	680,073	1,693	3,966	3,877,601	3,820,881	56,720
May . . . . .	5,634,303	677,327	674,027	671,932	2,095	3,300	4,956,976	4,886,659	70,317
April . . . . .	6,874,359	675,312	672,292	669,889	2,403	3,020	6,199,047	6,111,927	87,120
March . . . . .	8,270,122	670,599	667,836	663,633	4,203	2,763	7,599,523	7,487,051	112,472
February . . . . .	9,753,518	660,774	658,224	653,113	5,111	2,550	9,092,744	8,947,164	145,580
January . . . . .	11,093,874	636,377	634,064	627,557	6,507	2,313	10,457,497	10,283,091	174,406

<sup>1</sup>Excludes cotton in transit to ports, warehouses, consuming establishments, and Canada; on docks, on shipboard but not cleared, and other port stocks not in warehouses or consuming establishments; and on farms, in merchant sheds, and in other private storage.

<sup>2</sup>Includes foreign cotton, American-Pima, Sea Island, and other domestic cotton.

<sup>3</sup>Includes Egyptian, Sudanese, and other foreign cotton (other than foreign cotton held in bond awaiting opening of quota or held for transshipments to other countries).

**Table 6. Stocks of Cotton Held by Consuming Establishments by State: 1997**

Month	Domestic and foreign total	Cotton growing states									
		Total	Alabama	Georgia	North Carolina	South Carolina	Tennessee	Texas	Virginia	Other	All other states
Number of running bales											
December . . . . .	569,266	568,420	157,728	74,429	197,089	99,135	10,944	12,610	9,603	6,882	846
November . . . . .	569,160	568,328	165,521	69,026	192,863	95,744	12,517	13,426	12,586	6,645	832
October . . . . .	569,857	568,744	150,013	76,414	193,640	107,432	10,413	13,362	11,139	6,331	1,113
September . . . . .	610,968	610,192	131,928	92,047	223,109	121,978	9,859	13,189	11,834	6,248	776
August . . . . .	662,245	661,203	126,036	109,766	242,839	137,399	13,322	14,366	11,162	6,313	1,042
July . . . . .	667,873	667,017	132,045	111,408	26,313	137,679	12,866	18,866	11,199	6,641	856
June . . . . .	685,732	684,126	137,380	109,918	244,741	143,537	12,848	14,550	13,033	8,119	1,606
May . . . . .	677,327	676,741	139,456	108,166	240,069	140,235	12,804	17,506	10,216	8,289	586
April . . . . .	675,312	675,026	147,290	97,238	247,261	138,158	12,085	15,206	9,852	7,936	286
March . . . . .	670,599	669,709	147,033	96,463	243,109	131,250	13,281	19,736	11,707	7,130	890
February . . . . .	660,774	660,236	145,009	103,116	241,061	127,470	13,270	12,243	11,148	6,919	538
January . . . . .	636,377	635,707	143,145	93,401	223,319	120,558	13,879	24,291	9,684	7,430	670
1,000 pounds											
December . . . . .	282,297	281,874	77,901	36,962	98,014	49,152	5,408	6,255	4,761	3,421	423
November . . . . .	282,749	282,333	81,935	34,383	96,033	47,592	6,185	6,659	6,246	3,300	416
October . . . . .	282,623	282,067	74,388	38,058	95,734	53,440	5,150	6,640	5,554	3,103	556
September . . . . .	304,781	304,393	65,796	45,916	111,531	60,689	4,883	6,549	5,907	3,122	388
August . . . . .	329,875	329,354	62,842	54,736	121,174	68,287	6,602	7,040	5,573	3,100	521
July . . . . .	332,693	332,265	65,841	55,522	117,920	68,369	6,371	9,325	5,590	3,327	428
June . . . . .	341,726	340,923	68,349	55,155	121,966	71,333	6,367	7,183	6,489	4,081	803
May . . . . .	336,979	336,686	69,308	53,924	119,546	69,697	6,336	8,651	5,064	4,160	293
April . . . . .	335,142	334,999	72,701	48,470	122,842	68,623	5,979	7,531	4,871	3,982	143
March . . . . .	333,588	333,143	73,043	48,105	121,116	65,125	6,582	9,802	5,797	3,573	445
February . . . . .	327,775	327,506	71,928	51,288	119,383	63,187	6,580	6,171	5,517	3,452	269
January . . . . .	315,648	315,313	70,868	46,357	110,896	59,734	6,895	12,064	4,785	3,714	335

**Table 7. Stocks of Cotton Held in Public Storage and at Compresses by State: 1997**

[Number of bales]

States	December	November	October	Septem-ber	August	July	June	May	April	March	February	January
<b>Total . . . . .</b>	<b>11,959,825</b>	<b>10,737,538</b>	<b>6,506,687</b>	<b>2,033,798</b>	<b>2,426,857</b>	<b>3,167,536</b>	<b>3,877,601</b>	<b>4,956,976</b>	<b>6,199,047</b>	<b>7,599,523</b>	<b>9,092,744</b>	<b>10,457,497</b>
Alabama . . . . .	343,293	297,529	187,001	71,070	88,822	135,321	181,196	226,584	272,232	337,087	387,368	432,902
Arizona and New Mexico . . . . .	655,254	547,683	334,860	92,469	49,788	79,134	128,963	176,299	268,951	378,520	473,112	583,108
Arkansas . . . . .	1,057,900	1,046,129	633,143	77,973	152,828	240,190	319,446	400,531	477,300	576,162	673,767	798,566
California . . . . .	1,865,767	1,727,789	1,062,816	233,065	302,633	449,663	557,152	742,890	905,933	1,094,685	1,310,178	1,458,227
Florida and Georgia . . . . .	884,669	699,657	385,740	128,414	169,156	250,252	312,313	400,722	506,029	642,621	758,960	883,913
Louisiana . . . . .	696,311	820,026	727,873	183,477	167,815	258,204	362,096	462,847	580,245	681,948	800,489	886,073
Mississippi . . . . .	1,238,889	1,290,309	949,846	151,409	185,905	284,295	390,329	497,937	616,407	741,924	881,656	1,026,313
Missouri . . . . .	219,319	225,960	212,015	27,014	29,880	37,631	48,315	63,473	84,272	103,003	160,868	215,906
North Carolina . . . . .	593,219	461,828	231,307	231,451	422,133	539,745	387,494	448,822	487,978	512,167	514,086	524,602
Oklahoma and Texas . . . . .	3,504,348	2,780,778	1,140,839	616,885	548,790	447,588	633,605	919,603	1,305,688	1,768,757	2,317,627	2,851,172
South Carolina . . . . .	232,479	199,770	100,303	33,906	45,653	59,446	70,964	85,141	113,815	134,778	163,571	174,780
Tennessee . . . . .	668,377	640,080	540,944	186,665	263,454	386,067	485,728	532,127	580,197	627,871	651,062	621,935
Other states . . . . .	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

**Table 8. Consumption of Manmade Fiber Staple: 1997**

[Thousands of pounds]

Month	Total <sup>1</sup>	Rayon and/or acetate	Total noncellulosic	Nylon	Acrylic and modacrylic	Polyester	Other manmade fiber staple
<b>Total, year ending December 27, 1997 . . . . .</b>	<b>1,493,537</b>	<b>155,703</b>	<b>1,337,834</b>	<b>30,792</b>	<b>106,264</b>	<b>1,186,133</b>	<b>14,645</b>
December . . . . .	122,493	10,523	111,970	2,119	7,505	101,305	1,041
November . . . . .	114,400	12,160	102,240	1,845	7,987	91,541	867
October . . . . .	117,309	12,857	104,452	2,483	7,892	92,860	1,217
September . . . . .	147,464	16,367	131,097	3,262	9,422	117,120	1,293
August . . . . .	119,677	12,787	106,890	2,539	7,392	95,564	1,395
July . . . . .	107,145	10,206	96,939	2,234	6,950	86,555	1,200
June . . . . .	142,259	12,837	129,422	3,184	12,269	112,511	1,458
May . . . . .	122,124	12,857	109,267	2,694	9,108	96,365	1,100
April . . . . .	120,565	13,283	107,282	2,000	9,886	94,269	1,127
March . . . . .	142,894	16,251	126,643	3,071	11,689	110,693	1,190
February . . . . .	120,834	12,975	107,859	2,837	8,679	94,873	1,470
January . . . . .	116,373	12,600	103,773	2,524	7,485	92,477	1,287

<sup>1</sup>Represents consumption in mills with cotton system spindles.

**Table 9. Stocks of Manmade Fiber Staple: 1997**

[Thousands of pounds]

Month	Total <sup>1</sup>	Rayon and/or acetate	Total noncellulosic	Nylon	Acrylic and modacrylic	Polyester	Other manmade fiber staple
December . . . . .	51,199	8,409	42,790	321	4,165	37,793	511
November . . . . .	49,009	8,237	40,772	423	5,695	34,255	399
October . . . . .	51,741	8,395	43,346	381	5,762	36,744	459
September . . . . .	49,152	7,990	41,162	288	5,197	35,144	533
August . . . . .	49,065	7,735	41,330	690	5,372	34,594	674
July . . . . .	52,627	8,839	43,788	608	5,418	37,306	456
June . . . . .	50,814	8,811	42,003	352	6,178	34,879	594
May . . . . .	47,972	7,733	40,239	466	5,472	33,822	479
April . . . . .	48,934	8,740	40,194	416	5,193	34,047	538
March . . . . .	52,327	9,058	43,269	354	5,586	36,886	443
February . . . . .	52,933	9,304	43,629	527	4,870	37,447	785
January . . . . .	52,931	8,402	44,529	268	5,236	38,029	996

<sup>1</sup>Stocks are only for mills with cotton system spindles.









**Table 13. Consumption of Linters by Type of Consumer: 1997**

[Number of running bales]

Month	Total	Bleachers	Other consumers		
			Total	Pacific and Mountain states	All other states
<b>Total, year ending December 27, 1997.....</b>	<b>749,584</b>	<b>704,268</b>	<b>45,316</b>	<b>15,987</b>	<b>29,329</b>
December.....	72,722	68,826	3,896	1,415	2,481
November.....	55,618	51,627	3,991	1,322	2,669
October.....	45,225	41,606	3,619	1,294	2,325
September.....	78,763	74,620	4,143	1,457	2,686
August.....	58,700	54,767	3,933	1,376	2,557
July.....	48,057	44,435	3,622	1,193	2,429
June.....	71,594	67,605	3,989	1,522	2,467
May.....	62,575	58,705	3,870	1,384	2,486
April.....	64,990	61,494	3,496	1,199	2,297
March.....	72,625	68,599	4,026	1,611	2,415
February.....	59,223	56,069	3,154	1,109	2,045
January.....	59,492	55,915	3,577	1,105	2,472

**Table 14. Stocks of Linters by Type of Establishment: 1997**

[Number of running bales]

Month	All establishments	Bleachers	Other consumers			Public storage and compresses	Oil mills <sup>1</sup>
			Total	Pacific and Mountain states	All other states		
December.....	179,694	135,878	(D)	(D)	(D)	(D)	40,307
November.....	188,186	133,745	(D)	(D)	(D)	(D)	44,288
October.....	155,351	127,558	(D)	(D)	(D)	(D)	17,938
September.....	158,131	120,283	(D)	(D)	(D)	(D)	28,682
August.....	201,541	151,326	(D)	(D)	(D)	(D)	36,797
July.....	213,142	164,493	(D)	(D)	(D)	(D)	39,988
June.....	214,366	167,708	(D)	(D)	(D)	(D)	42,723
May.....	232,147	177,355	(D)	(D)	(D)	(D)	50,532
April.....	242,986	185,615	(D)	(D)	(D)	(D)	53,699
March.....	264,809	193,122	(D)	(D)	(D)	(D)	67,888
February.....	268,507	194,608	(D)	(D)	(D)	(D)	70,435
January.....	260,338	189,183	(D)	(D)	(D)	(D)	66,728

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Oil mill stocks in estimated running bales based on information reported in pounds.

**HISTORICAL NOTE**

Data on cotton consumption and stocks have been collected by the Census Bureau since 1912. Except for 1991, which was done on a quarterly basis, the entire series is monthly. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959), available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Robert Lee, 301-457-4810.

## CONSUMPTION ON THE WOOLEN SYSTEM AND WORSTED COMBING (MQ22D)

### INTRODUCTION

These data cover all establishments consuming fibers in woolen spinning and/or producing tops and noils, including commission work on materials owned by others (fibers laid in mixes for commission spinning on the woolen system, and commission top making).

Woolen and worsted spinning systems are frequently studied together since both are used to spin wool. The primary differences between the two systems are that yarns spun on the worsted system are combed in order to remove the short fibers or noils and to make the individual fibers more parallel. This produces a yarn that is more tightly twisted and of finer texture. This yarn is generally used to produce fabric that is more tightly woven, with a smoother finish and with a crisper hand.

Fabrics made from yarns spun on the woolen system are typically characterized by softness or bulk. The fabrics are frequently knitted or woven into plain or twill weaves and are generally subjected to considerable finishing to enhance the texture.

Both of these systems are used to produce yarn of manufactured fibers and blends, as well as wool. For example, while very little carpet yarn is still wool, much of it is spun on the worsted system.

### EXPLANATION OF TERMS

See explanation of terms at the beginning of this chapter.

Table 15. **Summary of Fibers Consumed in Woolen Spinning and Worsted Combing: 1993 to 1997**

[Thousands of pounds]

Product description	1997	1996	1995	1994	1993
All fibers <sup>1</sup> .....	904,777	912,195	953,372	1,035,750	1,008,135
Raw wool <sup>2 3</sup> .....	143,962	141,836	141,966	153,302	156,811
Apparel class .....	130,386	129,525	129,299	138,563	141,380
Woolen system .....	70,341	69,716	57,300	61,998	67,519
Worsted combing .....	60,045	59,809	71,999	76,565	73,861
Carpet class .....	13,576	12,311	12,667	14,739	15,431
Noils, reprocessed and reused wool, and other animal fibers <sup>4</sup> .....	20,371	22,557	19,808	18,641	22,728
Other fibers <sup>1 5</sup> .....	740,444	747,802	791,598	863,807	828,596

<sup>1</sup>Includes manmade fiber top converted from tow without combing.

<sup>2</sup>Data are shown on a scoured basis for greasy wool.

<sup>3</sup>Shorn and pulled wool of the sheep does not include raw wool consumed in cotton system spinning; withheld to avoid disclosing data for individual companies.

<sup>4</sup>Includes mohair, alpaca, vicuna, and other specialty fibers, as well as tops and noils consumed in woolen spinning and mohair consumed in worsted combing. Does not include wool tops consumed in cotton system spinning.

<sup>5</sup>Includes cotton, jute, and other vegetable fibers. Data for product code 22993 62, which were included with "Other fibers" data in previous publications, are now being included in the data for "Noils, reprocessed and reused wool, and other animal fibers."

**Table 16. Fibers Consumed in Woolen Spinning and Worsted Combing by Quarter: 1997 and 1996**

[Thousands of pounds]

Product description	Total	First quarter	Second quarter	Third quarter	Fourth quarter
<b>1997</b>					
All fibers <sup>1</sup> .....	904,777	229,038	234,576	220,396	220,767
Raw wool <sup>2 3</sup> .....	143,962	36,561	37,154	34,033	36,214
Apparel class .....	130,386	33,124	33,830	30,638	32,794
Woolen system .....	70,341	18,289	18,112	16,145	17,795
Worsted combing .....	60,045	14,835	15,718	14,493	14,999
Carpet class <sup>4</sup> .....	13,576	3,437	3,324	3,395	3,420
Noils, reprocessed and reused wool, and other animal fibers <sup>5</sup> .....	20,371	5,444	5,423	5,012	4,492
Other fibers <sup>1</sup> .....	740,444	187,033	191,999	181,351	180,061
Nylon .....	458,280	116,120	117,350	114,483	110,327
Polyester .....	117,184	28,597	30,379	27,744	30,464
Acrylic and modacrylic .....	143,063	36,631	38,053	34,231	34,148
Other fibers <sup>6</sup> .....	21,917	5,685	6,217	4,893	5,122
<b>1996</b>					
All fibers <sup>1</sup> .....	912,195	237,489	235,328	225,066	214,312
Raw wool <sup>2 3</sup> .....	141,836	42,206	38,853	30,833	29,944
Apparel class .....	129,525	39,059	36,193	27,440	26,833
Woolen system .....	69,716	21,270	20,438	14,770	13,238
Worsted combing .....	59,809	17,789	15,755	12,670	13,595
Carpet class <sup>4</sup> .....	12,311	3,147	2,660	3,393	3,111
Noils, reprocessed and reused wool, and other animal fibers <sup>5</sup> .....	22,557	5,635	7,128	5,661	4,133
Other fibers <sup>1</sup> .....	747,802	189,648	189,347	188,572	180,235
Nylon .....	448,413	112,532	115,057	116,591	104,233
Polyester .....	118,193	34,759	27,241	26,898	29,295
Acrylic and modacrylic .....	158,813	36,950	41,456	39,488	40,919
Other fibers <sup>6</sup> .....	22,383	5,407	5,593	5,595	5,788

<sup>1</sup>Includes top converted from manmade fiber tow without combing.

<sup>2</sup>Data are shown on a scoured basis for greasy wool.

<sup>3</sup>Shorn and pulled wool of the sheep does not include raw wool consumed in cotton system spinning.

<sup>4</sup>Data for carpet and rug yarns, tops, noils, reprocessed wool, and other wool, except shorn and pulled, are included with carpet class raw wool in order to avoid disclosing data for individual companies. These data represent less than one-half of 1 percent of "Total carpet class, raw wool."

<sup>5</sup>Includes mohair, alpaca, vicuna, and other specialty fibers, as well as tops and noils consumed in woolen spinning and mohair and other fibers, except wool of the sheep consumed in worsted combing. Does not include wool tops consumed in cotton system spinning, which in 1997 amounted to 2,149 thousand pounds and in 1996 amounted to 2,649 thousand pounds.

<sup>6</sup>Includes cotton, jute, and other vegetable fibers. Data for product code 22993 62, which were included with "Other fibers" data in previous publications, are now being included in the data for "Noils, reprocessed and reused wool, and other animal fibers."

**Table 17. Fibers Consumed in Woolen Spinning by Quarter: 1997 and 1996**

[Thousands of pounds]

Product code	Product description	Total	First quarter	Second quarter	Third quarter	Fourth quarter
<b>1997</b>						
	Fibers consumed in woolen spinning <sup>1</sup> . . . . .	802,257	203,380	208,016	195,352	195,509
	For yarns (except carpet and rug) . . . . .	289,026	75,370	77,510	67,591	68,555
	Shorn and pulled wool of the sheep (domestic and foreign duty-paid) . . . . .	70,341	18,289	18,112	16,145	17,795
00214 61	60S and finer . . . . .	49,038	12,027	12,228	11,647	13,136
00214 62	Coarser than 60S . . . . .	21,303	6,262	5,884	4,498	4,659
	Other wool . . . . .	17,061	4,415	4,690	4,015	3,941
02299 38	Sheep (tops, noils, etc.) . . . . .	12,198	3,078	3,496	2,907	2,717
00214 71	Other (mohair, alpaca, vicuna, etc.) . . . . .	4,863	1,337	1,194	1,108	1,224
02294 07	Reprocessed wool and reused wool . . . . .	2,248	609	629	639	371
	Other fibers . . . . .	199,376	52,057	54,079	46,792	46,448
02824 14	Nylon . . . . .	35,156	9,692	9,140	8,338	7,986
02824 29	Polyester . . . . .	31,829	8,258	8,848	7,382	7,341
02824 25	Acrylic and modacrylic . . . . .	110,502	(D)	(D)	26,179	25,999
00100 17	All other fibers, including rayon and acetate . . . . .	21,889	(D)	(D)	4,893	5,122
	For carpet and rug yarns . . . . .	513,231	128,010	130,506	127,761	126,954
00214 51	Shorn and pulled wool of the sheep (domestic and foreign duty-paid) <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)
02299 36	Tops, noils, mohair, reused and reprocessed wool, and other wool (except shorn or pulled) <sup>2</sup> . . . . .	13,576	3,437	3,324	3,395	3,420
	Other fibers . . . . .	499,655	124,573	127,182	124,366	123,534
02824 13	Nylon . . . . .	423,124	106,428	108,210	106,145	102,341
02824 25	Polyester . . . . .	(D)	(D)	(D)	(D)	(D)
02824 24	Acrylic and modacrylic . . . . .	(D)	(D)	(D)	(D)	(D)
00100 14	All other fibers, including rayon and acetate . . . . .	-	-	-	-	-
<b>1996</b>						
	Fibers consumed in woolen spinning <sup>1</sup> . . . . .	808,773	208,575	209,994	201,637	188,567
	For yarns (except carpet and rug) . . . . .	286,799	75,849	78,518	68,003	64,429
	Shorn and pulled wool of the sheep (domestic and foreign duty-paid) . . . . .	69,716	21,270	20,438	14,770	13,238
00214 61	60S and finer . . . . .	42,141	11,405	12,247	9,234	9,255
00214 62	Coarser than 60S . . . . .	27,575	9,865	8,191	5,536	3,983
	Other wool . . . . .	17,167	4,405	5,245	4,059	3,458
02299 38	Sheep (tops, noils, etc.) . . . . .	11,661	3,022	3,590	2,723	2,326
00214 71	Other (mohair, alpaca, vicuna, etc.) . . . . .	5,506	1,383	1,655	1,336	1,132
02294 07	Reprocessed wool and reused wool . . . . .	3,000	672	1,228	903	197
	Other fibers . . . . .	196,916	49,502	51,607	48,271	47,536
02824 14	Nylon . . . . .	11,660	3,352	3,279	3,028	2,001
02824 29	Polyester . . . . .	36,254	11,705	8,154	8,477	7,918
02824 25	Acrylic and modacrylic . . . . .	126,867	29,100	34,643	31,233	31,891
00100 17	All other fibers, including rayon and acetate . . . . .	22,135	5,345	5,531	5,533	5,726
	For carpet and rug yarns . . . . .	521,974	132,726	131,476	133,634	124,138
00214 51	Shorn and pulled wool of the sheep (domestic and foreign duty-paid) <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)
02299 36	Tops, noils, mohair, reused and reprocessed wool, and other wool (except shorn or pulled) <sup>2</sup> . . . . .	12,311	3,147	2,660	3,393	3,111
	Other fibers . . . . .	509,663	129,579	128,816	130,241	121,027
02824 13	Nylon . . . . .	436,753	109,180	111,778	113,563	102,232
02824 25	Polyester . . . . .	(D)	(D)	(D)	(D)	(D)
02824 24	Acrylic and modacrylic . . . . .	(D)	(D)	(D)	(D)	(D)
00100 14	All other fibers, including rayon and acetate . . . . .	(D)	(D)	(D)	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Data are shown on a scoured basis for greasy wools.

<sup>2</sup>Product codes 00214 51 and 02299 36 are combined to avoid disclosing data for individual companies.

**Table 18. Production of Tops and Noils Combed and Manmade Tow Converted to Top Without Combing by Quarter: 1997 and 1996**

[Thousands of pounds]

Product code	Product description	Total	First quarter	Second quarter	Third quarter	Fourth quarter
<b>1997</b>						
	Tops and noils combed .....	61,107	15,255	15,822	14,851	15,179
	Top production .....	56,313	14,090	14,521	13,687	14,015
	Wool of the sheep (domestic and foreign duty-paid) .....	(D)	(D)	(D)	(D)	(D)
22993 21	60S and finer .....	44,459	11,692	12,025	9,687	11,055
22993 24	Coarser than 60S .....	(D)	(D)	(D)	(D)	(D)
22993 31	All other fibers, including mohair .....	(D)	(D)	(D)	(D)	(D)
	Noil production .....	4,794	1,165	1,301	1,164	1,164
	Wool of the sheep (domestic and foreign duty-paid) .....	(D)	(D)	(D)	(D)	(D)
22993 51	60S and finer .....	3,694	954	1,055	825	860
22993 54	Coarser than 60S .....	(D)	(D)	(D)	(D)	(D)
22993 62	All other fibers, including mohair .....	(D)	(D)	(D)	(D)	(D)
	Manmade tow converted to top without combing ..	41,413	10,403	10,738	10,193	10,079
22993 75	Polyester .....	(D)	(D)	(D)	(D)	(D)
22993 73	Acrylic fibers .....	(D)	(D)	(D)	(D)	(D)
22993 76	Manmade fibers (except polyester or acrylic) ...	(D)	(D)	(D)	-	-
<b>1996</b>						
	Tops and noils combed .....	62,199	18,347	16,410	13,369	14,073
	Top production .....	57,368	16,975	15,104	12,273	13,016
	Wool of the sheep (domestic and foreign duty-paid) .....	(D)	(D)	(D)	(D)	(D)
22993 21	60S and finer .....	42,523	13,540	11,714	8,129	9,140
22993 24	Coarser than 60S .....	(D)	(D)	(D)	(D)	(D)
22993 31	All other fibers, including mohair .....	(D)	(D)	(D)	(D)	(D)
	Noil production .....	4,831	1,372	1,306	1,096	1,057
	Wool of the sheep (domestic and foreign duty-paid) .....	(D)	(D)	(D)	(D)	(D)
22993 51	60S and finer .....	3,534	1,087	1,011	730	706
22993 54	Coarser than 60S .....	(D)	(D)	(D)	(D)	(D)
22993 62	All other fibers, including mohair .....	(D)	(D)	(D)	(D)	(D)
	Manmade tow converted to top without combing ..	41,223	10,567	8,924	10,060	11,672
22993 75	Polyester .....	(D)	(D)	(D)	(D)	(D)
22993 73	Acrylic fibers .....	(D)	(D)	(D)	(D)	(D)
22993 76	Manmade fibers (except polyester or acrylic) ...	(D)	(D)	(D)	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies.

**HISTORICAL NOTE**

Data on the consumption of staple fibers on the woolen and worsted systems have been collected by the Census Bureau since 1919. Prior to 1990, the survey was conducted on a monthly basis. Beginning in 1991, the survey became quarterly. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before

1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Stephanie Angel, 301-457-4698.

## YARN PRODUCTION (TEXTURED AND SPUN) (MA22F)

### INTRODUCTION

Yarn production is the first stage in the textile manufacturing process. Yarn is a continuous strand of textile fibers and is the basic material that is made into fabrics, thread, twine, or cable. It can be woven, knitted, crocheted, braided, etc.

There are two basic classes of yarn: spun yarn or continuous filament yarn. This subsection of the report provides data on spun yarn and textured filament yarn. Textured yarn has been either bulked, crimped, heat set, or

subjected to some other process intended to give the yarn fullness, stretch, etc. Data are not included that relate to the production of flat filament yarn, which is generally considered to be a chemical manufacturing process.

The data are presented by end use, by fiber, and by spinning system.

### EXPLANATION OF TERMS

See explanation of terms at the beginning of this chapter.

**Table 19. Summary of Yarn Production: 1985 to 1997**

[Millions of pounds]

Year	Spun yarn			Textured, crimped, or bulked yarn		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
1997.....	7,840.1	2,908.1	4,932.0	3,789.5	2,234.4	1,555.1
1996.....	7,771.6	2,801.6	4,970.0	3,858.1	2,240.2	1,617.9
1995.....	8,127.1	3,022.8	5,104.3	3,781.8	2,294.6	1,487.2
1994.....	8,145.2	2,818.9	5,326.3	3,947.5	2,294.1	1,653.4
1993.....	7,566.6	2,510.6	5,056.0	3,564.6	2,149.1	1,415.5
1992.....	7,444.6	2,555.3	4,889.3	3,223.8	2,019.1	1,204.7
1991.....	6,875.1	2,332.6	4,542.5	2,999.7	1,996.9	1,002.8
1990.....	6,493.3	2,190.0	4,303.3	2,811.6	1,874.8	936.8
1989.....	6,759.3	2,289.7	4,469.6	2,789.7	1,898.7	891.0
1988.....	6,636.4	2,287.8	4,348.6	2,617.5	1,849.8	767.7
1987.....	6,731.4	2,303.3	4,428.1	2,470.9	1,790.2	680.7
1986.....	6,154.1	2,095.8	4,058.4	2,273.5	1,682.2	591.3
1985.....	5,704.3	1,836.5	3,867.8	2,403.1	1,758.1	645.0

<sup>†</sup>Revised by 5 or more percent from previously published data.

Note: For 1993, a number of companies were added based on information in the 1992 Census of Manufactures. Data were received from these establishments for 1992; therefore, information shown for years prior to 1992 may not be directly comparable. These changes represent approximately 1.2 percent of total spun yarn production, and 3.5 percent for textured, crimped, or bulked filament yarn.

Table 20. **Summary of Spun Yarn Production by Fiber and End Use of Distribution: 1997 and 1996**

[Thousands of pounds]

Principal fiber	1997			1996		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
<b>Spun yarn</b> .....	<b>7,840,091</b>	<b>2,908,138</b>	<b>4,931,953</b>	<b>7,771,643</b>	<b>2,801,604</b>	<b>4,970,039</b>
Cotton .....	4,416,490	1,987,490	2,429,000	4,344,493	1,929,866	2,414,627
Carded .....	3,946,651	1,669,229	2,277,422	3,878,142	1,616,705	2,261,437
85 percent or more cotton .....	3,585,096	1,467,217	2,117,879	3,495,979	1,402,096	2,093,883
Other chiefly cotton blends .....	361,555	202,012	159,543	382,163	214,609	167,554
Combed .....	469,839	318,261	151,578	466,351	313,161	153,190
85 percent or more cotton .....	396,506	(D)	(D)	393,015	(D)	(D)
Other chiefly cotton blends .....	73,333	(D)	(D)	73,336	(D)	(D)
Wool and chiefly wool blends .....	108,714	20,398	88,316	113,310	22,456	90,854
Woolen .....	60,163	11,248	48,915	61,769	14,708	47,061
Worsted .....	48,551	9,150	39,401	51,541	7,748	43,793
Cellulosic (rayon, acetate and/or lyocell) <sup>1</sup> .....	130,645	64,657	65,988	169,898	75,307	94,591
85 percent or more rayon, acetate and/or lyocell .....	103,722	50,640	53,082	136,427	58,058	78,369
Other chiefly rayon, acetate and/or lyocell blends .....	26,923	14,017	12,906	33,471	17,249	16,222
Noncellulosic .....	3,184,242	835,593	2,348,649	3,143,942	773,975	2,369,967
85 percent or more acrylic .....	269,529	198,433	71,096	250,663	178,116	72,547
Other chiefly acrylic blends:						
Mixed with cotton .....	9,199	(D)	(D)	6,631	(D)	(D)
Mixed with wool .....	2,073	566	1,507	688	267	421
Mixed with other fibers .....	7,130	896	6,234	6,977	2,439	4,538
85 percent or more nylon .....	716,785	76,759	640,026	813,302	106,420	706,882
Other chiefly nylon blends .....	5,992	(D)	(D)	8,127	(D)	(D)
85 percent or more polyester .....	509,895	212,797	297,098	441,112	190,966	250,146
Other chiefly polyester blends:						
Mixed with cotton .....	1,433,048	212,580	1,220,468	1,393,762	185,382	1,208,380
Mixed with wool .....	11,421	(D)	(D)	12,940	(D)	(D)
Mixed with other fibers .....	75,964	37,318	38,646	78,291	27,980	50,311
All other manmade fibers <sup>2</sup> .....	143,206	84,366	58,840	131,449	72,889	58,560

D Withheld to avoid disclosing data for individual companies.

<sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Data for rayon, acetate, and lyocell are combined to avoid disclosing data for individual companies.

<sup>2</sup>"All other manmade fibers" includes "Silk and other natural fibers" to avoid disclosing data for individual companies.



**Table 21. Production of Spun Yarn by Fiber and End Use of Distribution: 1997 and 1996**

[Thousands of pounds]

Principal fiber	1997			1996		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
<b>Weaving yarn (except carpet)</b> .....	<b>3,487,126</b>	<b>500,340</b>	<b>2,986,786</b>	<b>3,509,020</b>	<b>468,977</b>	<b>3,040,043</b>
Cotton .....	2,090,669	296,190	1,794,479	2,084,701	281,691	1,803,010
Carded .....	1,944,092	267,111	1,676,981	1,949,224	257,007	1,692,217
85 percent or more cotton .....	1,865,630	250,851	1,614,779	1,862,472	247,206	1,615,266
Other chiefly cotton blends .....	78,462	16,260	62,202	86,752	9,801	76,951
Combed .....	146,577	29,079	117,498	135,477	24,684	110,793
85 percent or more cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
Other chiefly cotton blends .....	(D)	(D)	(D)	(D)	(D)	(D)
Wool and chiefly wool blends .....	81,731	7,158	74,573	90,063	11,781	78,282
Woolen .....	42,129	(D)	(D)	46,237	(D)	(D)
Worsted .....	39,602	(D)	(D)	43,826	(D)	(D)
Cellulosic (rayon, acetate and/or lyocell) <sup>1</sup> .....	109,568	47,497	62,071	144,385	53,117	91,268
85 percent or more rayon, acetate and/or lyocell .....	94,103	(D)	(D)	123,753	(D)	(D)
Other chiefly rayon, acetate and/or lyocell blends .....	15,465	(D)	(D)	20,632	(D)	(D)
Noncellulosic .....	1,205,158	149,495	1,055,663	1,189,871	122,388	1,067,483
85 percent or more acrylic .....	56,201	30,187	26,014	60,309	29,497	30,812
Other chiefly acrylic blends:						
Mixed with cotton .....	1,985	(D)	(D)	2,414	(D)	(D)
Mixed with wool .....	(D)	(D)	(D)	429	(D)	(D)
Mixed with other fibers .....	6,696	(D)	(D)	5,221	(D)	(D)
85 percent or more nylon .....	(D)	(D)	(D)	4,323	(D)	(D)
Other chiefly nylon blends .....	4,256	(D)	(D)	6,823	(D)	(D)
85 percent or more polyester .....	119,998	50,919	69,079	117,466	49,305	68,161
Other chiefly polyester blends:						
Mixed with cotton .....	911,441	53,822	857,619	875,790	27,310	848,480
Mixed with wool .....	10,945	(D)	(D)	12,443	(D)	(D)
Mixed with other fibers .....	43,175	(D)	(D)	53,121	3,909	49,212
All other manmade fibers <sup>2</sup> .....	46,644	5,032	41,612	51,532	4,864	46,668
<b>Machine knitting yarn (except carpet)</b> ..	<b>3,084,555</b>	<b>2,038,391</b>	<b>1,046,164</b>	<b>2,996,483</b>	<b>1,977,624</b>	<b>1,018,859</b>
Cotton .....	2,258,587	(D)	(D)	2,195,081	(D)	(D)
Carded .....	(D)	1,353,037	(D)	(D)	1,314,857	(D)
85 percent or more cotton .....	(D)	1,167,306	(D)	(D)	1,110,550	(D)
Other chiefly cotton blends .....	(D)	185,731	(D)	(D)	204,307	(D)
Combed .....	(D)	(D)	(D)	(D)	(D)	(D)
85 percent or more cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
Other chiefly cotton blends .....	(D)	(D)	-	(D)	(D)	-
Wool and chiefly wool blends .....	10,775	10,089	686	8,367	7,556	811
Woolen .....	4,957	(D)	(D)	3,346	(D)	(D)
Worsted .....	5,818	(D)	(D)	5,021	(D)	(D)
Cellulosic (rayon, acetate and/or lyocell) <sup>1</sup> .....	7,567	(D)	(D)	11,358	(D)	(D)
85 percent or more rayon, acetate and/or lyocell .....	7,277	(D)	(D)	10,707	(D)	(D)
Other chiefly rayon, acetate and/or lyocell blends .....	290	290	-	651	(D)	(D)
Noncellulosic .....	807,626	384,450	423,176	781,677	360,275	421,402
85 percent or more acrylic .....	160,886	(D)	(D)	142,289	(D)	(D)
Other chiefly acrylic blends:						
Mixed with cotton .....	(D)	(D)	-	3,559	3,559	-
Mixed with wool .....	(D)	(D)	(D)	259	(D)	(D)
Mixed with other fibers .....	350	(D)	(D)	1,581	(D)	(D)
85 percent or more nylon .....	24,999	(D)	(D)	26,322	(D)	(D)
Other chiefly nylon blends .....	-	-	-	(D)	(D)	-
85 percent or more polyester .....	124,151	94,136	30,015	120,823	91,099	29,724
Other chiefly polyester blends:						
Mixed with cotton .....	479,661	129,811	349,850	478,861	129,155	349,706
Mixed with wool .....	476	476	-	497	497	-
Mixed with other fibers .....	(D)	(D)	-	(D)	(D)	-
All other manmade fibers <sup>2</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 21. **Production of Spun Yarn by Fiber and End Use of Distribution: 1997 and 1996**—Con.

[Thousands of pounds]

Principal fiber	1997			1996		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
<b>Carpet and rug yarns</b> .....	<b>1,021,833</b>	<b>169,418</b>	<b>852,415</b>	<b>1,053,832</b>	<b>182,254</b>	<b>871,578</b>
Cotton .....	(D)	(D)	-	(D)	(D)	(D)
Carded .....	(D)	(D)	-	(D)	(D)	-
85 percent or more cotton .....	(D)	(D)	-	(D)	(D)	-
Other chiefly cotton blends .....	-	-	-	-	-	-
Combed .....	-	-	-	(D)	-	(D)
85 percent or more cotton .....	-	-	-	(D)	-	(D)
Other chiefly cotton blends .....	-	-	-	-	-	-
Wool and chiefly wool blends .....	15,351	2,941	12,410	14,046	(D)	(D)
Woolen .....	(D)	(D)	(D)	(D)	(D)	(D)
Worsted .....	(D)	(D)	(D)	(D)	(D)	(D)
Cellulosic (rayon, acetate and/or lyocell) <sup>1</sup> .....	(D)	(D)	-	(D)	(D)	-
85 percent or more rayon, acetate and/or lyocell .....	(D)	(D)	-	-	-	-
Other chiefly rayon, acetate and/or lyocell blends .....	-	-	-	(D)	(D)	-
Noncellulosic .....	991,480	151,475	840,005	1,024,650	166,365	858,285
85 percent or more acrylic .....	20,208	(D)	(D)	20,052	(D)	(D)
Other chiefly acrylic blends:						
Mixed with cotton .....	-	-	-	-	-	-
Mixed with wool .....	-	-	-	-	-	-
Mixed with other fibers .....	-	-	-	-	-	-
85 percent or more nylon .....	689,482	75,204	614,278	782,657	103,107	679,550
Other chiefly nylon blends .....	(D)	(D)	-	(D)	(D)	-
85 percent or more polyester .....	243,882	(D)	(D)	192,863	(D)	(D)
Other chiefly polyester blends:						
Mixed with cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
Mixed with wool .....	-	-	-	-	-	-
Mixed with other fibers .....	(D)	(D)	-	14,806	(D)	(D)
All other manmade fibers <sup>2</sup> .....	16,641	(D)	(D)	11,603	(D)	(D)
<b>Hand knitting yarns</b> .....	<b>34,997</b>	<b>(D)</b>	<b>(D)</b>	<b>30,665</b>	<b>(D)</b>	<b>(D)</b>
Cotton .....	(D)	(D)	-	(D)	(D)	-
Carded .....	(D)	(D)	-	(D)	(D)	-
85 percent or more cotton .....	(D)	(D)	-	(D)	(D)	-
Other chiefly cotton blends .....	(D)	(D)	-	(D)	(D)	-
Combed .....	-	-	-	-	-	-
85 percent or more cotton .....	-	-	-	-	-	-
Other chiefly cotton blends .....	-	-	-	-	-	-
Wool and chiefly wool blends .....	(D)	(D)	(D)	(D)	(D)	-
Woolen .....	(D)	(D)	-	(D)	(D)	-
Worsted .....	(D)	(D)	(D)	(D)	(D)	-
Cellulosic (rayon, acetate and/or lyocell) <sup>1</sup> .....	(D)	(D)	-	(D)	(D)	-
85 percent or more rayon, acetate and/or lyocell .....	-	-	-	-	-	-
Other chiefly rayon, acetate and/or lyocell blends .....	(D)	(D)	-	(D)	(D)	-
Noncellulosic .....	(D)	(D)	(D)	(D)	(D)	(D)
85 percent or more acrylic .....	(D)	(D)	(D)	(D)	(D)	(D)
Other chiefly acrylic blends:						
Mixed with cotton .....	(D)	(D)	-	(D)	(D)	-
Mixed with wool .....	-	-	-	-	-	-
Mixed with other fibers .....	(D)	(D)	-	(D)	(D)	-
85 percent or more nylon .....	-	-	-	-	-	-
Other chiefly nylon blends .....	-	-	-	-	-	-
85 percent or more polyester .....	-	-	-	-	-	-
Other chiefly polyester blends:						
Mixed with cotton .....	-	-	-	-	-	-
Mixed with wool .....	-	-	-	-	-	-
Mixed with other fibers .....	-	-	-	-	-	-
All other manmade fibers <sup>2</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 21. **Production of Spun Yarn by Fiber and End Use of Distribution: 1997 and 1996**—Con.

[Thousands of pounds]

Principal fiber	1997			1996		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
<b>All other spun yarns. . . . .</b>	<b>211,580</b>	<b>(D)</b>	<b>(D)</b>	<b>181,643</b>	<b>(D)</b>	<b>(D)</b>
Cotton . . . . .	50,777	(D)	(D)	48,068	33,626	14,442
Carded . . . . .	44,243	(D)	(D)	41,920	(D)	(D)
85 percent or more cotton . . . . .	37,555	(D)	(D)	34,909	(D)	(D)
Other chiefly cotton blends . . . . .	6,688	(D)	(D)	7,011	(D)	(D)
Combed . . . . .	(D)	(D)	(D)	6,148	(D)	(D)
85 percent or more cotton . . . . .	(D)	(D)	(D)	6,148	(D)	(D)
Other chiefly cotton blends . . . . .	-	-	-	-	-	-
Wool and chiefly wool blends . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Woolen . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Worsted . . . . .	(D)	(D)	-	(D)	(D)	-
Cellulosic (rayon, acetate, and/or lyocell) <sup>1</sup> . . . . .	12,832	(D)	(D)	14,008	(D)	(D)
85 percent or more rayon, acetate, and/or lyocell . . . . .	(D)	(D)	(D)	1,967	(D)	(D)
Other chiefly rayon, acetate blends, and/or lyocell . . . . .	(D)	(D)	(D)	12,041	(D)	(D)
Noncellulosic . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
85 percent or more acrylic . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Other chiefly acrylic blends:						
Mixed with cotton . . . . .	-	-	-	(D)	(D)	-
Mixed with wool . . . . .	-	-	-	-	-	-
Mixed with other fibers . . . . .	(D)	(D)	-	(D)	(D)	-
85 percent or more nylon . . . . .	(D)	(D)	(D)	-	-	-
Other chiefly nylon blends . . . . .	(D)	(D)	-	-	-	-
85 percent or more polyester . . . . .	21,864	(D)	(D)	9,960	(D)	(D)
Other chiefly polyester blends:						
Mixed with cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Mixed with wool . . . . .	-	-	-	-	-	-
Mixed with other fibers . . . . .	7,245	(D)	(D)	(D)	(D)	(D)
All other manmade fibers <sup>2</sup> . . . . .	77,328	(D)	(D)	65,979	(D)	(D)

- Represents zero.    D Withheld to avoid disclosing data for individual companies.    <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Data for rayon, acetate, and lyocell are combined to avoid disclosing data for individual companies.

<sup>2</sup>"All other manmade fibers" includes "Silk and other natural fibers" to avoid disclosing data for individual companies.

**Table 22. Production of Spun Yarn by State: 1997 and 1996**

[Thousands of pounds]

State	1997	1996
<b>United States</b> .....	<b>7,840,091</b>	<b>7,771,643</b>
Alabama .....	838,114	810,233
Georgia .....	1,789,033	1,858,278
Kentucky .....	(D)	(D)
Maine .....	39,694	<sup>1</sup> 52,371
Massachusetts .....	9,145	9,410
Mississippi .....	(D)	(D)
North Carolina .....	2,926,997	2,852,576
Pennsylvania .....	6,861	10,038
South Carolina .....	1,461,255	<sup>1</sup> 1,475,789
Tennessee .....	211,077	<sup>1</sup> 201,380
Texas .....	114,168	102,150
Virginia .....	236,989	204,919
All other states .....	77,767	76,940

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 23. Production of Spun Yarn by Spinning System and End Use: 1997 and 1996**

[Thousands of pounds]

System of spinning	1997			1996		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
<b>Production, all systems</b> .....	<b>7,840,091</b>	<b>2,908,138</b>	<b>4,931,953</b>	<b>7,771,643</b>	<b><sup>1</sup>2,801,604</b>	<b>4,970,039</b>
Cotton system .....	6,578,456	2,600,873	3,977,583	6,470,640	2,488,183	3,982,457
Weaving (except carpet) .....	3,338,023	476,311	2,861,712	3,335,073	<sup>1</sup> 431,593	2,903,480
Machine knitting (except carpet) .....	2,983,486	1,963,129	1,020,357	2,891,376	1,900,112	991,264
Carpet and rug .....	(D)	60,967	(D)	(D)	<sup>1</sup> 70,852	(D)
Hand knitting .....	(D)	(D)	-	(D)	(D)	-
All other uses .....	132,790	(D)	(D)	<sup>1</sup> 112,368	(D)	(D)
Woolen system .....	138,763	15,952	122,811	<sup>1</sup> 182,857	19,818	<sup>1</sup> 163,039
Weaving (except carpet) .....	54,300	(D)	(D)	<sup>1</sup> 72,841	(D)	(D)
Machine knitting (except carpet) .....	(D)	(D)	(D)	29,496	(D)	(D)
Carpet and rug .....	43,847	4,418	39,429	<sup>1</sup> 70,224	5,081	<sup>1</sup> 65,143
Hand knitting .....	(D)	(D)	(D)	(D)	(D)	(D)
All other uses .....	3,759	(D)	(D)	(D)	(D)	(D)
Worsted system .....	961,710	201,578	760,132	957,826	200,569	757,257
Weaving (except carpet) .....	72,667	7,188	65,479	<sup>1</sup> 74,168	<sup>1</sup> 9,486	<sup>1</sup> 64,682
Machine knitting (except carpet) .....	67,211	(D)	(D)	65,015	(D)	(D)
Carpet and rug .....	792,380	102,552	689,828	793,065	104,930	688,135
Hand knitting .....	25,070	(D)	(D)	(D)	(D)	-
All other uses .....	4,382	(D)	(D)	(D)	(D)	(D)
Other systems .....	161,162	89,735	71,427	<sup>1</sup> 160,320	<sup>1</sup> 93,034	67,286
Weaving (except carpet) .....	(D)	12,825	(D)	(D)	18,643	(D)
Machine knitting (except carpet) .....	(D)	(D)	-	(D)	(D)	-
Carpet and rug .....	63,597	(D)	(D)	<sup>1</sup> 60,382	(D)	(D)
Hand knitting .....	-	-	-	-	-	-
All other uses .....	70,649	70,649	-	<sup>1</sup> 62,404	<sup>1</sup> 62,404	-

- Represents zero.

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.

Table 24. **Production of Textured, Crimped, or Bulked Filament Yarns by Fiber and End Use: 1997 and 1996**

Product description	1997			1996		
	Total	For sale	For own use or commission	Total	For sale	For own use or commission
All yarn .....	3,789,485	2,234,395	1,555,090	3,858,147	2,240,219	1,617,928
Nylon .....	2,202,311	1,420,218	782,093	2,285,552	1,456,834	828,718
Polyester .....	991,952	680,307	311,645	933,251	638,591	294,660
Rayon, acetate and/or lyocell .....	2,283	1,098	1,185	<sup>1</sup> 2,275	<sup>1</sup> 1,182	1,093
Other yarns .....	592,939	132,772	460,167	637,069	<sup>1</sup> 143,612	493,457
Weaving yarn (except carpet) .....	650,215	356,964	293,251	613,119	339,199	273,920
Nylon .....	109,844	93,919	15,925	96,569	(D)	(D)
Polyester .....	478,281	(D)	(D)	452,291	(D)	(D)
Rayon, acetate and/or lyocell .....	1,684	(D)	(D)	<sup>1</sup> 1,572	(D)	(D)
Other yarns .....	60,406	25,851	34,555	62,687	32,356	30,331
Knitting yarn (except carpet) .....	681,295	618,435	62,860	647,722	589,089	58,633
Nylon .....	204,175	(D)	(D)	193,491	189,912	3,579
Polyester .....	474,810	(D)	(D)	451,874	(D)	(D)
Rayon, acetate and/or lyocell .....	(D)	(D)	-	(D)	(D)	(D)
Other yarns .....	(D)	(D)	-	(D)	(D)	-
Carpet and rug yarn .....	2,300,905	1,122,667	1,178,238	2,444,823	1,172,046	1,272,777
Nylon .....	1,780,065	1,029,416	750,649	1,885,184	1,077,070	808,114
Polyester .....	14,566	(D)	(D)	9,523	(D)	(D)
Rayon, acetate and/or lyocell .....	-	-	-	-	-	-
Other yarns .....	506,274	(D)	(D)	550,116	(D)	(D)
All other uses .....	157,070	136,329	20,741	152,483	139,885	12,598
Nylon .....	108,227	(D)	(D)	110,308	(D)	(D)
Polyester .....	24,295	(D)	(D)	19,563	(D)	(D)
Rayon, acetate and/or lyocell .....	(D)	(D)	(D)	(D)	(D)	(D)
Other yarns .....	(D)	(D)	(D)	(D)	(D)	(D)

- Represents zero.    D Withheld to avoid disclosing data for individual companies.    <sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 25. Domestic Production, Imports, and Exports of Yarn: 1997 and 1996**

[Quantity in thousands of kilograms. Value in thousands of dollars]

Product description and year	Total production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to domestic production		Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup>		Percent imports to apparent consumption	
		Quantity	Value	Quantity	Value	Quantity	Value <sup>3</sup>	Quantity	Value	Quantity	Value
<b>1997</b>											
<b>Spun yarn.....</b>	<b>3,556,265</b>	<b>95,014</b>	<b>357,522</b>	<b>2.7</b>	<b>(NA)</b>	<b>109,822</b>	<b>500,308</b>	<b>3,571,073</b>	<b>(NA)</b>	<b>3.1</b>	<b>(NA)</b>
Cotton.....	2,003,320	65,706	217,239	3.3	(NA)	51,590	214,185	1,989,204	(NA)	2.6	(NA)
85 percent or more cotton ..	1,806,055	62,811	202,616	3.5	(NA)	44,045	184,118	1,787,289	(NA)	2.5	(NA)
Carded.....	1,626,200	48,978	152,694	3.0	(NA)	38,779	152,282	1,616,001	(NA)	2.4	(NA)
Combed.....	179,855	13,833	49,922	7.7	(NA)	5,266	31,836	171,288	(NA)	3.1	(NA)
Other chiefly cotton blends ..	197,265	2,895	14,623	1.5	(NA)	7,545	30,067	201,915	(NA)	3.7	(NA)
Carded.....	164,001	2,366	10,494	1.4	(NA)	3,273	14,992	164,908	(NA)	2.0	(NA)
Combed.....	33,264	529	4,129	1.6	(NA)	4,272	15,075	37,007	(NA)	11.5	(NA)
Wool spun yarn.....	49,313	590	7,641	1.2	(NA)	6,434	73,475	55,157	(NA)	11.7	(NA)
Woolen.....	27,290	83	981	0.3	(NA)	2,136	17,582	29,343	(NA)	7.3	(NA)
Worsted.....	22,023	507	6,660	2.3	(NA)	4,298	55,893	25,814	(NA)	16.7	(NA)
Manmade spun yarn.....	1,503,633	28,718	132,642	1.9	(NA)	51,798	212,648	1,526,713	(NA)	3.4	(NA)
Cellulosic.....	59,261	5,659	27,975	9.5	(NA)	14,141	56,051	67,743	(NA)	20.9	(NA)
Noncellulosic.....	1,444,372	23,059	104,667	1.6	(NA)	37,657	156,597	1,458,970	(NA)	2.6	(NA)
Polyester.....	920,957	11,669	46,614	1.3	(NA)	7,173	26,527	916,461	(NA)	0.8	(NA)
85 percent or more polyester.....	231,288	3,568	15,337	1.8	(NA)	4,667	18,160	199,491	(NA)	2.5	(NA)
Other chiefly polyester blends.....	689,668	8,101	31,277	0.9	(NA)	2,506	8,367	659,755	(NA)	0.4	(NA)
Acrylic.....	130,606	1,200	7,397	0.9	(NA)	15,586	81,567	144,992	(NA)	10.7	(NA)
85 percent or more acrylic.....	122,258	1,056	6,124	0.9	(NA)	14,637	74,500	123,331	(NA)	11.9	(NA)
Other chiefly acrylic blends.....	8,347	144	1,273	2.6	(NA)	949	7,067	7,042	(NA)	13.5	(NA)
Nylon.....	327,852	3,182	19,696	1.0	(NA)	894	11,745	325,564	(NA)	0.3	(NA)
All other, including silk and other natural fibers.....	64,958	7,008	30,960	10.8	(NA)	14,004	36,758	71,954	(NA)	19.5	(NA)
<b>Manmade textured, bulked, or crimped filament yarn.....</b>	<b>1,717,875</b>	<b>101,666</b>	<b>320,226</b>	<b>5.9</b>	<b>(NA)</b>	<b>95,861</b>	<b>287,464</b>	<b>1,443,036</b>	<b>(NA)</b>	<b>6.6</b>	<b>(NA)</b>
Polyester.....	449,949	58,783	157,131	13.1	(NA)	31,045	78,595	422,211	(NA)	7.4	(NA)
Nylon.....	998,968	36,717	139,047	3.7	(NA)	58,573	186,360	1,020,824	(NA)	5.7	(NA)
Other.....	268,957	6,166	24,048	2.3	(NA)	6,243	22,509	269,034	(NA)	2.3	(NA)
<b>1996</b>											
<b>Spun yarn.....</b>	<b>3,525,217</b>	<b>80,285</b>	<b>326,634</b>	<b>2.3</b>	<b>(NA)</b>	<b>94,554</b>	<b>442,843</b>	<b>3,539,486</b>	<b>(NA)</b>	<b>2.7</b>	<b>(NA)</b>
Cotton.....	1,970,662	51,917	180,298	2.6	(NA)	43,094	204,374	1,961,839	(NA)	2.2	(NA)
85 percent or more cotton ..	1,764,048	50,027	171,344	2.8	(NA)	37,994	183,408	1,752,015	(NA)	2.2	(NA)
Carded.....	1,585,776	36,734	118,972	2.3	(NA)	22,049	99,997	1,571,091	(NA)	1.4	(NA)
Combed.....	178,272	13,293	52,372	7.5	(NA)	15,945	83,411	180,924	(NA)	8.8	(NA)
Other chiefly cotton blends ..	206,614	1,890	8,954	0.9	(NA)	5,100	20,966	209,824	(NA)	2.4	(NA)
Carded.....	173,349	1,486	6,849	0.9	(NA)	2,015	9,909	173,878	(NA)	1.2	(NA)
Combed.....	33,265	404	2,105	1.2	(NA)	3,085	11,057	35,946	(NA)	8.6	(NA)
Wool spun yarn.....	51,397	492	7,923	1.0	(NA)	4,867	57,561	55,772	(NA)	8.7	(NA)
Woolen.....	28,018	42	441	0.1	(NA)	1,889	14,503	29,865	(NA)	6.3	(NA)
Worsted.....	23,379	450	7,482	1.9	(NA)	2,978	43,058	25,907	(NA)	11.5	(NA)
Manmade spun yarn.....	1,503,158	27,876	138,413	1.9	(NA)	46,593	180,908	1,521,875	(NA)	3.1	(NA)
Cellulosic.....	77,066	6,501	45,197	8.4	(NA)	14,875	58,786	85,440	(NA)	17.4	(NA)

See footnotes at end of table.

Table 25. **Domestic Production, Imports, and Exports of Yarn: 1997 and 1996—Con.**

[Quantity in thousands of kilograms. Value in thousands of dollars]

Product description and year	Total production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to domestic production		Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup>		Percent imports to apparent consumption	
		Quantity	Value	Quantity	Value	Quantity	Value <sup>3</sup>	Quantity	Value	Quantity	Value
<b>1996—Con.</b>											
<b>Spun yarn—Con.</b>											
<b>Manmade spun yarn—Con.</b>											
Noncellulosic.....	1,426,092	21,375	93,216	1.5	(NA)	31,718	122,122	1,436,435	(NA)	2.2	(NA)
Polyester.....	873,681	9,428	39,895	1.1	(NA)	6,214	27,278	870,467	(NA)	0.7	(NA)
85 percent or more polyester.....	200,088	3,609	16,567	1.8	(NA)	5,018	22,206	199,491	(NA)	2.5	(NA)
Other chiefly polyester blends.....	673,593	5,819	23,328	0.9	(NA)	1,196	5,072	659,755	(NA)	0.2	(NA)
Acrylic.....	120,185	1,145	5,672	1.0	(NA)	11,329	58,078	130,369	(NA)	8.7	(NA)
85 percent or more acrylic.....	113,701	977	4,634	0.9	(NA)	10,604	53,352	123,331	(NA)	8.6	(NA)
Other chiefly acrylic blends.....	6,485	168	1,038	2.6	(NA)	725	4,726	7,042	(NA)	10.3	(NA)
Nylon.....	372,600	5,056	22,565	1.4	(NA)	499	7,817	368,043	(NA)	0.1	(NA)
All other, including silk and other natural fibers.....	59,625	5,746	25,084	9.6	(NA)	13,676	28,949	67,555	(NA)	20.2	(NA)
<b>Manmade textured, bulked, or crimped filament yarn.....</b>	<b>1,749,024</b>	<b>89,310</b>	<b>290,576</b>	<b>5.1</b>	<b>(NA)</b>	<b>77,976</b>	<b>233,547</b>	<b>1,446,286</b>	<b>(NA)</b>	<b>5.4</b>	<b>(NA)</b>
Polyester.....	423,323	51,261	141,935	12.1	(NA)	14,966	40,815	387,028	(NA)	3.9	(NA)
Nylon.....	1,036,726	31,133	127,592	3.0	(NA)	53,665	164,311	1,059,258	(NA)	5.1	(NA)
Other.....	288,974	6,916	21,049	2.4	(NA)	9,345	28,421	291,403	(NA)	3.2	(NA)

NA Not available.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry into the United States plus U.S. import duties.

<sup>4</sup>Apparent consumption is equal to domestic production plus imports minus exports.

Note: Detail may not add to total because of independent rounding.

## HISTORICAL NOTE

Data on the production of spun, textured, bulked, and crimped yarns have been collected by the Census Bureau since 1960. Historical data may be obtained from Current Industrial Reports at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100. Additional information

(employment, payroll, cost of materials, capital expenditures, inventories, etc.) on these yarns is available in both the census of manufactures and the annual survey of manufactures.

## CONTACT FOR DATA USERS

For additional information about these data, contact Robert Lee, 301-457-4810.

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## FABRICS PRODUCTION

### GENERAL

Although there are a number of ways to manufacture fabrics, the two most common are knitting and weaving. The data collected on fabrics production are for knitted and broadwoven fabrics.

### Quantity of Knit and Broadwoven Fabrics Produced: 1993 to 1997

[Millions of pounds]

Year	Woven fabrics produced	Knit fabrics produced
1997.....	5,399	1,974
1996.....	4,905	1,919
1995.....	4,882	2,131
1994.....	4,926	2,212
1993.....	4,825	2,188

Note: Data for broadwoven fabrics were collected in thousands of square yards. Data shown here in pounds are based upon conversion ratios derived from the MC22T survey, Average Weight and Width of Broadwoven Fabrics, issued May 1998.

The table in the preceding column is a summary of knit fabrics production and broadwoven fabrics production for the last 5 years.

Knitting is a method of constructing fabrics by interlocking a series of loops of one or more yarns. The two main types of machine knitting are weft and warp. Data are presented, by fiber, for both types.

The data for woven fabrics are only for broadwoven fabrics. Broadwoven fabrics are at least 12 inches wide. Although this is the majority of the fabrics produced, it does exclude the narrow fabrics used for items such as seat belts, webbing, bindings, zippers, and labels. At one time, the Current Industrial Report series included narrow fabrics, but that survey was canceled in the late 1980's. The data on broadwoven fabrics are collected by type of weave and type of fiber. The categories for this, as with much of the textile data, are structured to be as compatible as possible with the data collected on imports and exports.

## BROADWOVEN FABRICS (MQ22T)

### INTRODUCTION

The data shown in the following tables were collected in the MQ22T, Broadwoven Fabrics, survey. The survey covers all companies manufacturing broadwoven fabrics (gray) in the United States, except those very small companies (generally with less than five employees) for

which census of manufactures data were derived from administrative records.

### EXPLANATION OF TERMS

See explanation of terms and definitions of specific fabrics at the beginning of this chapter.



**Table 26. Summary of Production of Broadwoven Gray Fabrics by Type of Fabrics: 1993 to 1997**

[Fabrics in millions of square yards. Tire cord in millions of pounds]

Quarter and year	Chiefly cotton fabrics	Manmade fiber fabrics, including silk and manmade/ wool blends	Chiefly wool fabrics	Tire cord and tire cord fabrics
<b>1997<sup>1</sup></b>				
Fourth quarter . . . . .	<sup>r</sup> 1,309.2	2,831.7	40.5	242.9
Third quarter . . . . .	<sup>r</sup> 1,283.0	2,879.8	42.3	246.3
Second quarter . . . . .	<sup>r</sup> 1,275.7	2,970.7	49.7	257.3
First quarter . . . . .	<sup>r</sup> 1,210.5	3,066.2	42.7	255.7
<b>1996<sup>1</sup></b>				
Fourth quarter . . . . .	<sup>r</sup> 1,186.9	2,835.2	<sup>r</sup> 36.0	238.7
Third quarter . . . . .	<sup>r</sup> 1,197.9	2,830.1	<sup>r</sup> 34.4	239.5
Second quarter . . . . .	<sup>r</sup> 1,229.7	2,954.1	<sup>r</sup> 47.8	242.0
First quarter . . . . .	<sup>r</sup> 1,181.5	2,722.3	<sup>r</sup> 47.3	251.3
<b>1995<sup>1</sup></b>				
Fourth quarter . . . . .	1,093.4	2,769.6	34.3	230.1
Third quarter . . . . .	1,089.5	2,793.0	35.2	240.0
Second quarter . . . . .	1,136.8	3,068.4	45.9	245.7
First quarter . . . . .	1,168.7	3,123.1	46.8	241.8
<b>1994<sup>1</sup></b>				
Fourth quarter . . . . .	1,143.1	3,105.6	39.0	231.6
Third quarter . . . . .	1,130.7	2,897.7	39.4	218.0
Second quarter . . . . .	1,125.4	2,955.8	51.1	207.4
First quarter . . . . .	1,073.3	2,960.7	49.1	220.9
<b>1993<sup>1</sup></b>				
Fourth quarter . . . . .	1,038.6	2,953.0	42.8	188.8
Third quarter . . . . .	1,070.9	2,819.4	43.9	196.3
Second quarter . . . . .	1,143.5	2,925.1	48.9	209.2
First quarter . . . . .	1,150.1	2,940.2	48.4	203.3

<sup>r</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Revisions resulting from data received from the "Average Weight and Width Study for 1997," MC22T, issued May 1998. Years prior to 1996 may not be directly comparable.

**Table 27. Summary of Production and Loom Assignments of Broadwoven Gray Fabrics: 1997**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	Cotton and chiefly cotton fabrics mixed mainly or solely with manmade fibers . . . . .	20,703	5,078,394	20,794	<sup>r</sup> 1,210,508	20,304	<sup>r</sup> 1,275,695	20,370	<sup>r</sup> 1,283,004	20,703	<sup>r</sup> 1,309,187
2211B 00	Plain weaves . . . . .	8,775	2,416,706	8,787	<sup>r</sup> 556,093	8,357	<sup>r</sup> 611,288	8,582	<sup>r</sup> 613,240	8,775	<sup>r</sup> 636,085
2211C 00	Twill weaves . . . . .	7,021	1,745,539	7,047	432,692	7,003	430,683	6,979	444,960	7,021	437,204
2211D 00	All other weaves (except pile) . . . . .	2,173	380,280	2,142	92,797	2,236	97,632	2,168	91,379	2,173	98,472
2211E 00	Pile fabrics . . . . .	2,734	535,869	2,818	128,926	2,708	136,092	2,641	133,425	2,734	137,426
	Chiefly cotton fabrics mixed mainly or solely with other than manmade fibers . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Manmade fiber and silk gray broadwoven fabrics . . . . .	39,965	11,702,428	41,451	3,056,819	40,752	2,959,547	40,410	2,869,868	40,135	2,831,683
2221B 00	85 percent or more filament rayon and/or acetate fabrics . . . . .	2,583	491,305	2,974	143,172	2,974	127,672	2,848	121,352	2,583	99,109
2221C 00	85 percent or more filament fabrics (except rayon and/or acetate) . . . . .	14,088	5,914,232	14,466	1,530,704	14,285	1,505,242	14,063	1,491,898	14,088	1,386,388
	85 percent or more spun yarn fabrics (except wool blends) . . . . .	16,810	3,799,783	17,575	982,641	17,417	955,874	17,190	901,533	16,980	<sup>r</sup> 975,224
2221D 00	Plain weave (except pile) . . . . .	13,159	3,030,003	13,542	780,579	13,489	760,853	13,213	715,536	13,329	<sup>r</sup> 788,524
2221E 00	Twill weave (except pile) . . . . .	1,585	434,273	1,915	116,235	1,777	108,919	1,761	104,058	1,585	105,061
2221F 00	All other weaves (except pile) . . . . .	2,066	335,507	<sup>r</sup> 2,118	<sup>r</sup> 85,827	<sup>r</sup> 2,151	<sup>r</sup> 86,102	<sup>r</sup> 2,216	<sup>r</sup> 81,939	<sup>r</sup> 2,066	<sup>r</sup> 81,639
2221G 00	Spun/filament yarn combinations . . . . .	5,546	1,383,197	5,470	369,013	5,121	338,330	5,408	330,231	5,546	345,623
2221H 10	Pile fabrics . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221H 2X	All other chiefly manmade fiber fabrics, including chiefly manmade fiber blends with wool . . . . .	425	45,438	413	12,778	404	13,734	386	9,458	425	9,468
2221H 01	Silk fabrics . . . . .	24	966	36	163	49	285	39	295	24	223
	Woolen and worsted fabrics . . . . .	1,844	175,226	1,907	42,697	1,939	49,718	1,898	42,346	1,844	40,465

D Withheld to avoid disclosing data for individual companies.

<sup>r</sup>Revised by 5 percent or more from previously published data.

**Table 28. Summary of Production of Broadwoven Fabrics by Textile Category: 1997**

[Thousands of square yards]

Product description	Production				
	Total	First quarter	Second quarter	Third quarter	Fourth quarter
Blue denim .....	853,871	222,779	<sup>†</sup> 209,324	210,666	211,102
All other yarn dyed fabrics .....	418,006	<sup>†</sup> 118,070	<sup>†</sup> 119,637	<sup>†</sup> 94,114	<sup>†</sup> 86,185
Plain weave .....	83,812	21,105	23,739	20,022	18,946
Twill weave .....	116,893	41,944	38,287	20,539	16,123
All other weave .....	217,301	<sup>†</sup> 55,021	<sup>†</sup> 57,611	<sup>†</sup> 53,553	<sup>†</sup> 51,116
Cheesecloth and batistes .....	1,488,619	<sup>†</sup> 351,203	<sup>†</sup> 386,756	<sup>†</sup> 363,097	<sup>†</sup> 387,563
Duck .....	53,636	12,820	12,431	11,885	16,500
Oxfords .....	98,554	21,588	23,640	25,651	27,675
Pile fabrics .....	603,376	147,274	154,502	148,526	153,074
Special weave fabrics .....	339,782	85,672	86,762	79,462	87,886
Other fabrics, chiefly cotton fiber:					
Print cloth .....	240,771	55,853	61,896	62,298	60,724
Poplin and broadcloth .....	72,740	17,060	22,776	18,023	14,881
Sheeting .....	778,603	186,778	185,554	195,336	210,935
Twills .....	789,440	170,974	187,116	217,739	213,611
Sateens .....	33,590	9,260	8,634	7,663	8,033
Other fabrics, chiefly manmade fiber:					
Manmade/wool blends .....	45,438	12,778	13,734	9,458	9,468
85 percent or more filament yarn fabrics:					
Typewriter fabrics .....	(D)	(D)	(D)	(D)	(D)
Other nylon .....	434,746	114,194	119,126	103,874	97,552
Rayon and acetate .....	491,305	143,172	127,672	121,352	99,109
Polyester .....	891,831	224,022	224,942	224,609	218,258
Glass fiber .....	495,205	126,804	132,569	119,176	116,656
All other .....	(D)	(D)	(D)	(D)	(D)
85 percent or more spun yarn fabrics:					
Print cloth .....	606,351	156,147	155,721	139,860	154,623
Poplin and broadcloth .....	427,157	109,788	99,492	107,874	110,003
Sheeting .....	1,740,907	435,301	434,902	420,286	450,418
Twills and sateens .....	448,421	120,531	112,904	107,363	107,623
Spun/filament combinations (except blue denim):					
Print cloth .....	302,898	86,989	74,534	69,370	72,005
Poplin and broadcloth .....	456,411	123,567	118,828	105,405	108,611
Sheeting .....	58,488	15,335	16,263	12,560	14,330
Twills and sateens .....	91,401	23,502	20,934	23,729	23,236
Other .....	466,355	117,949	<sup>†</sup> 105,473	117,434	125,499
Wool fabrics .....	175,226	42,697	49,718	42,346	40,465
Silk fabrics .....	966	163	285	295	223

D Withheld to avoid disclosing data for individual companies.

<sup>†</sup>Revised by 5 percent or more from previously published data.

**Table 29. Production and Loom Assignment of 85 Percent or More Spun Yarn Fabrics and Spun/Filament Combinations, Chiefly Cotton or Manmade Fibers, Excluding Blends of Wool, Silk, and Chiefly Cotton/Other Vegetable Fibers and Pile Fabrics: 1997**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
2211B 02	Tobacco, cheese, and bandage cloth	1,770	1,596,025	1,833	1,370,866	1,753	1,409,993	1,742	1,394,150	1,770	1,421,016
	More than 50 percent cotton	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 03	Chiefly spun polyester mixed with cotton	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 04	Chiefly spun rayon and/or acetate	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 05	All other fabrics, 85 percent or more spun yarn	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 05	Chiefly cotton	-	-	-	-	-	-	-	-	-	-
2221G 04	Chiefly manmade	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 12	Print cloth	6,811	1,150,025	6,580	298,989	6,551	292,153	6,585	271,529	6,811	287,354
	More than 50 percent cotton	2,695	240,736	2,658	55,853	2,679	61,858	2,681	62,299	2,695	60,726
2221D 13	Chiefly spun polyester mixed with cotton	2,979	586,311	2,843	150,971	2,864	150,402	2,862	134,861	2,979	150,077
2221D 15	Chiefly spun polyester mixed with rayon	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 16	Chiefly spun rayon and/or acetate	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 18	All other fabrics, 85 percent or more spun yarn	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations	1,019	302,938	943	86,989	898	74,574	929	69,370	1,019	72,005
2211B 14	Chiefly cotton	(D)	(D)	-	-	(D)	(D)	(D)	(D)	(D)	(D)
2221G 07	Chiefly manmade	(D)	(D)	943	86,989	(D)	(D)	(D)	(D)	(D)	(D)
	Poplin and broadcloth	3,950	1,006,151	4,177	263,704	4,004	253,824	4,044	243,382	3,950	245,241
	More than 50 percent cotton	106	33,639	175	9,982	187	9,808	97	7,434	106	6,415
	Weighing 5.9 ounces or less per square yard	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 21	Carded	72	19,223	38	5,172	55	4,334	57	5,005	72	4,712
2211B 25	Combed	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 30	Weighing more than 5.9 ounces per square yard	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Chiefly spun polyester mixed with cotton	2,176	426,768	2,165	108,941	2,150	103,045	2,239	109,555	2,176	105,227
	Weighing 5.0 ounces or less per square yard	2,093	404,569	2,076	103,041	2,055	97,388	2,153	103,923	2,093	100,217
2221D 23	Carded	1,289	242,199	1,396	62,645	1,338	58,082	1,405	59,931	1,289	61,541
2221D 25	Combed	804	162,370	680	40,396	717	39,306	748	43,992	804	38,676
	Weighing more than 5.0 ounces per square yard	83	22,199	89	5,900	95	5,657	86	5,632	83	5,010
2221D 27	Carded	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 31	Combed	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 33	Chiefly spun rayon and/or acetate	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 34	All other fabrics, 85 percent or more spun yarn	94	13,037	61	2,028	55	1,615	55	3,883	94	5,511
	Spun/filament combinations	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 35	Chiefly cotton	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 19	Chiefly manmade	1,420	456,411	1,504	123,567	1,426	118,828	1,524	105,405	1,420	108,611

See footnotes at end of table.

**Table 29. Production and Loom Assignment of 85 Percent or More Spun Yarn Fabrics and Spun/Filament Combinations, Chiefly Cotton or Manmade Fibers, Excluding Blends of Wool, Silk, and Chiefly Cotton/Other Vegetable Fibers and Pile Fabrics: 1997—Con.**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
2211B 41	Lawns, voiles, and batistes . . . . .	158	9,538	132	2,751	126	2,659	142	1,853	158	2,275
	More than 50 percent cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 41	Chiefly spun polyester mixed with cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 44	Chiefly spun rayon and/or acetate . . . . .	-	-	-	-	-	-	-	-	-	-
2221D 42	All other fabrics, 85 percent or more spun yarn . . . . .	-	-	-	-	-	-	-	-	-	-
	Spun/filament combinations . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 43	Chiefly cotton . . . . .	-	-	-	-	-	-	-	-	-	-
2221G 28	Chiefly manmade . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Duck, including taped warp duck . . . . .	415	57,380	359	13,363	335	13,238	370	13,439	415	17,340
2211B 71	More than 50 percent cotton . . . . .	165	25,539	140	5,664	111	5,600	132	6,109	165	8,166
2221D 89	Chiefly spun polyester mixed with cotton . . . . .	69	7,519	57	1,583	64	1,809	66	2,011	69	2,116
2221D 91	All other fabrics, 85 percent or more spun yarn . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 75	Chiefly cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221B 77	Chiefly manmade . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Bedsheeting . . . . .	9,399	1,936,612	9,762	477,620	9,443	476,498	9,453	480,188	9,399	502,306
2211B 45	More than 50 percent cotton . . . . .	2,989	531,391	2,928	124,821	2,568	124,664	2,893	136,528	2,989	145,378
	Chiefly spun polyester mixed with cotton . . . . .	6,067	1,318,927	6,510	332,196	6,583	328,491	6,309	324,483	6,067	333,757
2221D 43	Carded . . . . .	1,966	502,294	1,759	116,523	1,941	117,318	2,078	131,820	1,966	136,633
2221D 45	Combed . . . . .	4,101	816,633	4,751	215,673	4,642	211,173	4,231	192,663	4,101	197,124
2221D 46	Chiefly spun rayon and/or acetate . . . . .	-	-	-	-	-	-	-	-	-	-
2221D 47	All other fabrics, 85 percent or more spun yarn . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 47	Chiefly cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 33	Chiefly manmade . . . . .	174	57,054	161	14,781	133	15,796	191	12,180	174	14,297
	All other sheeting, including osnaburgs . . . . .	2,449	675,367	2,473	167,611	2,452	171,230	2,376	155,935	2,449	180,591
	More than 50 percent cotton . . . . .	982	222,088	974	56,263	905	55,069	941	52,393	982	58,363
2211B 61	Weighing 5.9 ounces or less per square yard . . . . .	792	152,499	800	40,114	725	37,508	748	34,041	792	40,836
	Weighing more than 5.9 ounces per square yard . . . . .	190	69,589	174	16,149	180	17,561	193	18,352	190	17,527
2211B 63	Blanketing . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 65	All other fabrics . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 29. Production and Loom Assignment of 85 Percent or More Spun Yarn Fabrics and Spun/Filament Combinations, Chiefly Cotton or Manmade Fibers, Excluding Blends of Wool, Silk, and Chiefly Cotton/Other Vegetable Fibers and Pile Fabrics: 1997—Con.**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	All other sheeting, including osnaburgs—Con.										
	85 percent or more spun polyester .....	171	49,279	151	10,466	154	11,909	145	10,672	171	16,232
2221D 63	Blanketing .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 65	All other fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Chiefly spun polyester mixed with cotton .....	713	299,133	723	75,207	755	79,179	656	64,535	713	80,212
2221D 73	Weighing 5.0 ounces or less per square yard .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 75	Weighing more than 5.0 ounces per square yard ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Chiefly spun acrylic .....	145	21,585	162	5,536	164	6,341	152	5,612	145	4,096
2221D 81	Blanketing .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 83	All other fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 84	Chiefly spun rayon and/or acetate .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 85	All other fabrics, 85 percent or more spun yarn .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211B 67	Chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 45	Chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Blue denim .....	3,318	853,871	3,534	222,779	3,253	†209,324	3,229	210,666	3,318	211,102
	More than 50 percent cotton .....	3,203	828,662	3,379	217,471	3,116	†201,976	3,090	204,127	3,203	205,088
2211C 01	Weighing 10.7 ounces or less per square yard .....	314	75,638	340	20,990	285	17,744	313	18,020	314	18,884
2211C 03	Weighing more than 10.7 ounces per square yard ..	2,889	753,024	3,039	196,481	2,831	†184,232	2,777	186,107	2,889	186,204
2221E 03	Chiefly spun polyester mixed with cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211G 05	Chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 46	Chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	All other denim .....	679	211,384	857	51,870	948	48,918	859	61,682	679	48,914
	More than 50 percent cotton .....	678	209,599	853	51,335	935	48,493	855	61,183	678	48,588
2211C 11	Weighing 10.7 ounces or less per square yard .....	71	11,472	71	5,865	67	1,954	76	1,261	71	2,392
2211C 13	Weighing more than 10.7 ounces per square yard ..	607	198,127	786	45,470	868	46,539	779	59,922	607	46,196
2221E 13	Chiefly spun polyester mixed with cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211C 15	Chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221C 18	Chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211C 21	Canton flannels .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	All other twill weaves .....	4,748	1,191,971	4,693	293,323	4,656	298,915	4,820	296,890	4,748	302,843
	More than 50 percent cotton .....	2,828	682,068	2,463	156,743	2,622	173,335	2,712	173,615	2,828	178,375
2211C 31	Weighing 5.9 ounces or less per square yard .....	255	42,349	†288	†12,431	†298	†10,508	292	10,549	255	8,861
2211C 33	Weighing more than 5.9 ounces per square yard ..	2,573	639,719	†2,175	†144,312	†2,324	†162,827	2,420	163,066	2,573	169,514
2221E 21	85 percent or more spun polyester .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 29. Production and Loom Assignment of 85 Percent or More Spun Yarn Fabrics and Spun/Filament Combinations, Chiefly Cotton or Manmade Fibers, Excluding Blends of Wool, Silk, and Chiefly Cotton/Other Vegetable Fibers and Pile Fabrics: 1997—Con.**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	All other twill weaves—Con.										
	Chiefly spun polyester mixed with cotton.....	1,272	330,743	1,439	87,594	1,312	82,655	1,369	78,796	1,272	81,698
2221E 23	Weighing 5.0 ounces or less per square yard.....	211	56,449	189	11,982	206	13,241	248	15,227	211	15,999
2221E 25	Weighing more than 5.0 ounces per square yard..	1,061	274,294	1,250	75,612	1,106	69,414	1,121	63,569	1,061	65,699
2221E 26	Chiefly spun rayon and/or acetate.....	78	22,652	166	7,648	135	5,623	145	4,849	78	4,532
2221E 27	All other fabrics, 85 percent or more spun yarn.....	108	18,918	114	5,194	109	3,840	100	4,480	108	5,404
	Spun/filament combinations.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221C 35	Chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221C 39	Chiefly manmade.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Sateens.....	447	66,674	443	17,800	478	17,633	503	16,333	447	14,908
2221D 05	More than 50 percent cotton.....	194	33,173	156	9,182	179	8,430	179	7,582	194	7,979
2221F 05	Chiefly spun polyester mixed with cotton.....	77	14,126	95	3,974	100	3,891	145	3,710	77	2,551
2221F 06	Chiefly spun rayon and/or acetate.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221F 07	All other fabrics, 85 percent or more spun yarn.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations.....	93	10,682	89	2,453	89	3,047	82	2,770	93	2,412
2221D 07	Chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 05	Chiefly manmade.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Oxfords.....	647	132,995	774	36,954	801	32,560	710	31,026	647	32,455
2221D 11	More than 50 percent cotton.....	238	78,124	303	17,246	347	20,993	277	18,672	238	21,213
2221F 11	Chiefly spun polyester mixed with cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221F 17	All other fabrics, 85 percent or more spun yarn.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 13	Chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 68	Chiefly manmade.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 31	Birdseye diaper cloth.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 35	Huck and crash toweling.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Table damask.....	258	74,133	306	19,581	275	18,766	262	17,743	258	18,043
2221D 45	More than 50 percent cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221F 32	Chiefly spun polyester mixed with cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221F 37	All other fabrics, 85 percent or more spun yarn.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221D 07	Chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 82	Chiefly manmade.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Jacquard and dobby shirting fabrics.....	233	20,958	295	6,601	243	5,172	255	4,419	233	4,766
2221D 51	More than 50 percent cotton.....	13	3,096	28	1,152	22	942	14	485	13	517
2221F 41	Chiefly spun polyester mixed with cotton.....	86	3,222	106	1,305	95	872	87	544	86	501

See footnotes at end of table.

**Table 29. Production and Loom Assignment of 85 Percent or More Spun Yarn Fabrics and Spun/Filament Combinations, Chiefly Cotton or Manmade Fibers, Excluding Blends of Wool, Silk, and Chiefly Cotton/Other Vegetable Fibers and Pile Fabrics: 1997—Con.**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
2221F 43	Jacquard and dobby shirting fabrics—Con.										
	All other fabrics, 85 percent or more spun yarn . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Spun/filament combinations . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211D 53	Chiefly cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221G 84	Chiefly manmade . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	All other weaves . . . . .	4,756	726,749	4,490	182,635	4,497	178,553	4,669	176,829	4,756	188,732
	More than 50 percent cotton . . . . .	1,390	194,290	1,264	47,020	1,323	48,093	1,363	46,475	1,390	52,702
2211D 62	Weighing 5.9 ounces or less per square yard . . . . .	256	31,436	157	7,119	243	8,741	234	7,924	256	7,652
2211D 64	Weighing more than 5.9 ounces per square yard . . . . .	1,134	162,854	1,107	39,901	1,080	39,352	1,129	38,551	1,134	45,050
2221F 52	85 percent or more spun polyester . . . . .	154	32,542	142	8,558	119	7,761	136	8,361	154	7,862
	Chiefly spun polyester mixed with cotton . . . . .	473	66,195	416	15,818	495	19,120	472	15,801	473	15,456
2221F 54	Weighing 5.0 ounces or less per square yard . . . . .	133	12,791	76	2,592	139	3,466	144	3,450	133	3,283
2221F 56	Weighing more than 5.0 ounces per square yard . . . . .	340	53,404	340	13,226	356	15,654	328	12,351	340	12,173
2221F 58	All other fabrics, 85 percent or more spun yarn . . . . .	632	89,633	577	22,197	618	22,569	665	21,341	632	23,526
	Spun/filament combinations . . . . .	2,107	344,089	2,091	89,042	1,942	81,010	2,033	84,851	2,107	89,186
2211D 66	Chiefly cotton . . . . .	74	15,162	150	4,215	123	4,673	112	4,094	74	2,180
2221G 87	Chiefly manmade . . . . .	2,033	328,927	1,941	84,827	1,819	76,337	1,921	80,757	2,033	87,006

- Represents zero.      D Withheld to avoid disclosing data for individual companies.      †Revised by 5 percent or more from previously published data.

**Table 30. Production and Loom Assignment of 85 Percent or More Filament Yarn Fabrics: 1997**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	85 percent or more filament yarn fabrics .....	16,671	6,416,654	17,527	1,679,503	17,356	1,637,604	16,911	1,614,050	16,671	1,485,497
2221B 02	High tenacity yarn fabrics....	476	101,664	500	'26,159	560	25,351	502	25,556	476	24,598
2221C 02	100 percent and chiefly rayon .....	108	15,168	'96	'4,597	103	2,706	106	3,827	108	4,038
2221C 04	100 percent and chiefly nylon.....	238	53,308	255	'12,569	316	15,034	268	13,431	238	12,274
2221C 07	100 percent and chiefly polyester .....	130	33,188	'149	8,993	141	7,611	128	8,298	130	8,286
	85 percent or more filament yarn fabrics obtained from strip-like rayon and/or acetate .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	85 percent or more acetate or triacetate filament yarn fabrics.....	2,152	455,659	2,606	133,843	2,570	119,542	2,456	113,017	2,152	89,257
	Weighing not more than 5 ounces per square yard ..	1,836	413,471	2,196	120,935	2,190	107,349	2,142	104,062	1,836	81,125
2221B 11	Plain weave.....	1,179	246,164	1,384	77,751	1,309	63,150	1,274	59,385	1,179	45,878
2221B 13	Other weaves .....	657	167,307	812	43,184	881	44,199	868	44,677	657	35,247
	Weighing more than 5 ounces per square yard ..	316	42,188	410	12,908	380	12,193	314	8,955	316	8,132
2221B 15	Plain weave.....	156	19,487	161	4,951	168	5,674	163	4,840	156	4,022
2221B 17	Other weaves .....	160	22,701	249	7,957	212	6,519	151	4,115	160	4,110
	Other chiefly rayon and/or acetate filament yarn fabrics.....	323	20,478	272	4,732	301	5,424	286	4,508	323	5,814
2221B 32	Weighing not more than 5 ounces per square yard ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221B 34	Weighing more than 5 ounces per square yard ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	85 percent or more nylon filament yarn fabrics .....	2,531	442,685	2,713	117,109	2,528	118,579	2,404	104,344	2,531	102,653
2221C 11	Typewriter and other impression fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Other 85 percent or more nylon filament yarn fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Weighing not more than 5 ounces per square yard.....	1,747	312,869	1,956	82,198	1,814	85,942	1,719	74,936	1,747	69,793
2221C 14	Flat, nontextured .....	1,483	269,845	1,665	70,699	1,552	73,414	1,492	65,869	1,483	59,863
2221C 16	All other .....	264	43,024	291	11,499	262	12,528	227	9,067	264	9,930
	Weighing more than 5 ounces per square yard.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221C 22	Flat, nontextured .....	91	19,167	'105	'5,233	110	4,943	107	4,956	91	4,035
2221C 24	All other .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Other chiefly nylon filament fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221C 32	Weighing not more than 5 ounces per square yard ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221C 14	Weighing more than 5 ounces per square yard ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.



**Table 30. Production and Loom Assignment of 85 Percent or More Filament Yarn Fabrics: 1997—Con.**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	85 percent or more filament yarn fabrics—Con.										
	85 percent or more polyester filament yarn fabrics . . . . .	4,912	846,303	4,910	211,828	4,861	214,110	4,927	213,280	4,912	207,085
	Textured . . . . .	3,644	626,033	3,468	157,328	3,544	156,502	3,617	156,107	3,644	156,096
	Weighing not more than 5 ounces per square yard <sup>1</sup> . . . . .	1,658	287,252	1,494	70,165	1,516	70,254	1,602	70,890	1,658	75,943
2221C 42	Flat . . . . .	1,179	227,301	1,038	53,336	1,097	55,856	1,112	57,409	1,179	60,700
2221C 44	Other . . . . .	479	59,951	456	16,829	419	14,398	490	13,481	479	15,243
2221C 45	Weighing more than 5 ounces per square yard <sup>1</sup> . . . . .	1,986	338,781	1,974	87,163	2,028	86,248	2,015	85,217	1,986	80,153
	Nontextured . . . . .	1,268	220,270	1,442	54,500	1,317	57,608	1,310	57,173	1,268	50,989
2221C 50	Weighing not more than 5 ounces per square yard <sup>1</sup> . . . . .	723	124,286	935	30,672	794	34,239	765	32,669	723	26,706
2221C 55	Weighing more than 5 ounces per square yard <sup>1</sup> . . . . .	545	95,984	507	23,828	523	23,369	545	24,504	545	24,283
2221C 62	Other chiefly polyester filament fabrics . . . . .	159	12,340	160	3,201	161	3,221	168	3,031	159	2,887
2221C 72	Glass fiber fabrics . . . . .	2,487	495,205	2,399	126,804	2,501	132,569	2,456	119,176	2,487	116,656
	Woven roving and screening . . . . .	175	88,015	190	22,928	178	25,447	179	20,290	175	19,350
2221C 74	All other glass fiber fabrics . . . . .	2,312	407,190	2,209	103,876	2,323	107,122	2,277	98,886	2,312	97,306
	All other 85 percent or more filament yarn fabrics, including saran and olefin . . . . .	3,554	4,023,669	3,765	1,047,823	3,682	1,011,753	3,637	1,028,656	3,554	935,437
2221C 80	Carpet backing . . . . .	2,756	3,734,340	2,893	982,790	2,822	943,480	2,788	948,546	2,756	859,524
	Woven synthetic, including olefin . . . . .	2,756	3,734,340	2,893	982,790	2,822	943,480	2,788	948,546	2,756	859,524
2221C 83	Jute and other backing . . . . .	-	-	-	-	-	-	-	-	-	-
2221C 84	All other . . . . .	798	289,329	872	65,033	860	68,273	849	80,110	798	75,913

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Classified on a finished weight basis.

**Table 31. Production and Loom Assignment of Pile Fabrics, Including Yarn Dyed Fabrics: 1997**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	Pile fabrics .....	3,223	603,376	3,335	147,274	3,210	154,502	3,117	148,526	3,223	153,074
	Corduroy .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	More than 50 percent cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211E 01	Finewales and pinwales .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211E 03	Midwales .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211E 06	Widewales and other ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221H 01	Chiefly manmade fiber ...	(D)	(D)	(D)	(D)	(D)	(D)	-	-	(D)	(D)
	Velvets, plushes, and other pile fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211E 21	More than 50 percent cotton .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221H 11	Chiefly manmade fiber ...	474	67,332	505	18,295	502	18,288	476	15,101	474	15,648
	Terry cloth and terry toweling .....	2,085	451,402	1,942	107,617	1,958	111,653	2,011	113,200	2,085	118,932
2211E 32	Terry toweling .....	2,057	447,089	1,924	106,718	1,940	110,698	1,978	111,899	2,057	117,774
2211E 34	Terry cloth .....	28	4,313	18	899	18	955	33	1,301	28	1,158

- Represents zero. D Withheld to avoid disclosing data for individual companies. † Revised by 5 percent or more from previously published data.

**Table 32. Production and Loom Assignment of Woolen and Worsted Fabrics, Including Chiefly Manmade/Wool Blends and Chiefly Cotton/Wool Blends: 1997**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	Woolen and worsted fabrics, 36 percent or more wool (except felts) ...	1,844	175,226	1,907	42,697	1,939	49,718	1,898	42,346	1,844	40,465
	Apparel fabrics, including government orders .....	1,750	168,440	1,819	41,226	1,854	48,216	1,799	40,267	1,750	38,731
22312 01	Worsted fabrics .....	1,154	97,339	1,213	25,393	1,250	27,723	1,205	22,436	1,154	21,787
	Weighing not more than 5.9 ounces per square yard .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
22312 02	Weighing more than 5.9 ounces per square yard .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
22312 21	Woolen fabrics .....	596	71,101	606	15,833	604	20,493	594	17,831	596	16,944
	Weighing not more than 9 ounces per square yard ...	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
22312 23	Weighing more than 9 ounces per square yard .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Nonapparel fabrics, including government orders (except felts) ..	94	6,786	88	1,471	85	1,502	99	2,079	94	1,734
22312 62	Blanketing, including thermal ...	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
22312 61	Upholstery fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
22312 85	All other fabrics .....	9	367	7	78	7	57	7	110	9	122
22312 92	Woven felts (thousands of pounds) ..	108	3,386	110	916	107	874	107	756	108	840
	Chiefly manmade/wool blend and chiefly cotton/wool blend fabrics ...	425	45,438	413	12,778	404	13,734	386	9,458	425	9,468

D Withheld to avoid disclosing data for individual companies. † Revised by 5 percent or more from previously published data.

**Table 33. Production and Loom Assignment of Upholstery Fabrics: 1997**

[Looms operating in numbers. Production in thousands of square yards]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Looms operating end of year	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production	Looms operating	Production
	Upholstery fabrics . . . . .	4,383	665,503	4,351	'162,616	4,340	'168,993	4,337	'164,554	4,383	'169,340
	85 percent or more spun yarn and spun/filament combinations . . . . .	3,474	552,456	3,362	'133,197	3,366	'139,059	3,412	'137,232	3,474	'142,968
2211E 41	Pile woven . . . . .	722	98,176	749	26,090	744	'26,067	721	'22,446	722	'23,573
	All cotton and chiefly cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2221H 41	All manmade and chiefly manmade . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2211X 01	Flat woven . . . . .	2,752	454,280	2,613	'107,107	2,622	'112,992	'2,691	'114,786	'2,752	'119,395
	All cotton and chiefly cotton . . . . .	1,032	146,591	'983	34,782	'978	'36,513	1,006	35,946	1,032	39,350
	All manmade and chiefly manmade . . . . .	1,720	307,689	'1,630	'72,325	'1,644	'76,479	'1,685	'78,840	'1,720	'80,045
2221X 01	Olefin . . . . .	631	93,359	'598	'22,265	'591	'20,939	'628	'24,958	'631	'25,197
2221X 03	All other flat woven manmade fiber fabrics . . . . .	1,089	214,330	'1,032	'50,060	'1,053	'55,540	'1,057	'53,882	'1,089	'54,848
	85 percent or more filament yarn . . . . .	909	113,047	989	29,419	974	29,934	925	'27,322	909	'26,372
2221X 01	All polyester and chiefly polyester . . . . .	364	49,934	339	'12,677	332	'12,234	342	'11,906	364	'13,117
2221X 03	All nylon and chiefly nylon . . . . .	36	2,470	'31	'618	'31	'607	'31	'624	'36	'621
2221X 05	All olefin and chiefly olefin . . . . .	426	57,397	'509	'15,205	'510	'16,095	'473	'14,083	'426	'12,014
2221X 07	All other filament fiber fabrics . . . . .	83	3,246	'110	'919	'101	'998	'79	'709	'83	'620

D Withheld to avoid disclosing data for individual companies. 'Revised by 5 percent or more from previously published data.

**Table 34. Production of Tire Cord and Tire Cord Fabrics: 1997**

[Thousands of pounds]

Product code	Product description	Production				
		Total	First quarter	Second quarter	Third quarter	Fourth quarter
22960 00	Tire cord and tire cord fabrics . . . . .	1,002,193	255,705	257,262	246,316	242,910
22960 12	Cotton tire cord and tire cord fabrics . . . . .	-	-	-	-	-
22960 32	Rayon tire cord and tire cord fabrics . . . . .	(D)	(D)	(D)	(D)	(D)
22960 35	Nylon tire cord and tire cord fabrics . . . . .	130,920	32,595	34,077	31,094	33,154
22960 37	Polyester tire cord and tire cord fabrics . . . . .	305,082	75,608	77,287	76,972	75,215
22960 38	Glass tire cord and tire cord fabrics . . . . .	(D)	(D)	(D)	(D)	(D)
22960 45	Steel tire cord . . . . .	550,540	143,586	141,921	134,161	130,872
22960 49	All other tire cord and tire cord fabrics, including chafer . . . . .	14,650	3,577	3,751	3,855	3,467

- Represents zero. D Withheld to avoid disclosing data for individual companies. data.

**Table 35. Looms in Place and Loom Hours Operated in Broadwoven Fabrics Mills: 1997**

[Looms in place in numbers. Loom hours in thousands]

Type of loom	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
	Looms in place Dec. 31, 1997	Loom hours operated	Looms in place	Loom hours operated	Looms in place	Loom hours operated	Looms in place	Loom hours operated	Looms in place	Loom hours operated
<b>Total</b> .....	<b>68,939</b>	<b>500,063</b>	<b>71,142</b>	<b>129,161</b>	<b>69,885</b>	<b>126,875</b>	<b>69,075</b>	<b>121,841</b>	<b>68,939</b>	<b>122,186</b>
Shuttle type looms .....	7,529	43,456	8,413	<sup>1</sup> 1,760	7,782	10,580	7,582	10,237	7,529	10,879
Single shuttle cam looms .....	5,737	33,361	6,182	<sup>8</sup> 8,962	5,703	<sup>7</sup> 7,941	5,764	<sup>7</sup> 7,935	5,737	8,523
Single shuttle dobby looms .....	524	2,691	737	844	685	713	524	<sup>5</sup> 533	524	601
Multiple shuttle box or head motion looms .....	924	5,251	<sup>9</sup> 923	<sup>1</sup> 1,319	922	1,325	924	1,304	924	1,303
Double shuttle pile and plush, and jacquard looms .....	344	2,153	571	635	472	601	370	465	344	452
Shuttleless looms and weaving machines .....	61,410	456,607	62,729	117,401	62,103	116,295	61,493	111,604	61,410	111,307
Single filling insertion capability .....	34,718	271,426	35,656	70,197	35,232	69,215	34,815	66,606	34,718	65,408
Air jet looms .....	16,832	134,159	16,382	33,392	16,730	33,628	16,627	33,369	16,832	33,770
Water jet looms .....	4,888	37,478	5,004	9,833	4,916	9,681	4,952	9,267	4,888	8,697
Projectile looms .....	11,034	86,883	12,017	23,512	11,424	22,370	11,256	20,937	11,034	20,064
Rapier looms .....	1,964	12,906	2,253	3,460	2,162	3,536	1,980	3,033	1,964	2,877
Multiple filling insertion capability .....	25,844	180,108	26,218	45,987	26,002	45,833	25,830	43,723	25,844	44,565
Air jet looms .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Water jet looms .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Projectile looms .....	7,271	55,225	7,827	14,631	7,700	14,592	7,469	13,297	7,271	12,705
Rapier looms .....	12,042	73,990	12,326	18,848	12,126	18,501	12,139	17,997	12,042	18,644
Pile and plush looms .....	848	5,073	<sup>8</sup> 855	<sup>1</sup> 1,217	869	1,247	848	1,275	848	1,334

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.



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**HISTORICAL NOTE**

Data on the production of broadwoven fabrics have been collected by the Census Bureau since 1943. Historical data may be obtained from Current Industrial Reports (called Facts for Industry prior to 1959) at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

Additional information (employment, payroll, cost of materials, capital expenditures, inventories, etc.) on broadwoven fabrics is available in both the census of manufactures and the annual survey of manufactures.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Kay Hanks, 301-457-4620.

## KNIT FABRICS PRODUCTION (MA22K)

### INTRODUCTION

The data from the MA22K, Knit Fabrics survey, include all firms producing knit fabrics whether for sale, for own use, or on commission. It excludes very small firms (generally those with less than five employees) for which data for the census of manufactures were derived from administrative records.

The data for production includes all knit fabrics off the knitting machine whether as yard goods, circular sweater strips, or full fashioned garment sections. It also includes the production of fabrics that are finished within the same plant and shipped as finished garments. It does not include hosiery.

### EXPLANATION OF TERMS

**For own use.** Includes cloth that is cut, cut and sewn, or further fabricated within the plant knitting the cloth.

**For sale.** Includes knit cloth that is sold to other plants of the same company for finishing, and to other firms or plants not affiliated with the same company.

**On commission.** Includes fabrics made from yarn owned by others.

See additional explanation of terms at the beginning of this chapter.

**Table 37. Summary of Knit Fabrics Production: 1988 to 1997**

[Millions of pounds]

Year	Total	Warp knit	Weft knit
1997 .....	1,974	380	1,594
1996 .....	1,919	360	1,559
1995 .....	2,131	397	1,734
1994 .....	2,211	350	1,861
1993 .....	2,188	323	1,865
1992 <sup>1</sup> .....	2,179	315	1,864
1991 .....	1,963	296	1,667
1990 .....	1,901	269	1,632
1989 .....	1,935	315	1,620
1988 .....	1,662	321	1,341

<sup>1</sup>For 1993, a number of companies were added based on information in the 1992 Census of Manufactures. Data were received from these establishments for 1992; therefore, information shown for years prior to 1992 may not be directly comparable. These changes represent approximately 4.8 percent of total knit fabric production.

Note: Detail may not add because of independent rounding.

**Table 38. Production of Knit Fabrics Off Knitting Machine by Type: 1997 and 1996**

[Thousands of pounds]

Product code	Product description	1997		1996	
		Number of knitting machines <sup>1</sup>	Total production	Number of knitting machines <sup>1</sup>	Total production
	Knit fabrics production, excluding narrow knit fabrics and knit garment lengths, trimmings, and collars.....	17,886	1,973,698	18,556	1,918,934
	Warp knit fabrics yard goods (over 12 inches in width) .	4,676	379,951	4,898	<sup>1</sup> 359,543
22581 01	Pile fabrics (raschel and raschel crochet) .....	1,382	135,576	1,513	<sup>1</sup> 122,306
22581 02	Long pile fabrics .....	(X)	30,258	(X)	26,823
22581 03	All acrylic or modacrylic and chiefly acrylic or modacrylic .....	(X)	(D)	(X)	(D)
22581 04	All polyester and chiefly polyester .....	(X)	28,419	(X)	24,767
22581 05	All other fibers .....	(X)	(D)	(X)	(D)
22581 07	Looped pile fabrics (terry cloth) .....	(X)	70,104	(X)	<sup>1</sup> 66,485
22581 08	All cotton and chiefly cotton .....	(X)	(D)	(X)	(D)
22581 09	All manmade and chiefly manmade .....	(X)	(D)	(X)	(D)
22581 13	All other fibers .....	(X)	(D)	(X)	(D)
22581 15	All other pile fabrics (velour, etc.) .....	(X)	35,214	(X)	<sup>1</sup> 28,998
22581 16	All cotton and chiefly cotton .....	(X)	(D)	(X)	(D)
22581 17	All manmade and chiefly manmade .....	(X)	31,901	(X)	26,372
22581 19	All other fibers .....	(X)	(D)	(X)	(D)
22581 51	Elastic fabrics (containing by weight 5 percent or more elastomeric yarn or rubber thread) .....	728	37,149	729	34,986
22581 61	All other warp knit fabrics .....	2,566	207,226	2,656	202,251
	By type:				
22581 62	Tricot, simplex and milanese .....	(X)	158,542	(X)	158,464
22581 63	All other .....	(X)	48,684	(X)	43,787
	By fiber:				
22581 71	All cotton and chiefly cotton .....	(X)	(D)	(X)	19,453
22581 72	All wool and chiefly wool .....	(X)	(D)	(X)	(D)
22581 73	All manmade and chiefly manmade .....	(X)	188,422	(X)	181,168
22581 75	All other fibers .....	(X)	(D)	(X)	(D)
	Weft knit yard goods (over 12 inches in width) .....	13,210	1,593,747	13,658	1,559,391
22571 01	Pile fabrics .....	382	42,029	428	<sup>1</sup> 42,167
22571 03	Long pile fabrics, including sliver knit .....	(X)	25,691	(X)	<sup>1</sup> 25,233
22571 05	All acrylic or modacrylic and chiefly acrylic or modacrylic .....	(X)	(D)	(X)	12,854
22571 04	All polyester and chiefly polyester .....	(X)	(D)	(X)	(D)
22571 06	All other fibers .....	(X)	1,030	(X)	(D)
22571 10	Looped pile fabrics (terry cloth) .....	(X)	12,447	(X)	12,834
22571 14	All cotton and chiefly cotton .....	(X)	7,506	(X)	8,366
22571 16	All manmade and chiefly manmade .....	(X)	4,941	(X)	4,468
22571 19	All other fibers .....	(X)	-	(X)	-
22571 21	All other pile fabrics (velour, etc.) .....	(X)	3,891	(X)	4,100
22571 23	All cotton and chiefly cotton .....	(X)	3,074	(X)	3,631
22571 24	All manmade and chiefly manmade .....	(X)	(D)	(X)	(D)
22571 28	All other fibers .....	(X)	(D)	(X)	(D)
22571 71	Elastic fabrics (containing by weight 5 percent or more elastomeric yarn or rubber thread) .....	139	28,156	209	27,522
22571 31	Single circular knit (except pile and elastic) .....	8,641	1,228,078	9,269	1,191,929
	By type:				
22571 32	Fleece or flannel .....	(X)	382,882	(X)	333,271
22571 33	Underwear and nightwear .....	(X)	272,183	(X)	250,273
22571 34	All other apparel uses .....	(X)	465,095	(X)	503,552
22571 36	All other uses .....	(X)	107,918	(X)	104,833
	By fiber:				
22571 37	All cotton and chiefly cotton .....	(X)	718,896	(X)	740,280
22571 38	All wool and chiefly wool .....	(X)	1,545	(X)	<sup>1</sup> 1,612
22571 55	All nylon and chiefly nylon .....	(X)	11,304	(X)	5,650
22571 56	All polyester and chiefly polyester .....	(X)	185,030	(X)	180,487
22571 39	All manmade and chiefly manmade .....	(X)	307,250	(X)	260,728
22571 40	All other fibers .....	(X)	4,053	(X)	3,172
22571 41	Double knit and interlock .....	1,996	200,796	1,876	201,270
	By fiber:				
22571 51	All cotton and chiefly cotton .....	(X)	65,147	(X)	67,588
22571 52	All wool and chiefly wool .....	(X)	495	(X)	<sup>1</sup> 579
22571 53	All manmade and chiefly manmade .....	(X)	(D)	(X)	117,041
22571 54	All other fibers .....	(X)	(D)	(X)	16,062

See footnotes at end of table.



Table 38. **Production of Knit Fabrics Off Knitting Machine by Type: 1997 and 1996—Con.**

[Thousands of pounds]

Product code	Product description	1997		1996	
		Number of knitting machines <sup>1</sup>	Total production	Number of knitting machines <sup>1</sup>	Total production
	Knit fabrics production, excluding narrow knit fabrics and knit garment lengths, trimmings, and collars—Con. Weft knit yard goods (over 12 inches in width)—Con. Double knit and interlock—Con. By type:				
22571 45	Outerwear apparel, other than shirts .....	(X)	85,521	(X)	83,915
22571 44	Outer shirts, blouses, and tops .....	(X)	71,241	(X)	74,974
22571 47	All other uses .....	(X)	44,034	(X)	42,381
22571 60	Rib other than double knit and interlock .....	2,052	94,688	1,876	96,503
22571 61	All cotton and chiefly cotton .....	(X)	56,451	(X)	54,401
22571 62	All wool and chiefly wool .....	(X)	2,631	(X)	(D)
22571 63	All manmade and chiefly manmade .....	(X)	33,174	(X)	37,457
22571 65	All other fibers .....	(X)	2,432	(X)	(D)
	Narrow knit fabrics production .....	1,055	30,330	1,105	28,522
22581 91	Narrow warp knit yard goods (12 inches and less in width) .....	528	19,175	592	18,740
22581 93	Elastic fabrics .....	287	11,351	(D)	(D)
22581 95	All other narrow warp knit fabrics .....	241	7,824	(D)	(D)
22571 81	Narrow weft knit fabric yard goods (12 inches or less in width) .....	527	11,155	513	9,782
22571 83	Elastic fabrics .....	162	7,081	(D)	(D)
22571 84	All other narrow knit fabrics .....	365	4,074	(D)	(D)
	Knit garment lengths, trimmings, and collars <sup>2</sup> .....	2,583	25,397	2,508	28,163
	Knit garment lengths, made on sweater, strip, V-bed, and full-fashioned machines .....	1,215	9,425	1,307	9,016
	Knit trimmings and collars .....	1,368	15,972	1,201	19,147

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Knitting machines operating on last workday of the year.

<sup>2</sup>Quantity produced in thousands of dozens.

**Table 39. Production of Knit Fabrics Off Knitting Machine by Method of Distribution: 1997 and 1996**

[Thousands of pounds]

Product code	Product description	1997			1996		
		Produced for own use	Produced for sale	Produced on commission	Produced for own use	Produced for sale	Produced on commission
	Knit fabrics production, excluding narrow knit fabrics and knit garment lengths, trimmings, and collars .....	1,021,487	720,787	231,424	991,858	684,855	242,221
22581 01	Warp knit fabrics yard goods (over 12 inches in width) .....	81,959	279,163	18,829	90,924	'246,631	'21,988
22581 51	Pile fabrics (raschel and raschel crochet) .....	(D)	(D)	(D)	34,881	'80,328	'7,097
22581 61	Elastic fabrics (containing by weight 5 percent or more elastomeric yarn or rubber thread) .....	(D)	(D)	(D)	(D)	21,342	(D)
	All other warp knit fabrics .....	42,594	152,899	11,733	(D)	144,961	(D)
	Weft knit fabrics yard goods (over 12 inches in width) .....	939,528	441,624	212,595	900,934	438,224	220,233
22571 01	Pile fabrics .....	(D)	22,607	(D)	(D)	'20,050	(D)
22571 71	Elastic fabrics (containing by weight 5 percent or more elastomeric yarn or rubber thread) .....	(D)	17,853	(D)	(D)	17,147	(D)
22571 31	Single circular knit (except pile and elastic) .....	828,564	309,583	89,931	786,580	299,422	105,927
22571 41	Double knit and interlock .....	48,199	68,600	83,997	46,726	73,861	80,683
22571 60	Rib other than double knit and interlock .....	51,082	22,981	20,625	51,819	27,744	16,940
22581 91	Narrow knit fabrics production .....	6,113	23,750	467	6,505	21,413	604
	Narrow warp knit fabrics yard goods (12 inches or less in width) .....	(D)	14,193	(D)	(D)	13,163	(D)
22581 93	Elastic fabrics .....	(D)	(D)	-	(D)	(D)	-
22581 95	All other narrow warp knit fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)
22571 81	Narrow weft knit fabrics yard goods (12 inches or less in width) .....	(D)	9,557	(D)	(D)	8,250	(D)
22571 83	Elastic fabrics .....	-	(D)	(D)	-	(D)	(D)
22571 84	All other narrow weft knit fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)
	Knit garment lengths, trimmings, and collars <sup>1</sup> .....	7,357	10,572	7,468	8,777	12,962	6,424
	Knit garment lengths, made on sweater, strip, V-bed and full-fashioned machines .....	3,213	2,929	3,283	3,142	3,185	2,689
	Knit trimmings and collars .....	4,144	7,643	4,185	5,635	9,777	3,735

- Represents zero. D Withheld to avoid disclosing data for individual companies. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>Quantity produced in thousands of dozens.

**Table 40. Shipments, Exports, Imports, and Apparent Consumption of Knit Fabrics: 1997**

[Quantity in thousands of kilograms. Value in thousands of dollars]

Product description	Domestic production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to manufacturers' shipments (quantity)	Imports for consumption <sup>2</sup>		Percent imports to domestic merchandise (quantity)
		Quantity	Value at port		Quantity	Value <sup>3</sup>	
<b>Total</b> .....	<b>909,027</b>	<b>72,080</b>	<b>614,871</b>	<b>7.9</b>	<b>74,210</b>	<b>713,407</b>	<b>8.2</b>
Pile fabrics .....	80,561	18,855	188,431	23.4	34,237	367,861	42.5
Long pile fabrics .....	25,378	2,220	18,510	8.7	1,627	16,200	6.4
Looped pile fabrics .....	37,445	6,316	85,022	16.9	9,418	75,916	25.2
Of cotton fibers .....	(D)	47	830	(D)	611	5,470	(D)
Of manmade fibers .....	(D)	4,238	75,220	(D)	8,409	63,634	(D)
Of other fibers .....	(D)	2,031	8,972	(D)	398	6,812	(D)
Other pile fabrics .....	17,738	10,319	84,899	58.2	23,192	275,745	130.7
Of cotton fibers .....	(D)	1,188	5,375	(D)	500	7,451	(D)
Of manmade fibers .....	(D)	4,009	58,082	(D)	22,619	266,907	(D)
Of other fibers .....	(D)	5,122	21,442	(D)	73	1,387	(D)
Elastic fabrics .....	37,983	11,354	113,680	29.9	336	5,034	0.9
12 inches or less in width .....	8,361	9,447	77,476	113.0	8	158	0.1
Over 12 inches in width .....	29,622	1,907	36,204	6.4	328	4,876	1.1
Other warp knit fabrics .....	93,998	5,631	61,992	6.0	9,312	92,640	9.9
Of cotton fibers .....	(D)	1,604	14,956	(D)	254	1,667	(D)
Of wool fibers .....	(D)	30	368	(D)	2	104	(D)
Of manmade fibers .....	85,468	3,714	43,575	4.3	9,041	89,985	10.6
Of other fibers .....	(D)	283	3,093	(D)	15	884	(D)
Other narrow knit fabrics .....	5,397	4,698	39,466	87.0	847	9,618	15.7
Other knit fabrics .....	691,088	31,542	211,302	4.6	29,478	238,254	4.3
Of cotton fibers .....	381,248	13,998	82,675	3.7	16,837	74,278	4.4
Of wool fibers .....	2,119	81	1,483	3.8	84	2,828	4.0
Of manmade fibers .....	(D)	14,956	101,441	(D)	12,530	160,386	(D)
Double knit or interlock .....	(D)	(NA)	(NA)	(NA)	6,349	75,068	(D)
Other .....	243,473	(NA)	(NA)	(NA)	6,181	85,318	2.5
Of other fibers .....	(D)	2,507	25,703	(D)	27	762	(D)

D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus import duties.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

**HISTORICAL NOTE**

Data on the production of knit fabrics have been collected by the Census Bureau since 1966. Historical data may be obtained from the Current Industrial Reports available at your local Federal Depository Library. Additional information (employment, payroll, cost of materials, capital expenditures, inventories, etc.) on knit fabrics is available in both the census of manufactures and the annual

survey of manufactures. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Kay Hanks, 301-457-4620.

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## APPAREL (MQ23A)

### INTRODUCTION

The statistics in this subsection represent total U.S. production of most major garments. Hosiery, headwear, neckwear, fur garments, leather garments, and accessories are not included in this survey. Data on the quantity and value of shipments of gloves and mittens are collected separately and shown in separate tables at the end of the apparel section.

The apparel industry is characterized by three types of operations — manufacturers, jobbers, and contractors. The functions of the establishments classified as manufacturers include purchasing materials, cutting and sewing the product within the manufacturer's establishment, and selling the finished product. The functions of the jobber, like those of the manufacturer, involve buying raw materials and marketing the finished product. However, unlike the manufacturer, a jobber has a large part of the actual processing of the product done under contract in an outside factory. Finally, the function of a contractor is to make products in his establishment according to clearly defined specifications, from materials owned by others. A contractor, unlike the manufacturer or jobber, does not own the finished product and does not become involved in the actual sale of the finished goods.

The purpose of this survey is to provide the total domestic quantity produced and value of shipments for each type of garment. Since collecting this information from all three types of establishments would result in substantial duplication, only manufacturers and jobbers are surveyed.

One other form of manufacturing apparel that is becoming more and more significant is what we refer to as "9802" (formerly 807) production. For "9802" production, a domestic manufacturer or jobber buys fabrics and cuts a garment domestically, and then exports the cut pieces to be sewn. The completed garment is then imported. Under special tariff provisions, duty is paid only on the value added rather than on the whole garment. The quantity and value of these garments are included in the domestic data, as well as in the import and export data.

### EXPLANATION OF TERMS

See explanation of terms at the beginning of this chapter.

**Table 41. Summary of Quantity of Production and Value for Apparel: 1997 and 1996**

[Quantity in thousands of dozens. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Men's and boys' apparel:										
Suits .....	9,296	792.5	2,132	176.7	2,193	189.2	2,461	207.2	2,510	219.4
Coats .....	69,427	2,395.6	20,552	717.2	18,731	664.3	14,697	508.9	15,447	505.2
Tops .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Bottoms .....	602,289	7,793.4	147,015	1,963.7	154,155	2,074.0	158,376	2,001.4	142,743	1,754.3
Underwear and nightwear .....	1,411,393	1,940.9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other garments .....	79,656	1,087.5	19,374	288.1	22,609	354.1	18,176	222.2	19,497	223.1
Women's and girls' apparel:										
Dresses .....	178,702	4,341.3	40,305	965.1	46,804	1,108.0	43,190	1,082.4	48,403	1,185.8
Coats .....	52,117	1,921.4	11,086	432.5	15,071	641.5	12,470	408.9	13,490	438.5
Tops .....	(D)	(D)	167,648	1,216.3	165,940	1,296.8	159,070	1,175.0	(D)	(D)
Bottoms .....	602,569	6,689.2	(D)	(D)	156,606	1,836.5	158,383	1,737.9	(D)	(D)
Underwear and nightwear .....	1,106,275	3,623.5	261,529	895.3	281,168	913.2	281,104	923.1	282,474	891.9
Other garments .....	147,696	1,983.1	35,594	462.7	31,543	435.3	36,636	536.4	43,923	548.7
Infants' apparel:										
Coats and jackets .....	307	7.7	59	0.9	68	1.5	86	2.4	94	2.9
Dresses .....	5,758	58.2	1,427	15.5	1,815	18.9	1,165	10.3	1,351	13.5
Knit shirts .....	12,393	46.2	3,213	13.4	5,598	20.0	1,531	6.5	2,051	6.3
Woven shirts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Sweaters .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Sets .....	7,223	50.3	1,273	9.5	1,966	13.2	1,447	10.6	2,537	17.0
Pants and shorts .....	12,277	67.9	2,660	14.5	4,131	20.3	2,531	16.8	2,955	16.3
Play clothing .....	29,423	196.7	7,092	52.5	8,511	55.0	6,273	40.1	7,547	49.1
Underwear .....	28,206	54.5	7,098	13.0	7,702	16.3	6,698	12.6	6,708	12.6
Nightwear .....	63,067	235.9	16,580	64.4	12,782	81.6	15,019	50.8	18,686	39.1
<b>1996</b>										
Men's and boys' apparel:										
Suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Coats .....	64,157	2,185.0	19,589	647.6	17,983	642.0	13,233	450.4	13,352	445.0
Tops .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Bottoms .....	629,719	8,013.1	160,825	2,081.4	158,415	2,065.7	158,578	1,985.4	151,901	1,880.6
Underwear and nightwear .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other garments .....	72,716	1,040.3	20,206	294.7	19,465	321.9	16,205	218.4	16,840	205.3
Women's and girls' apparel:										
Dresses .....	187,094	4,454.7	37,033	907.6	44,460	1,073.9	51,141	1,187.8	54,460	1,285.4
Coats .....	50,909	1,897.4	11,549	482.0	15,220	631.0	10,962	379.8	13,178	404.6
Tops .....	647,293	4,820.2	153,819	1,186.9	156,609	1,255.0	169,647	1,233.8	167,218	1,144.5
Bottoms .....	582,749	6,371.2	135,671	1,492.1	151,923	1,781.2	142,800	1,540.8	152,355	1,557.1
Underwear and nightwear .....	1,152,421	3,717.9	263,823	937.3	280,476	937.1	316,207	970.1	291,915	873.4
Other garments .....	151,155	1,874.7	36,890	430.3	32,849	425.8	36,867	471.5	44,549	547.1
Infants' apparel:										
Coats and jackets .....	340	7.6	98	1.9	85	1.7	78	2.0	79	2.0
Dresses .....	7,295	65.7	2,074	19.2	1,821	17.3	1,261	10.7	2,139	18.5
Knit shirts .....	16,016	71.9	3,226	14.7	5,720	23.9	4,546	21.9	2,524	11.4
Woven shirts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Sweaters .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Sets .....	14,456	82.3	3,267	21.0	3,668	21.6	3,961	20.3	3,560	19.4
Pants and shorts .....	11,631	55.0	3,153	16.1	3,406	16.6	3,167	13.8	1,905	8.5
Play clothing .....	29,292	195.2	6,799	45.5	7,961	52.5	6,741	45.8	7,791	51.4
Underwear .....	25,791	53.3	6,246	12.6	7,211	16.0	6,172	12.1	6,162	12.6
Nightwear .....	46,756	245.6	11,510	59.4	12,748	77.9	10,513	57.5	11,985	50.8

D Withheld to avoid disclosing data for individual companies.

**Table 42. Total Quantity of Production and Value of Shipments of Men's, Junior Boys', and Little Boys' Apparel: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Suits .....	9,296	792.5	2,132	176.7	2,193	189.2	2,461	207.2	2,510	219.4
Trios .....	(D)	(NA)	3	(NA)	2	(NA)	-	(NA)	(D)	(NA)
Coats, jackets, and vests:										
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Dress and sport coats (tailored) .....	11,784	731.3	2,925	180.4	2,909	184.2	2,900	178.2	3,050	188.5
Heavy nontailored coats and jackets .....	21,519	787.6	6,676	268.8	6,198	239.5	4,674	151.7	3,971	127.6
Lightweight nontailored coats and jackets .....	25,056	544.5	7,688	165.8	6,869	156.0	4,583	101.0	5,916	121.7
Overcoats and top coats .....	1,027	78.4	298	25.6	265	21.3	222	14.8	242	16.7
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	2,568	45.3	(D)	(D)	581	7.2	(D)	(D)	(D)	(D)
Work jackets .....	4,702	114.0	1,418	37.6	1,231	31.4	1,087	24.0	966	21.0
Tops:										
Woven dress and business shirts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven sport shirts .....	23,803	267.5	6,251	66.7	6,739	76.3	5,257	59.8	5,556	64.7
Work shirts .....	50,909	505.3	13,212	144.9	13,496	139.1	12,283	111.2	11,918	110.1
Knit T-shirts and tank tops made for outerwear .....	856,518	3,995.4	200,556	861.1	191,943	960.8	223,235	1,108.5	240,784	1,065.0
Sweatshirts .....	203,798	997.5	54,103	259.2	51,027	305.0	49,490	245.5	49,178	187.8
Other knit shirts .....	108,001	820.7	25,486	189.6	29,011	219.7	28,030	219.4	25,474	192.0
Sweaters .....	11,887	188.7	3,158	59.9	3,620	64.7	2,849	36.1	2,260	28.0
Dress and sport trousers .....	133,197	2,315.2	33,341	555.8	37,025	662.0	32,668	583.9	30,163	513.5
Junior boys' dress and sport trousers .....	10,144	(NA)	3,352	(NA)	2,305	(NA)	2,422	(NA)	2,065	(NA)
Jeans .....	244,749	3,683.2	64,262	991.1	65,065	991.6	64,322	950.1	51,100	750.4
Junior boys' jeans .....	27,694	(NA)	6,343	(NA)	8,123	(NA)	8,019	(NA)	5,209	(NA)
Jean-cut casual slacks .....	28,235	275.7	6,738	66.3	7,892	78.7	7,359	70.8	6,246	59.9
Junior boys' jean-cut casual slacks .....	2,729	(NA)	335	(NA)	875	(NA)	882	(NA)	637	(NA)
Shorts .....	89,560	638.1	16,276	117.5	13,504	77.0	25,344	187.9	34,436	255.7
Athletic shorts .....	34,748	(NA)	5,603	(NA)	7,301	(NA)	10,115	(NA)	11,729	(NA)
Sweatpants .....	60,793	280.9	15,083	79.1	19,421	86.8	16,799	71.0	9,490	44.0
Workpants .....	45,755	600.3	11,315	153.9	11,248	177.9	11,884	137.7	11,308	130.8
Underwear and nightwear:										
Pajamas and nightwear .....	13,029	82.2	3,632	27.1	3,641	23.9	3,089	17.5	2,667	13.7
Junior boys' pajamas and nightwear .....	1,548	(NA)	285	(NA)	340	(NA)	445	(NA)	478	(NA)
Robes .....	2,457	49.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Underwear total .....	1,395,907	1,809.3	292,411	449.2	352,837	523.1	391,911	493.7	358,748	343.3
Thermal underwear .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Undershirts (1/4 sleeve and athletic types) .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Knit undershorts and briefs .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven boxer shorts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other garments:										
Coveralls, overalls, and jumpsuits .....	14,499	431.3	3,774	132.3	4,439	159.1	3,114	71.7	3,172	68.2
Jumpsuits .....	797	(NA)	184	(NA)	291	(NA)	140	(NA)	182	(NA)
Jogging and warmup suits .....	11,866	86.2	2,626	21.7	4,637	34.6	2,083	14.3	2,520	15.6
Playsuits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	1,940	32.3	234	3.7	295	2.7	527	7.1	884	18.8
Team sports uniforms .....	16,577	197.5	3,917	48.5	3,919	50.4	3,944	46.1	4,797	52.5
Washable service apparel .....	28,832	241.4	7,489	61.0	6,854	61.2	7,248	62.1	7,241	57.1

See footnotes at end of table.

Table 42. Total Quantity of Production and Value of Shipments of Men's, Junior Boys', and Little Boys' Apparel: 1997 and 1996—Con.

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996</b>										
Suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Trios .....	6	(NA)	-	(NA)	4	(NA)	1	(NA)	1	(NA)
Coats, jackets, and vests:										
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Dress and sport coats (tailored) .....	11,328	718.0	2,918	170.1	2,736	180.2	(D)	(D)	(D)	(D)
Heavy nontailored coats and jackets .....	18,924	691.9	5,940	224.8	6,238	237.0	3,671	123.3	3,075	106.8
Lightweight nontailored coats and jackets .....	23,497	469.2	7,633	156.2	6,422	139.5	4,505	92.3	4,937	81.2
Overcoats and top coats .....	1,063	76.3	336	26.5	254	21.2	227	13.5	246	15.1
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Work jackets .....	4,902	116.5	1,413	34.2	1,137	26.4	1,137	24.4	1,215	31.5
Tops:										
Woven dress and business shirts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven sport shirts .....	22,964	256.9	6,278	70.6	5,309	60.7	5,721	69.8	5,656	55.8
Work shirts .....	49,464	493.3	14,589	145.0	12,892	136.8	11,389	107.8	10,594	103.7
Knit T-shirts and tank tops made for outerwear .....	912,476	4,143.8	191,839	945.7	197,442	1,002.7	265,924	1,183.0	257,271	1,012.4
Sweatshirts .....	202,249	1,104.5	62,336	302.6	55,977	365.6	44,013	270.7	39,923	165.6
Other knit shirts .....	110,479	849.4	25,032	197.6	28,670	218.7	28,700	219.5	28,077	213.6
Sweaters .....	14,551	214.4	4,403	67.3	4,110	70.6	3,487	44.1	2,551	32.4
Bottoms:										
Dress and sport trousers .....	113,863	1,950.3	31,841	561.9	31,945	563.9	25,224	410.8	24,853	413.7
Junior boys' dress and sport trousers .....	6,093	(NA)	1,548	(NA)	1,529	(NA)	1,282	(NA)	1,734	(NA)
Jeans .....	269,813	4,108.4	71,406	1,060.4	69,027	1,046.0	69,959	1,090.7	59,421	911.3
Junior boys' jeans .....	30,265	(NA)	6,544	(NA)	8,190	(NA)	9,557	(NA)	5,974	(NA)
Jean-cut casual slacks .....	30,544	301.9	6,768	79.4	9,273	90.4	7,697	72.0	6,806	60.1
Junior boys' jean-cut casual slacks .....	3,402	(NA)	627	(NA)	957	(NA)	1,037	(NA)	781	(NA)
Shorts .....	107,703	757.8	19,128	140.0	19,829	107.0	31,023	219.0	37,723	291.8
Athletic shorts .....	40,940	(NA)	7,430	(NA)	10,121	(NA)	12,097	(NA)	11,292	(NA)
Sweatpants .....	57,440	328.5	19,509	97.0	17,313	131.9	13,268	62.4	7,350	37.2
Workpants .....	50,356	566.2	12,173	142.7	11,028	126.5	11,407	130.5	15,748	166.5
Underwear and nightwear:										
Pajamas and nightwear .....	16,837	110.0	3,289	24.8	5,182	34.9	4,229	24.9	4,137	25.4
Junior boys' pajamas and nightwear .....	1,163	(NA)	288	(NA)	334	(NA)	304	(NA)	237	(NA)
Robes .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Underwear total .....	1,134,697	1,698.7	255,056	488.2	294,535	442.2	307,917	442.9	277,189	325.4
Thermal underwear .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Undershirts (1/4 sleeve and athletic types) .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Knit undershorts and briefs .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven boxer shorts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other garments:										
Coveralls, overalls, and jumpsuits .....	17,530	390.7	4,077	117.3	4,569	131.8	3,950	69.1	4,934	72.5
Jumpsuits .....	1,536	(NA)	275	(NA)	451	(NA)	427	(NA)	383	(NA)
Jogging and warmup suit .....	10,782	81.5	(D)	(D)	(D)	(D)	1,622	13.1	(D)	(D)
Playsuits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	2,272	21.7	375	4.5	421	3.5	536	5.2	940	8.5
Team sports uniforms .....	16,504	190.6	5,545	61.4	3,560	44.3	3,719	42.2	3,680	42.7
Washable service apparel .....	19,816	234.0	5,386	60.1	4,959	58.4	4,954	58.1	4,517	57.4

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available.

**Table 43. Quantity of Production and Value of Shipments of Men's and Junior Boys' Apparel: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Suits .....	8,667	775.4	1,931	171.8	2,018	184.1	2,336	203.7	2,382	215.8
Coats, jackets, and vests:										
Down and feather filled coats, jackets, and vests .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Dress and sport coats (tailored) .....	11,453	724.1	2,859	179.0	2,815	182.6	2,802	175.7	2,977	186.8
Heavy nontailored coats and jackets .....	19,906	742.6	6,381	259.9	5,691	223.2	4,126	137.2	3,708	122.3
Lightweight nontailored coats and jackets .....	22,749	516.9	7,135	159.7	6,271	149.4	4,162	96.5	5,181	111.3
Overcoats and top coats .....	1,027	78.4	298	25.6	265	21.3	222	14.8	242	16.7
Raincoats .....	2,567	85.6	746	27.9	627	21.8	659	22.9	535	13.0
Separate vests .....	1,283	39.6	297	6.9	231	5.8	381	13.7	374	13.2
Work jackets .....	4,702	114.0	1,418	37.6	1,231	31.4	1,087	24.0	966	21.0
Tops:										
Woven dress and business shirts .....	54,550	660.0	14,634	168.8	13,655	188.0	13,613	160.7	12,648	142.5
Woven sport shirts .....	19,360	243.6	4,732	58.5	5,340	68.4	4,616	56.2	4,672	60.5
Work shirts .....	50,909	505.3	13,212	144.9	13,496	139.1	12,283	111.2	11,918	110.1
Knit T-shirts and tank tops made for outerwear . . .	823,608	3,904.1	191,701	836.3	185,656	939.1	215,186	1,087.9	231,065	1,040.8
Sweatshirts .....	195,858	972.3	52,888	254.3	48,779	297.9	46,629	237.4	47,562	182.7
Other knit shirts .....	92,668	746.2	22,206	172.8	24,689	198.5	24,336	200.7	21,437	174.2
Sweaters .....	10,179	178.8	2,773	57.7	3,100	61.8	2,365	33.0	1,941	26.3
Bottoms:										
Dress and sport trousers .....	121,030	2,231.8	29,973	532.9	34,041	640.3	30,205	567.2	26,811	491.4
Jeans .....	221,787	3,465.4	59,526	948.9	58,439	925.8	57,200	880.3	46,622	710.4
Jean-cut casual slacks .....	25,724	259.3	6,054	61.9	6,705	70.9	6,903	67.9	6,062	58.6
Shorts .....	70,512	547.5	12,331	97.6	11,098	65.2	20,892	166.6	26,191	218.1
Sweatpants .....	53,503	260.6	13,988	75.0	16,956	80.5	14,187	64.9	8,372	40.2
Workpants .....	45,755	600.3	11,315	153.9	11,248	177.9	11,884	137.7	11,308	130.8
Underwear and nightwear:										
Pajamas and nightwear .....	5,998	44.6	1,958	17.0	1,680	12.7	1,272	8.2	1,088	6.7
Robes .....	2,427	49.2	1,065	24.6	788	15.2	384	7.2	190	2.2
Underwear total .....	1,260,359	1,629.4	261,682	414.1	319,253	467.6	355,159	432.2	324,265	315.5
Thermal underwear .....	47,396	162.7	12,180	42.0	(D)	(D)	(D)	(D)	9,313	31.3
Undershirts (1/4 sleeve and athletic types) . . .	515,425	681.1	106,109	186.0	127,203	219.3	147,355	172.9	134,758	102.9
Knit undershorts and briefs .....	620,437	623.3	123,318	140.3	(D)	(D)	(D)	(D)	162,591	142.9
Woven boxer shorts .....	77,101	162.3	20,075	45.8	20,856	42.1	18,567	36.0	17,603	38.4
Other garments:										
Coveralls, overalls, and jumpsuits .....	10,384	378.7	2,855	119.7	2,982	140.9	2,391	58.9	2,156	59.2
Jogging and warmup suits .....	4,005	31.5	749	6.9	931	8.9	1,091	7.5	1,234	8.2
Playsuits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	1,578	28.9	174	3.1	228	2.0	408	6.1	768	17.7
Team sports uniforms .....	16,066	193.8	3,809	47.7	3,818	49.7	3,793	45.0	4,646	51.4
Washable service apparel .....	28,832	241.4	7,489	61.0	6,854	61.2	7,248	62.1	7,241	57.1

See footnotes at end of table.



Table 43. **Quantity of Production and Value of Shipments of Men's and Junior Boys' Apparel: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996</b>										
Suits .....	9,165	853.9	1,982	180.4	2,315	230.5	2,212	207.2	2,656	235.8
Coats, jackets, and vests:										
Down and feather filled coats, jackets, and vests ..	173	10.2	(D)	(D)	(D)	(D)	39	1.7	50	2.7
Dress and sport coats (tailored) .....	10,996	710.3	2,848	168.8	2,643	178.6	2,715	172.9	2,790	190.0
Heavy nontailored coats and jackets .....	17,351	646.4	5,444	208.5	5,540	214.8	3,469	119.7	2,898	103.4
Lightweight nontailored coats and jackets .....	21,255	440.5	6,706	144.5	5,734	129.8	4,167	88.4	4,648	77.8
Overcoats and top coats .....	1,063	76.3	336	26.5	254	21.2	227	13.5	246	15.1
Raincoats .....	2,380	73.5	698	23.3	729	27.8	517	13.4	436	9.0
Separate vests .....	1,029	24.7	330	8.3	214	5.6	227	4.9	258	5.9
Work jackets .....	4,902	116.5	1,413	34.2	1,137	26.4	1,137	24.4	1,215	31.5
Tops:										
Woven dress and business shirts .....	54,629	634.9	14,440	167.3	12,704	151.0	13,851	154.2	13,634	162.4
Woven sport shirts .....	18,431	233.7	5,297	65.6	4,435	55.4	4,667	64.2	4,032	48.5
Work shirts .....	49,464	493.3	14,589	145.0	12,892	136.8	11,389	107.8	10,594	103.7
Knit T-shirts and tank tops made for outerwear ..	880,381	4,049.2	184,367	925.1	190,097	979.0	257,987	1,159.6	247,930	985.5
Sweatshirts .....	194,307	1,074.8	60,417	295.3	53,838	359.3	41,337	262.5	38,715	157.7
Other knit shirts .....	92,137	769.5	20,864	178.1	24,036	199.3	24,003	201.4	23,234	190.7
Sweaters .....	13,417	204.3	4,137	65.7	3,805	68.9	3,174	39.3	2,301	30.4
Bottoms:										
Dress and sport trousers .....	103,249	1,866.3	28,978	540.4	29,156	540.5	22,911	392.6	22,204	392.8
Jeans .....	247,192	3,901.4	66,366	1,016.1	62,104	984.8	63,895	1,031.9	54,827	868.6
Jean and jean-cut casual slacks .....	28,046	285.2	6,179	75.2	8,008	82.1	7,322	69.4	6,537	58.5
Shorts .....	84,297	654.4	14,989	121.1	16,048	93.2	24,900	189.6	28,360	250.5
Sweatpants .....	49,650	306.2	17,909	91.3	14,816	125.0	10,324	55.4	6,601	34.5
Workpants .....	50,356	566.2	12,173	142.7	11,028	126.5	11,407	130.5	15,748	166.5
Underwear and nightwear:										
Pajamas and nightwear .....	11,917	84.6	1,973	18.0	3,764	27.3	2,990	18.6	3,190	20.7
Robes .....	3,940	47.2	958	21.1	1,473	18.0	943	4.2	566	3.9
Underwear total .....	1,042,485	1,526.9	235,972	444.7	273,514	396.9	277,142	384.6	255,857	300.7
Thermal underwear .....	46,385	152.1	11,579	36.9	13,927	45.6	11,253	37.4	9,626	32.2
Undershirts (1/4 sleeve and athletic types) ..	417,908	599.8	98,376	210.4	129,654	175.7	99,330	110.1	90,548	103.6
Knit undershorts and briefs .....	485,164	582.9	107,130	147.4	104,180	124.0	(D)	(D)	(D)	(D)
Woven boxer shorts .....	93,028	192.1	18,887	50.0	25,753	51.6	26,546	49.0	21,842	41.5
Other garments:										
Coveralls, overalls, and jumpsuits .....	12,936	347.7	3,138	106.0	3,349	117.2	3,134	63.0	3,315	61.5
Jogging and warmup suits .....	3,212	30.7	860	7.4	869	9.6	511	6.3	972	7.4
Playsuits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Ski apparel .....	4,038	106.7	908	23.1	1,731	49.8	(D)	(D)	(D)	(D)
Swimwear .....	1,901	20.0	348	4.3	361	3.2	457	4.7	735	7.8
Team sports uniforms .....	15,993	186.6	5,426	60.5	3,441	43.4	3,565	40.9	3,561	41.8
Washable service apparel .....	19,816	234.0	5,386	60.1	4,959	58.4	4,954	58.1	4,517	57.4

D Withheld to avoid disclosing data for individual companies.

**Table 44. Quantity of Production and Value of Shipments of Little Boys' Apparel: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Suits .....	629	17.1	201	4.9	175	5.1	125	3.5	128	3.6
Coats, jackets, and vests:										
Down and feather filled coats, jackets, and vests ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Dress and sport coats (tailored) .....	331	7.2	66	1.4	94	1.6	98	2.5	73	1.7
Heavy nontailored coats and jackets .....	1,613	45.0	295	8.9	507	16.3	548	14.5	263	5.3
Lightweight nontailored coats and jackets .....	2,307	27.6	553	6.1	598	6.6	421	4.5	735	10.4
Overcoats and top coats .....	-	-	-	-	-	-	-	-	-	-
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	1,285	5.7	(D)	(D)	350	1.4	(D)	(D)	(D)	(D)
Work jackets .....	-	-	-	-	-	-	-	-	-	-
Tops:										
Woven dress and business shirts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven sport shirts .....	4,443	23.9	1,519	8.2	1,399	7.9	641	3.6	884	4.2
Work shirts .....	-	-	-	-	-	-	-	-	-	-
Knit T-shirts and tank tops made for outerwear ...	32,910	91.3	8,855	24.8	6,287	21.7	8,049	20.6	9,719	24.2
Sweatshirts .....	7,940	25.2	1,215	4.9	2,248	7.1	2,861	8.1	1,616	5.1
Other knit shirts .....	15,333	74.5	3,280	16.8	4,322	21.2	3,694	18.7	4,037	17.8
Sweaters .....	1,708	9.9	385	2.2	520	2.9	484	3.1	319	1.7
Bottoms:										
Dress and sport trousers .....	12,167	83.4	3,368	22.9	2,984	21.7	2,463	16.7	3,352	22.1
Jeans .....	22,962	217.8	4,736	42.2	6,626	65.8	7,122	69.8	4,478	40.0
Jean-cut casual slacks .....	2,511	16.4	684	4.4	1,187	7.8	456	2.9	184	1.3
Shorts .....	19,048	90.6	3,945	19.9	2,406	11.8	4,452	21.3	8,245	37.6
Sweatpants .....	7,290	20.3	1,095	4.1	2,465	6.3	2,612	6.1	1,118	3.8
Workpants .....	-	-	-	-	-	-	-	-	-	-
Underwear and nightwear:										
Pajamas and nightwear .....	7,031	37.6	1,674	10.1	1,961	11.2	1,817	9.3	1,579	7.0
Robes .....	30	0.2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Underwear total .....	135,548	179.9	30,729	35.1	33,584	55.5	36,752	61.5	34,483	27.8
Thermal underwear .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Undershirts (1/4 sleeve and athletic types) .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Knit undershorts and briefs .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven boxer shorts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other garments:										
Coveralls, overalls, and jumpsuits .....	4,115	52.6	919	12.6	1,457	18.2	723	12.8	1,016	9.0
Jogging and warmup suits .....	7,861	54.7	1,877	14.8	3,706	25.7	992	6.8	1,286	7.4
Playsuits .....	856	8.3	104	0.9	163	1.2	187	2.3	402	3.9
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	362	3.4	60	0.6	67	0.7	119	1.0	116	1.1
Team sports uniforms .....	511	3.7	108	0.8	101	0.7	151	1.1	151	1.1
Washable service apparel .....	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 44. Quantity of Production and Value of Shipments of Little Boys' Apparel: 1997 and 1996—Con.

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996</b>										
Suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Coats, jackets, and vests:										
Down and feather filled coats, jackets, and vests ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Dress and sport coats (tailored) .....	332	7.7	70	1.3	93	1.6	(D)	(D)	(D)	(D)
Heavy nontailored coats and jackets .....	1,573	45.5	496	16.3	698	22.2	202	3.6	177	3.4
Lightweight nontailored coats and jackets .....	2,242	28.7	927	11.7	688	9.7	338	3.9	289	3.4
Overcoats and top coats .....	-	-	-	-	-	-	-	-	-	-
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Work jackets .....	-	-	-	-	-	-	-	-	-	-
Tops:										
Woven dress and business shirts .....	1,872	13.9	446	2.7	435	3.8	386	2.3	605	5.1
Woven sport shirts .....	4,533	23.2	981	5.0	874	5.3	1,054	5.6	1,624	7.3
Work shirts .....	-	-	-	-	-	-	-	-	-	-
Knit T-shirts and tank tops made for outerwear ...	32,095	94.6	7,472	20.6	7,345	23.7	7,937	23.4	9,341	26.9
Sweatshirts .....	7,942	29.7	1,919	7.3	2,139	6.3	2,676	8.2	1,208	7.9
Other knit shirts .....	18,342	79.9	4,168	19.5	4,634	19.4	4,697	18.1	4,843	22.9
Sweaters .....	1,134	10.1	266	1.6	305	1.7	313	4.8	250	2.0
Bottoms:										
Dress and sport trousers .....	10,614	84.0	2,863	21.5	2,789	23.4	2,313	18.2	2,649	20.9
Jeans .....	22,621	207.0	5,040	44.3	6,923	61.2	6,064	58.8	4,594	42.7
Jean and jean-cut casual slacks .....	2,498	16.7	589	4.2	1,265	8.3	375	2.6	269	1.6
Shorts .....	23,406	103.4	4,139	18.9	3,781	13.8	6,123	29.4	9,363	41.3
Sweatpants .....	7,790	22.3	1,600	5.7	2,497	6.9	2,944	7.0	749	2.7
Workpants .....	-	-	-	-	-	-	-	-	-	-
Underwear and nightwear:										
Pajamas and nightwear .....	4,920	25.4	1,316	6.8	1,418	7.6	1,239	6.3	947	4.7
Robes .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Underwear total .....	92,212	171.8	19,084	43.5	21,021	45.3	30,775	58.3	21,332	24.7
Thermal underwear .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Undershirts (1/4 sleeve and athletic types) .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Knit undershorts and briefs .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Woven boxer shorts .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other garments:										
Coveralls, overalls, and jumpsuits .....	4,594	43.0	939	11.3	1,220	14.6	816	6.1	1,619	11.0
Jogging and warmup suits .....	7,570	50.8	(D)	(D)	(D)	(D)	1,111	6.8	(D)	(D)
Playsuits .....	1,666	13.7	505	3.6	779	6.0	184	2.0	198	2.1
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	371	1.7	27	0.2	60	0.3	79	0.5	205	0.7
Team sports uniforms .....	511	4.0	119	0.9	119	0.9	154	1.3	119	0.9
Washable service apparel .....	-	-	-	-	-	-	-	-	-	-

- Represents zero. D Withheld to avoid disclosing data for individual companies.

**Table 45. Total Quantity of Production and Value of Shipments of Women's, Misses', Juniors', and Girls' Apparel: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Dresses .....	178,702	4,341.3	40,305	965.1	46,804	1,108.0	43,190	1,082.4	48,403	1,185.8
Coats, jackets, and vests:										
Coats and capes .....	6,845	479.8	1,570	130.6	1,969	173.5	1,827	93.8	1,479	81.9
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored jackets .....	6,760	207.9	1,941	57.6	1,935	62.0	1,465	42.6	1,419	45.7
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	3,043	54.0	624	11.5	734	14.2	771	13.1	914	15.2
Tailored suit-type jackets .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tops:										
Woven blouses and shirts .....	181,504	1,792.7	44,798	428.7	43,473	448.0	48,781	451.1	44,452	464.9
Knit T-shirts and tank tops made for outerwear .....	236,391	1,142.9	58,546	272.8	55,858	283.1	58,521	301.1	63,466	285.9
Sweatshirts .....	(D)	(D)	18,180	59.9	21,060	82.9	13,222	53.7	(D)	(D)
Other knit blouses and shirts .....	109,474	929.4	29,734	244.5	27,402	250.6	27,377	222.2	24,961	212.1
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	56,153	743.8	16,390	210.4	18,147	232.2	11,169	146.9	10,447	154.3
Bottoms:										
Shorts .....	112,789	760.7	22,067	143.5	17,937	121.7	31,673	222.7	41,112	272.8
Skirts and divided skirts .....	76,131	1,119.7	13,936	213.2	19,391	324.7	20,013	277.8	22,791	304.0
Jeans .....	174,016	2,269.5	41,696	541.6	51,197	661.7	45,593	630.6	35,530	435.6
Slacks (except jeans) .....	188,695	2,330.7	45,276	551.3	53,245	659.1	46,988	560.7	43,186	559.6
Sweatpants .....	50,938	208.6	(D)	(D)	14,836	69.3	14,116	46.1	(D)	(D)
Underwear and nightwear:										
Brassieres, bra-lettes, and bandeaux .....	282,239	1,581.3	(D)	(D)	(D)	(D)	(D)	(D)	69,192	393.3
Total produced in Puerto Rico .....	33,170	(NA)	9,107	(NA)	7,423	(NA)	8,043	(NA)	8,597	(NA)
Girdles, corsets, and other foundation garments .....	78,442	364.8	16,009	74.9	22,273	96.6	20,279	98.6	19,881	94.7
Total produced in Puerto Rico .....	1,646	(NA)	446	(NA)	641	(NA)	349	(NA)	210	(NA)
Nightgowns, pajamas, and other nightwear .....	56,483	467.4	13,973	130.5	14,424	122.8	12,511	95.6	15,575	118.5
Other underwear, including camisoles, teddies, undershirts, and union suits .....	44,851	221.1	(D)	(D)	(D)	(D)	(D)	(D)	9,453	48.0
Panties .....	615,843	726.3	143,729	172.8	155,570	172.8	155,910	198.7	160,634	182.0
Robes and dressing gowns .....	20,083	215.5	5,373	67.7	5,563	61.9	3,897	44.4	5,250	41.5
Slips .....	8,334	47.1	2,032	11.1	1,815	11.0	1,998	11.1	2,489	13.9
Other garments:										
Bodysuits and bodyshirts .....	17,118	128.9	2,887	25.6	2,820	25.9	5,459	36.7	5,952	40.7
Jogging and warmup suits .....	12,845	91.4	3,004	22.2	4,172	35.4	2,842	17.8	2,827	16.0
Overalls, coveralls, and jumpsuits .....	4,419	58.5	1,212	15.0	1,404	19.9	943	12.9	860	10.7
Playsuits, rompers, halters, etc. ....	10,061	86.0	2,714	21.1	2,090	19.9	2,250	20.5	3,007	24.5
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Suits, including pant suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	55,846	938.3	14,251	218.4	8,311	141.5	13,177	291.1	20,107	287.3
Washable service apparel .....	37,153	302.1	8,840	72.3	9,620	79.3	9,894	79.1	8,799	71.4
Smocks and lab coats .....	5,723	(NA)	1,471	(NA)	1,152	(NA)	1,597	(NA)	1,503	(NA)
Uniform dresses .....	4,443	(NA)	1,227	(NA)	1,120	(NA)	1,220	(NA)	876	(NA)
Uniform pant sets .....	2,428	(NA)	608	(NA)	369	(NA)	878	(NA)	573	(NA)
All other garment types .....	2,834	(NA)	693	(NA)	979	(NA)	532	(NA)	630	(NA)

See footnotes at end of table.

**Table 45. Total Quantity of Production and Value of Shipments of Women's, Misses', Juniors', and Girls' Apparel: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996</b>										
Dresses .....	187,094	4,454.7	37,033	907.6	44,460	1,073.9	51,141	1,187.8	54,460	1,285.4
Coats, jackets, and vests:										
Coats and capes .....	7,331	510.6	2,016	176.0	2,491	187.0	1,835	90.7	989	56.9
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored jackets .....	7,867	214.5	1,674	45.1	2,181	61.9	1,592	43.8	2,420	63.7
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	3,125	58.9	778	14.0	820	15.0	716	13.8	811	16.1
Tailored suit-type jackets .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tops:										
Woven blouses and shirts .....	196,043	1,960.0	41,114	418.1	47,370	486.4	55,993	540.9	51,566	514.6
Knit T-shirts and tank tops made for outerwear .....	243,595	1,106.3	53,377	251.4	53,129	262.8	63,209	294.7	73,880	297.4
Sweatshirts .....	55,595	286.9	15,224	66.4	16,591	103.1	13,648	71.0	10,132	46.4
Other knit blouses and shirts .....	102,387	814.6	28,724	232.4	24,569	207.8	26,541	201.1	22,553	173.3
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	49,673	652.4	15,380	218.6	14,950	194.9	10,256	126.1	9,087	112.8
Bottoms:										
Shorts .....	107,805	741.5	24,331	150.1	16,619	121.4	28,900	200.7	37,955	269.3
Skirts and divided skirts .....	86,223	1,245.9	17,016	248.4	22,523	348.4	20,756	300.6	25,928	348.5
Jeans .....	166,279	2,110.0	39,428	529.7	47,164	628.2	43,122	534.9	36,565	417.2
Slacks (except jeans) .....	179,681	2,066.9	43,633	511.6	52,176	607.1	40,055	458.6	43,817	489.6
Sweatpants .....	42,761	206.9	(D)	(D)	(D)	(D)	9,967	46.0	8,090	32.5
Underwear and nightwear:										
Brassieres, bra-lettes, and bandeaux .....	264,962	1,479.6	62,217	349.9	66,629	369.3	68,907	398.6	67,209	361.8
Total produced in Puerto Rico .....	39,530	(NA)	9,272	(NA)	9,621	(NA)	9,461	(NA)	11,176	(NA)
Girdles, corsets, and other foundation garments .....	87,415	410.0	20,641	99.7	21,871	104.5	23,077	115.9	21,826	89.9
Total produced in Puerto Rico .....	2,824	(NA)	628	(NA)	734	(NA)	655	(NA)	807	(NA)
Nightgowns, pajamas, and other nightwear .....	66,947	547.8	15,870	147.3	16,790	136.8	15,740	124.4	18,547	139.3
Other underwear, including camisoles, teddies, undershirts, and union suits .....	42,809	211.0	12,847	58.3	11,936	48.5	9,285	53.9	8,741	50.3
Panties .....	657,287	775.6	143,619	189.8	154,521	199.5	191,024	211.7	168,123	174.6
Robes and dressing gowns .....	23,146	237.5	6,294	78.9	6,444	66.1	5,651	51.0	4,757	41.5
Slips .....	9,855	56.4	2,335	13.4	2,285	12.4	2,523	14.6	2,712	16.0
Other garments:										
Bodysuits and bodyshirts .....	21,268	152.5	3,438	29.6	5,012	36.4	6,588	44.7	6,230	41.8
Jogging and warmup suits .....	14,852	108.3	3,243	23.5	4,693	35.2	2,845	21.8	4,071	27.8
Overalls, coveralls, and jumpsuits .....	6,606	82.2	1,310	16.1	1,675	22.1	1,515	18.8	2,106	25.2
Playsuits, rompers, halters, etc. ....	17,376	107.7	4,491	26.3	3,819	25.4	4,556	29.2	4,510	26.8
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Suits, including pant suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	51,853	757.1	14,279	169.8	7,871	120.9	11,267	195.4	18,436	271.0
Washable service apparel .....	27,880	259.2	7,650	66.2	6,911	70.6	6,897	62.9	6,422	59.5
Smocks and lab coats .....	5,373	(NA)	1,741	(NA)	1,266	(NA)	1,243	(NA)	1,123	(NA)
Uniform dresses .....	4,014	(NA)	1,244	(NA)	818	(NA)	987	(NA)	965	(NA)
Uniform pant sets .....	2,219	(NA)	708	(NA)	526	(NA)	513	(NA)	472	(NA)
All other garment types .....	1,781	(NA)	429	(NA)	470	(NA)	461	(NA)	421	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available.

Table 46. **Quantity of Production and Value of Shipments of Women's, Misses', and Juniors' Apparel: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Dresses .....	139,912	3,899.5	29,742	848.9	36,147	983.5	34,969	999.7	39,054	1,067.4
Coats, jackets, and vests:										
Coats and capes .....	6,795	478.4	1,564	130.3	1,957	173.1	1,811	93.5	1,463	81.5
Down and feather filled coats, jackets, and vests ..	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored jackets .....	6,045	200.2	1,770	55.9	1,722	59.7	1,306	40.7	1,247	43.9
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	2,917	52.6	612	11.3	696	13.8	733	12.7	876	14.8
Tailored suit-type jackets .....	34,654	1,124.9	6,796	223.5	10,167	373.1	8,138	242.4	9,553	285.9
Tops:										
Woven blouses and shirts .....	153,985	1,583.0	37,570	371.5	37,061	394.4	41,655	398.6	37,699	418.5
Knit T-shirts and tank tops made for outerwear ...	182,358	957.4	45,872	231.7	43,209	229.3	44,828	252.6	48,449	243.8
Sweatshirts .....	55,318	202.0	15,697	49.3	18,415	71.8	11,718	47.5	9,488	33.4
Other knit blouses and shirts .....	86,470	815.6	23,827	215.3	21,334	217.7	21,343	195.3	19,966	187.3
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	49,964	695.3	14,635	196.4	16,284	218.9	9,562	133.9	9,483	146.1
Bottoms:										
Shorts .....	87,928	651.6	16,673	119.6	14,542	105.7	26,292	197.4	30,421	228.9
Skirts and divided skirts .....	70,795	1,074.2	12,832	203.8	18,010	312.4	18,413	265.0	21,540	293.0
Jeans .....	155,890	2,127.5	37,743	510.5	46,654	624.3	40,060	586.8	31,433	405.9
Slacks (except jeans) .....	168,989	2,218.5	40,303	527.0	46,916	627.4	41,512	523.2	40,258	540.9
Sweatpants .....	42,562	178.6	11,373	41.2	11,840	58.3	12,140	39.7	7,209	39.4
Underwear and nightwear:										
Brassieres, bra-lettes, and bandeaux .....	278,973	1,574.7	68,069	381.8	68,696	386.8	73,016	412.8	69,192	393.3
Girdles, corsets, and other foundation garments .....	78,442	364.8	16,009	74.9	22,273	96.6	20,279	98.6	19,881	94.7
Nightgowns, pajamas, and other nightwear .....	37,178	356.7	8,864	98.2	9,313	91.6	9,293	79.4	9,708	87.5
Other underwear, including camisoles, teddies, undershirts, and union suits .....	42,381	216.5	10,534	53.1	11,389	58.2	11,627	58.1	8,831	47.1
Panties .....	508,099	644.0	114,333	147.7	130,011	150.4	133,173	183.3	130,582	162.6
Robes and dressing gowns .....	19,740	212.7	5,310	67.0	5,381	60.6	3,820	43.8	5,229	41.3
Slips .....	6,630	39.7	1,305	8.9	1,496	9.5	1,685	9.5	2,144	11.8
Other garments:										
Bodysuits and bodyshirts .....	15,280	107.7	2,466	20.9	2,347	20.4	5,001	31.4	5,466	35.0
Jogging and warmup suits .....	1,668	23.6	323	5.2	673	9.6	458	5.6	214	3.2
Overalls, coveralls, and jumpsuits .....	1,950	34.5	622	9.3	650	12.4	384	7.4	294	5.4
Playsuits, rompers, halters, etc. ....	4,774	39.5	1,350	11.5	1,184	9.1	1,216	9.9	1,024	9.0
Ski apparel .....	818	41.6	245	12.9	429	23.1	94	3.7	50	1.9
Suits, including pant suits .....	8,217	325.8	2,043	71.8	2,324	87.2	1,685	72.1	2,165	94.7
Swimwear .....	43,141	823.8	10,404	194.1	5,955	124.4	10,965	266.3	15,817	239.0
Washable service apparel .....	37,153	302.1	8,840	72.3	9,620	79.3	9,894	79.1	8,799	71.4

See footnotes at end of table.

Table 46. **Quantity of Production and Value of Shipments of Women's, Misses', and Juniors' Apparel: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996</b>										
Dresses .....	143,599	3,967.3	27,801	793.5	33,566	946.7	40,632	1,084.6	41,600	1,142.5
Coats, jackets, and vests:										
Coats and capes .....	7,262	508.6	2,000	175.3	2,478	186.5	1,806	90.1	978	56.7
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored jackets .....	6,901	203.3	1,387	42.2	1,795	57.5	1,444	41.9	2,275	61.7
Raincoats .....	755	33.9	(D)	(D)	(D)	(D)	(D)	(D)	79	3.5
Separate vests .....	3,018	57.4	746	13.6	782	14.5	699	13.5	791	15.8
Tailored suit-type jackets .....	31,749	1,068.9	6,881	233.6	9,416	350.0	6,581	221.4	8,871	263.9
Tops:										
Woven blouses and shirts .....	162,394	1,719.7	33,335	362.7	38,454	417.8	46,790	474.7	43,815	464.5
Knit T-shirts and tank tops made for outerwear .....	187,378	918.0	41,111	212.6	39,380	213.7	47,636	238.1	59,251	253.6
Sweatshirts .....	42,710	239.0	11,015	52.0	13,116	87.5	11,119	61.6	7,460	37.9
Other knit blouses and shirts .....	78,352	692.2	22,604	198.8	19,048	177.8	19,801	172.1	16,899	143.5
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	44,084	607.4	13,303	201.5	13,203	180.8	9,208	118.1	8,370	107.0
Bottoms:										
Shorts .....	80,344	601.0	18,146	124.4	12,551	102.1	22,448	169.4	27,199	205.1
Skirts and divided skirts .....	78,609	1,184.7	15,707	236.7	20,347	329.7	18,972	285.6	23,583	332.7
Jeans .....	141,451	1,898.3	34,138	484.0	40,898	573.0	36,734	477.4	29,681	363.9
Slacks (except jeans) .....	159,756	1,956.6	39,844	488.2	44,809	569.6	35,932	432.1	39,171	466.7
Sweatpants .....	33,956	174.7	7,716	40.8	10,462	64.0	8,584	40.8	7,194	29.1
Underwear and nightwear:										
Brassieres, bra-lettes, and bandeaux .....	264,962	1,479.6	62,217	349.9	66,629	369.3	68,907	398.6	67,209	361.8
Girdles, corsets, and other foundation garments .....	87,415	410.0	20,641	99.7	21,871	104.5	23,077	115.9	21,826	89.9
Nightgowns, pajamas, and other nightwear .....	45,624	421.7	10,563	111.5	11,366	101.0	11,425	99.7	12,270	109.5
Other underwear, including camisoles, teddies, undershirts, and union suits .....	38,817	203.3	11,671	56.1	10,217	45.2	8,782	52.9	8,147	49.1
Panties .....	540,283	700.6	116,787	173.3	121,678	176.3	156,047	191.0	145,771	160.0
Robes and dressing gowns .....	22,899	234.9	6,242	78.3	6,288	64.5	5,625	50.8	4,744	41.3
Slips .....	9,051	51.2	2,140	11.5	2,109	11.6	2,354	13.4	2,448	14.7
Other garments:										
Bodysuits and bodyshirts .....	19,438	137.0	2,994	25.6	4,577	33.3	6,093	39.4	5,774	38.7
Jogging and warmup suits .....	2,466	28.0	457	6.4	713	8.1	536	5.9	760	7.6
Overalls, coveralls, and jumpsuits .....	1,711	34.6	344	6.6	359	8.9	476	8.4	532	10.7
Playsuits, rompers, halters, etc. ....	5,231	43.6	1,193	9.6	968	9.3	1,724	14.0	1,346	10.7
Ski apparel .....	968	49.8	278	16.5	410	21.8	228	9.9	52	1.6
Suits, including pant suits .....	9,403	349.0	1,894	79.9	2,302	91.9	2,602	85.3	2,605	91.9
Swimwear .....	37,324	632.0	10,774	138.6	5,871	99.7	9,001	173.6	11,678	220.1
Washable service apparel .....	27,880	259.2	7,650	66.2	6,911	70.6	6,897	62.9	6,422	59.5

D Withheld to avoid disclosing data for individual companies.

**Table 47. Quantity of Production and Value of Shipments of Little Girls' Apparel: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
Dresses .....	38,790	441.8	10,563	116.2	10,657	124.5	8,221	82.7	9,349	118.4
Coats, jackets, and vests:										
Coats and capes .....	50	1.4	6	0.3	12	0.4	16	0.3	16	0.4
Down and feather filled coats, jackets, and vests ..	-	-	-	-	-	-	-	-	-	-
Nontailored jackets .....	715	7.7	171	1.7	213	2.3	159	1.9	172	1.8
Raincoats .....	-	-	-	-	-	-	-	-	-	-
Separate vests .....	126	1.4	12	0.2	38	0.4	38	0.4	38	0.4
Tailored suit-type jackets .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tops:										
Woven blouses and shirts .....	27,519	209.7	7,228	57.2	6,412	53.6	7,126	52.5	6,753	46.4
Knit T-shirts and tank tops made for outerwear ..	54,033	185.5	12,674	41.1	12,649	53.8	13,693	48.5	15,017	42.1
Sweatshirts .....	(D)	(D)	2,483	10.6	2,645	11.1	1,504	6.2	(D)	(D)
Other knit blouses and shirts .....	23,004	113.8	5,907	29.2	6,068	32.9	6,034	26.9	4,995	24.8
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	6,189	48.5	1,755	14.0	1,863	13.3	1,607	13.0	964	8.2
Bottoms:										
Shorts .....	24,861	109.1	5,394	23.9	3,395	16.0	5,381	25.3	10,691	43.9
Skirts and divided skirts .....	5,336	45.5	1,104	9.4	1,381	12.3	1,600	12.8	1,251	11.0
Jeans .....	18,126	142.0	3,953	31.1	4,543	37.4	5,533	43.8	4,097	29.7
Slacks (except jeans) .....	19,706	112.2	4,973	24.3	6,329	31.7	5,476	37.5	2,928	18.7
Sweatpants .....	8,376	30.0	(D)	(D)	2,996	11.0	1,976	6.4	(D)	(D)
Underwear and nightwear:										
Brassieres, bra-lettes, and bandeaux .....	3,266	6.6	(D)	(D)	(D)	(D)	(D)	(D)	-	-
Girdles, corsets, and other foundation garments ..	-	-	-	-	-	-	-	-	-	-
Nightgowns, pajamas, and other nightwear .....	19,305	110.7	5,109	32.3	5,111	31.2	3,218	16.2	5,867	31.0
Other underwear, including camisoles, teddies, undershirts, and union suits .....	2,470	4.6	(D)	(D)	(D)	(D)	(D)	(D)	622	0.9
Panties .....	107,744	82.3	29,396	25.1	25,559	22.4	22,737	15.4	30,052	19.4
Robes and dressing gowns .....	343	2.8	63	0.7	182	1.3	77	0.6	21	0.2
Slips .....	1,704	7.4	727	2.2	319	1.5	313	1.6	345	2.1
Other garments:										
Bodysuits and bodyshirts .....	1,838	21.2	421	4.7	473	5.5	458	5.3	486	5.7
Jogging and warmup suits .....	11,177	67.8	2,681	17.0	3,499	25.8	2,384	12.2	2,613	12.8
Overalls, coveralls, and jumpsuits .....	2,469	24.0	590	5.7	754	7.5	559	5.5	566	5.3
Playsuits, rompers, halters, etc. ....	5,287	46.5	1,364	9.6	906	10.8	1,034	10.6	1,983	15.5
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Suits, including pant suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	12,705	114.5	3,847	24.3	2,356	17.1	2,212	24.8	4,290	48.3
Washable service apparel .....	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.



Table 47. Quantity of Production and Value of Shipments of Little Girls' Apparel: 1997 and 1996—Con.

[Quantity in thousands of units. Value in millions of dollars]

Product description	Total		Fourth quarter		Third quarter		Second quarter		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996</b>										
Dresses .....	43,495	487.4	9,232	114.1	10,894	127.2	10,509	103.2	12,860	142.9
Coats, jackets, and vests:										
Coats and capes .....	69	2.0	16	0.7	13	0.5	29	0.6	11	0.2
Down and feather filled coats, jackets, and vests ..	-	-	-	-	-	-	-	-	-	-
Nontailored jackets .....	966	11.2	287	2.9	386	4.4	148	1.9	145	2.0
Raincoats .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Separate vests .....	107	1.5	32	0.4	38	0.5	17	0.3	20	0.3
Tailored suit-type jackets .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tops:										
Woven blouses and shirts .....	33,649	240.3	7,779	55.4	8,916	68.6	9,203	66.2	7,751	50.1
Knit T-shirts and tank tops made for outerwear ...	56,217	188.3	12,266	38.8	13,749	49.1	15,573	56.6	14,629	43.8
Sweatshirts .....	12,885	47.9	4,209	14.4	3,475	15.6	2,529	9.4	2,672	8.5
Other knit blouses and shirts .....	24,035	122.4	6,120	33.6	5,521	30.0	6,740	29.0	5,654	29.8
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	5,589	45.0	2,077	17.1	1,747	14.1	1,048	8.0	717	5.8
Bottoms:										
Shorts .....	27,461	140.5	6,185	25.7	4,068	19.3	6,452	31.3	10,756	64.2
Skirts and divided skirts .....	7,614	61.2	1,309	11.7	2,176	18.7	1,784	15.0	2,345	15.8
Jeans .....	24,828	211.7	5,290	45.7	6,266	55.2	6,388	57.5	6,884	53.3
Slacks (except jeans) .....	19,925	110.3	3,789	23.4	7,367	37.5	4,123	26.5	4,646	22.9
Sweatpants .....	8,805	32.2	(D)	(D)	(D)	(D)	1,383	5.2	896	3.4
Underwear and nightwear:										
Brassieres, bra-lettes, and bandeaux .....	-	-	-	-	-	-	-	-	-	-
Girdles, corsets, and other foundation garments ..	-	-	-	-	-	-	-	-	-	-
Nightgowns, pajamas, and other nightwear .....	21,323	126.1	5,307	35.8	5,424	35.8	4,315	24.7	6,277	29.8
Other underwear, including camisoles, teddies, undershirts, and union suits .....	3,992	7.7	1,176	2.2	1,719	3.3	503	1.0	594	1.2
Panties .....	117,004	75.0	26,832	16.5	32,843	23.2	34,977	20.7	22,352	14.6
Robes and dressing gowns .....	247	2.6	52	0.6	156	1.6	26	0.2	13	0.2
Slips .....	804	5.2	195	1.9	176	0.8	169	1.2	264	1.3
Other garments:										
Bodysuits and bodyshirts .....	1,830	15.5	444	4.0	435	3.1	495	5.3	456	3.1
Jogging and warmup suits .....	12,386	80.3	2,786	17.1	3,980	27.1	2,309	15.9	3,311	20.2
Overalls, coveralls, and jumpsuits .....	4,895	47.6	966	9.5	1,316	13.2	1,039	10.4	1,574	14.5
Playsuits, rompers, halters, etc. ....	12,145	64.1	3,298	16.7	2,851	16.1	2,832	15.2	3,164	16.1
Ski apparel .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Suits, including pant suits .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Swimwear .....	14,529	125.1	3,505	31.2	2,000	21.2	2,266	21.8	6,758	50.9
Washable service apparel .....	-	-	-	-	-	-	-	-	-	-

- Represents zero. D Withheld to avoid disclosing data for individual companies.



Table 48. **Quantity of Production of Apparel by Type of Fabrics: 1997**—Con.

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>FOURTH QUARTER</b>							
Men's and boys' garments:							
Suits	2,132	(D)	858	268	622	31	(D)
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests	(D)	-	29	(NA)	-	-	(D)
Dress and sport coats (tailored)	2,925	178	1,640	647	683	227	197
Heavy nontailored coats and jackets	6,676	3,271	2,984	(NA)	183	(D)	(D)
Lightweight nontailored coats and jackets	7,688	3,352	3,149	(NA)	(D)	64	(D)
Overcoats and top coats	298	(D)	110	(NA)	127	(D)	(D)
Raincoats	(D)	(D)	430	(NA)	(NA)	(D)	140
Separate vests	(D)	12	588	(NA)	(D)	(D)	104
Work jackets	1,418	(D)	722	(NA)	(NA)	(D)	94
Tops:							
Woven dress and business shirts	(D)	8,600	5,842	(NA)	(NA)	(D)	534
Woven sport shirts	6,251	4,421	1,194	(NA)	-	(D)	(D)
Work shirts	13,212	3,129	8,993	(NA)	(NA)	-	1,090
Knit T-shirts and tank tops made for outerwear	200,556	162,322	23,062	(NA)	-	(D)	(D)
Sweatshirts	54,103	39,099	14,099	(NA)	-	-	905
Other knit shirts	25,486	17,704	5,885	(NA)	-	(D)	(D)
Sweaters	3,158	1,207	1,401	(NA)	124	-	426
Bottoms:							
Dress and sport trousers	33,341	20,321	10,024	4,542	1,197	295	1,504
Jeans	64,262	63,674	13	(NA)	(NA)	(D)	(D)
Jeans-cut casual slacks	6,738	4,798	180	(NA)	(NA)	(D)	(D)
Shorts	16,276	11,736	2,325	(NA)	(D)	-	(D)
Sweatpants	15,083	8,462	6,525	(NA)	(NA)	(D)	96
Workpants	11,315	1,067	9,801	(NA)	(NA)	-	447
Underwear and nightwear:							
Pajamas and nightwear	3,632	214	3,264	(NA)	(NA)	(D)	(D)
Robes	(D)	367	655	(NA)	(NA)	-	(D)
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts	292,411	281,659	10,148	(NA)	(NA)	9	595
Other garments:							
Coveralls, overalls, and jumpsuits	3,774	1,267	1,948	(NA)	-	-	559
Jogging and warmup suits	2,626	(D)	1,689	(NA)	(NA)	-	(D)
Playsuits	(D)	(D)	58	(NA)	-	(D)	20
Ski apparel	(D)	-	1,196	(NA)	(NA)	-	(D)
Swimwear	234	33	110	(NA)	(NA)	-	91
Team sports uniforms	3,917	(D)	2,676	(NA)	(D)	-	1,166
Washable service apparel	7,489	(D)	2,068	(NA)	(NA)	-	(D)
Women's and girls' garments:							
Dresses	40,305	8,363	20,200	(NA)	913	1,074	9,755
Coats, jackets, and vests:							
Coats and capes	1,570	83	764	551	576	8	139
Down and feather filled coats, jackets, and vests	(D)	(D)	4	(NA)	-	7	1
Heavy nontailored coats and jackets	1,941	419	943	(NA)	(D)	113	(D)
Raincoats	(D)	(D)	57	(NA)	(NA)	-	47
Separate vests	624	11	367	(NA)	(D)	71	(D)
Tailored suit-type jackets	(D)	441	3,680	504	1,676	350	(D)
Tops:							
Woven blouses and shirts	44,798	19,860	15,687	(NA)	(D)	1,556	(D)
Knit T-shirts and tank tops made for outerwear	58,546	37,912	7,406	(NA)	(NA)	732	12,496
Sweatshirts	18,180	(D)	8,170	(NA)	(NA)	-	(D)
Other knit blouses and shirts	29,734	13,066	10,614	(NA)	(D)	1,044	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters	16,390	4,495	8,417	(NA)	190	24	3,264
Bottoms:							
Shorts	22,067	11,959	7,685	(NA)	-	156	2,267
Skirts and divided skirts	13,936	2,272	7,583	969	600	747	2,734
Jeans	41,696	38,303	46	(D)	(D)	(D)	3,332
Slacks (except jeans)	45,276	17,638	18,684	1,311	2,350	500	6,104
Sweatpants	(D)	(D)	8,037	(NA)	(NA)	-	232
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux	(D)	4,565	63,788	(NA)	(NA)	-	(D)
Girdles, corsets, and other foundation garments	16,009	(D)	13,934	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear	13,973	3,399	9,712	(NA)	(NA)	(D)	(D)
Panties	143,729	107,737	33,488	(NA)	(NA)	-	2,504
Robes and dressing gowns	5,373	1,055	3,472	(NA)	(NA)	-	846
All other underwear, including slippers, camisoles, teddies, undershirts, and union suits	(D)	2,399	9,939	(NA)	(NA)	7	(D)
Other garments:							
Bodysuits and bodyshirts	2,887	(D)	951	(NA)	(NA)	(D)	759
Jogging and warmup suits	3,004	189	2,341	(NA)	(NA)	-	474
Overalls, coveralls, and jumpsuits	1,212	671	398	(NA)	(D)	-	(D)
Playsuits, rompers, halters, etc.	2,714	744	1,141	(NA)	-	(D)	(D)
Ski apparel	(D)	-	230	(NA)	(NA)	-	(D)
Suits, including pant suits	(D)	30	675	292	476	(D)	1,115
Swimwear	14,251	1,617	9,616	(NA)	(NA)	-	3,018
Washable service apparel	8,840	(D)	2,896	(NA)	(NA)	-	(D)
Infants' apparel	39,536	28,139	10,874	(NA)	(NA)	-	523

See footnotes at end of table.

Table 48. **Quantity of Production of Apparel by Type of Fabrics: 1997—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>THIRD QUARTER</b>							
<b>Men's and boys' garments:</b>							
Suits	2,193	(D)	980	290	595	36	(D)
<b>Coats, jackets, and vests:</b>							
Down and feather filled coats, jackets, and vests	(D)	-	34	(NA)	-	-	(D)
Dress and sport coats (tailored)	2,909	93	1,725	692	705	189	197
Heavy nontailored coats and jackets	6,198	3,244	2,461	(NA)	277	(D)	(D)
Lightweight nontailored coats and jackets	6,869	3,521	2,308	(NA)	(D)	(D)	981
Overcoats and top coats	265	(D)	94	(NA)	(D)	(D)	4
Raincoats	(D)	(D)	378	(NA)	(NA)	(D)	112
Separate vests	581	14	453	(NA)	8	(D)	(D)
Work jackets	1,231	(D)	722	(NA)	(NA)	(D)	82
<b>Tops:</b>							
Woven dress and business shirts	(D)	7,705	5,809	(NA)	(NA)	(D)	511
Woven sport shirts	6,739	4,735	1,316	(NA)	(D)	(D)	650
Work shirts	13,496	3,539	8,877	(NA)	(NA)	-	1,080
Knit T-shirts and tank tops made for outerwear	191,943	154,991	22,696	(NA)	-	(D)	-
Sweatshirts	51,027	31,379	18,602	(NA)	-	-	1,046
Other knit shirts	29,011	20,559	6,339	(NA)	-	(D)	(D)
Sweaters	3,620	1,585	1,391	(NA)	(D)	-	(D)
<b>Bottoms:</b>							
Dress and sport trousers	37,025	22,877	10,958	5,329	1,191	291	1,708
Jeans	65,065	64,476	14	(NA)	(NA)	(D)	(D)
Jeans-cut casual slacks	7,892	5,614	537	(NA)	(NA)	(D)	(D)
Shorts	13,504	7,740	3,306	(NA)	(D)	(D)	2,455
Sweatpants	19,421	9,892	9,414	(NA)	(NA)	-	115
Workpants	11,248	865	9,923	(NA)	(NA)	-	460
<b>Underwear and nightwear:</b>							
Pajamas and nightwear	3,641	183	3,303	(NA)	(NA)	(D)	(D)
Robes	808	272	501	(NA)	(NA)	- 35	-
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts	352,837	340,454	11,729	(NA)	(NA)	19	635
<b>Other garments:</b>							
Coveralls, overalls, and jumpsuits	4,439	1,360	2,480	(NA)	-	-	599
Jogging and warmup suits	4,637	(D)	3,390	(NA)	(NA)	-	(D)
Playsuits	(D)	(D)	113	(NA)	-	-	30
Ski apparel	(D)	-	2,238	(NA)	(NA)	-	(D)
Swimwear	295	(D)	159	(NA)	(NA)	-	(D)
Team sports uniforms	3,919	(D)	2,633	(NA)	(D)	-	1,167
Washable service apparel	6,854	2,252	2,267	(NA)	(NA)	-	2,335
<b>Women's and girls' garments:</b>							
Dresses	46,804	10,525	23,532	(NA)	870	1,368	10,509
<b>Coats, jackets, and vests:</b>							
Coats and capes	1,969	118	535	275	1,099	(D)	(D)
Down and feather filled coats, jackets, and vests	(D)	(D)	2	(NA)	-	(D)	(D)
Heavy nontailored coats and jackets	1,935	488	834	(NA)	(D)	(D)	468
Raincoats	(D)	(D)	115	(NA)	(NA)	-	48
Separate vests	734	34	477	(NA)	(D)	53	(D)
Tailored suit-type jackets	(D)	306	4,186	852	4,138	541	(D)
<b>Tops:</b>							
Woven blouses and shirts	43,473	16,197	18,882	(NA)	(D)	1,301	(D)
Knit T-shirts and tank tops made for outerwear	55,858	33,987	9,015	(NA)	(NA)	865	11,991
Sweatshirts	21,060	(D)	10,342	(NA)	(NA)	-	(D)
Other knit blouses and shirts	27,402	11,695	9,649	(NA)	(D)	1,258	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters	18,147	6,593	7,837	(NA)	218	35	3,464
<b>Bottoms:</b>							
Shorts	17,937	8,935	6,474	(NA)	(NA)	446	2,082
Skirts and divided skirts	19,391	2,638	10,171	1,048	2,495	727	3,360
Jeans	51,197	47,520	66	(D)	(D)	(D)	3,590
Slacks (except jeans)	53,245	19,238	22,234	3,320	4,129	524	7,120
Sweatpants	14,836	(D)	10,312	(NA)	(NA)	-	(D)
<b>Underwear and nightwear:</b>							
Brassieres, bra-lettes, and bandeaux	(D)	5,032	63,949	(NA)	(NA)	-	(D)
Girdles, corsets, and other foundation garments	22,273	(D)	18,862	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear	14,424	2,711	10,171	(NA)	(NA)	(D)	(D)
Panties	155,570	122,601	30,290	(NA)	(NA)	-	2,679
Robes and dressing gowns	5,563	1,181	3,527	(NA)	(NA)	-	855
All other underwear, including slips, camisoles, teddies, undershirts, and union suits	(D)	2,170	10,314	(NA)	(NA)	6	(D)
<b>Other garments:</b>							
Bodysuits and bodyshirts	2,820	(D)	1,059	(NA)	(NA)	(D)	751
Jogging and warmup suits	4,172	561	3,075	(NA)	(NA)	-	536
Overalls, coveralls, and jumpsuits	1,404	523	584	(NA)	(D)	-	(D)
Playsuits, rompers, halters, etc.	2,090	892	657	(NA)	-	(D)	(D)
Ski apparel	(D)	-	391	(NA)	(NA)	-	(D)
Suits, including pant suits	(D)	(D)	759	370	558	(D)	1,063
Swimwear	8,311	358	6,376	(NA)	(NA)	-	1,577
Washable service apparel	9,620	(D)	4,009	(NA)	(NA)	-	(D)
Infants' apparel	42,633	30,378	11,116	(NA)	(NA)	519	620

See footnotes at end of table.

Table 48. **Quantity of Production of Apparel by Type of Fabrics: 1997—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>SECOND QUARTER</b>							
Men's and boys' garments:							
Suits	2,461	128	1,098	424	631	29	575
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests	(D)	-	40	(NA)	-	-	(D)
Dress and sport coats (tailored)	2,900	104	1,802	746	600	203	191
Heavy nontailored coats and jackets	4,674	1,581	2,740	(NA)	189	(D)	(D)
Lightweight nontailored coats and jackets	4,583	1,814	1,909	(NA)	(D)	(D)	709
Overcoats and top coats	222	(D)	119	(NA)	36	(D)	4
Raincoats	(D)	(D)	388	(NA)	(NA)	(D)	116
Separate vests	(D)	36	303	(NA)	9	(D)	108
Work jackets	1,087	(D)	700	(NA)	(NA)	(D)	72
Tops:							
Woven dress and business shirts	(D)	7,329	6,217	(NA)	(NA)	(D)	509
Woven sport shirts	5,257	2,982	1,582	(NA)	(D)	(D)	627
Work shirts	12,283	1,881	9,336	(NA)	(NA)	-	1,066
Knit T-shirts and tank tops made for outerwear	223,235	180,050	27,123	(NA)	-	-	16,062
Sweatshirts	49,490	32,662	15,809	(NA)	-	-	1,019
Other knit shirts	28,030	18,809	7,200	(NA)	-	(D)	(D)
Sweaters	2,849	1,069	1,246	(NA)	(D)	-	(D)
Bottoms:							
Dress and sport trousers	32,668	18,956	9,808	5,129	1,121	(D)	(D)
Jeans	64,322	63,216	17	(NA)	(NA)	(D)	(D)
Jeans-cut casual slacks	7,359	4,861	854	(NA)	(NA)	(D)	(D)
Shorts	25,344	16,686	5,432	(NA)	-	(D)	(D)
Sweatpants	16,799	8,188	8,508	(NA)	(NA)	-	103
Workpants	11,884	992	10,415	(NA)	(NA)	-	477
Underwear and nightwear:							
Pajamas and nightwear	3,089	163	2,808	(NA)	(NA)	(D)	(D)
Robes	391	101	271	(NA)	(NA)	-	19
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts	391,911	381,219	9,926	(NA)	(NA)	48	718
Other garments:							
Coveralls, overalls, and jumpsuits	3,114	851	1,777	(NA)	-	-	486
Jogging and warmup suits	2,083	(D)	1,501	(NA)	(NA)	-	(D)
Playsuits	(D)	94	81	(NA)	-	(D)	24
Ski apparel	(D)	-	1,035	(NA)	(NA)	-	(D)
Swimwear	527	40	299	(NA)	(NA)	-	188
Team sports uniforms	3,944	(D)	2,655	(NA)	(D)	-	1,208
Washable service apparel	7,248	(D)	2,148	(NA)	(NA)	-	(D)
Women's and girls' garments:							
Dresses	43,190	7,791	23,548	(NA)	580	-	10,052
Coats, jackets, and vests:							
Coats and capes	1,827	(D)	442	277	1,061	(D)	208
Down and feather filled coats, jackets, and vests	(D)	(D)	3	(NA)	-	(D)	2
Heavy nontailored coats and jackets	1,465	398	545	(NA)	(D)	(D)	377
Raincoats	(D)	(D)	115	(NA)	(NA)	-	48
Separate vests	771	29	518	(NA)	(D)	(D)	192
Tailored suit-type jackets	(D)	245	4,836	669	1,941	270	(D)
Tops:							
Woven blouses and shirts	48,781	18,305	21,583	(NA)	37	1,219	7,637
Knit T-shirts and tank tops made for outerwear	58,521	36,021	8,992	(NA)	(NA)	(D)	(D)
Sweatshirts	13,222	5,048	7,842	(NA)	(NA)	-	332
Other knit blouses and shirts	27,377	12,248	9,127	(NA)	(D)	1,278	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters	11,169	3,502	5,027	(NA)	143	5	2,492
Bottoms:							
Shorts	31,673	18,244	9,935	(NA)	-	402	3,092
Skirts and divided skirts	20,013	2,468	10,600	1,788	2,677	644	3,624
Jeans	45,593	42,085	(D)	(D)	-	(D)	3,434
Slacks (except jeans)	46,988	16,916	20,521	2,216	2,713	492	6,346
Sweatpants	14,116	(D)	8,647	(NA)	(NA)	-	(D)
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux	(D)	4,569	69,169	(NA)	(NA)	-	(D)
Girdles, corsets, and other foundation garments	20,279	(D)	16,887	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear	12,511	2,144	8,721	(NA)	(NA)	(D)	(D)
Panties	155,910	119,614	33,946	(NA)	(NA)	-	2,350
Robes and dressing gowns	3,897	739	2,546	(NA)	(NA)	-	612
All other underwear, including slips, camisoles, teddies, undershirts, and union suits	(D)	2,453	10,376	(NA)	(NA)	31	(D)
Other garments:							
Bodysuits and bodyshirts	5,459	(D)	1,919	(NA)	(NA)	-	(D)
Jogging and warmup suits	2,842	300	2,041	(NA)	(NA)	-	501
Overalls, coveralls, and jumpsuits	943	374	475	(NA)	(D)	-	(D)
Playsuits, rompers, halters, etc.	2,250	879	708	(NA)	-	(D)	(D)
Ski apparel	(D)	-	85	(NA)	(NA)	-	(D)
Suits, including pant suits	(D)	(D)	586	308	331	10	832
Swimwear	13,177	748	10,485	(NA)	(NA)	-	1,944
Washable service apparel	9,894	(D)	3,393	(NA)	(NA)	-	(D)
Infants' apparel	34,803	25,310	8,293	(NA)	(NA)	658	542
See footnotes at end of table.							

Table 48. **Quantity of Production of Apparel by Type of Fabrics: 1997—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>FIRST QUARTER</b>							
Men's and boys' garments:							
Suits	2,510	150	1,116	375	626	28	590
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests	(D)	-	33	(NA)	-	-	(D)
Dress and sport coats (tailored)	3,050	132	1,897	683	571	243	207
Heavy nontailored coats and jackets	3,971	1,013	2,656	(NA)	145	(D)	(D)
Lightweight nontailored coats and jackets	5,916	3,112	2,031	(NA)	(D)	(D)	740
Overcoats and top coats	242	(D)	130	(NA)	40	(D)	5
Raincoats	(D)	(D)	312	(NA)	(NA)	(D)	94
Separate vests	(D)	23	533	(NA)	5	(D)	135
Work jackets	966	(D)	694	(NA)	(NA)	(D)	63
Tops:							
Woven dress and business shirts	(D)	6,713	5,935	(NA)	(NA)	(D)	481
Woven sport shirts	5,556	3,481	1,369	(NA)	(D)	(D)	636
Work shirts	11,918	1,801	9,077	(NA)	(NA)	-	1,040
Knit T-shirts and tank tops made for outerwear	240,784	197,954	26,525	(NA)	-	-	16,305
Sweatshirts	49,178	37,052	11,047	(NA)	-	-	1,079
Other knit shirts	25,474	17,472	6,135	(NA)	-	(D)	(D)
Sweaters	2,260	1,127	664	(NA)	(D)	-	(D)
Bottoms:							
Dress and sport trousers	30,163	17,417	9,598	4,192	1,142	(D)	(D)
Jeans	51,100	50,073	12	(NA)	(NA)	(D)	(D)
Jeans-cut casual slacks	6,246	3,953	813	(NA)	(NA)	(D)	(D)
Shorts	34,436	24,645	5,727	(NA)	-	(D)	(D)
Sweatpants	9,490	5,304	4,114	(NA)	(NA)	-	72
Workpants	11,308	799	10,021	(NA)	(NA)	-	488
Underwear and nightwear:							
Pajamas and nightwear	2,667	137	2,425	(NA)	(NA)	(D)	(D)
Robes	(D)	79	100	(NA)	(NA)	-	(D)
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts	358,748	348,688	9,394	(NA)	(NA)	10	656
Other garments:							
Coveralls, overalls, and jumpsuits	3,172	611	2,124	(NA)	-	-	437
Jogging and warmup suits	2,520	(D)	1,861	(NA)	(NA)	-	(D)
Playsuits	(D)	93	295	(NA)	-	(D)	26
Ski apparel	(D)	-	456	(NA)	(NA)	-	(D)
Swimwear	884	(D)	523	(NA)	(NA)	-	(D)
Team sports uniforms	4,797	(D)	3,273	(NA)	(D)	-	1,453
Washable service apparel	7,241	(D)	2,105	(NA)	(NA)	-	(D)
Women's and girls' garments:							
Dresses	48,403	8,860	26,416	(NA)	486	1,559	11,082
Coats, jackets, and vests:							
Coats and capes	1,479	(D)	356	186	827	(D)	181
Down and feather filled coats, jackets, and vests	(D)	(D)	3	(NA)	-	(D)	2
Heavy nontailored coats and jackets	1,419	415	488	(NA)	(D)	133	(D)
Raincoats	(D)	(D)	26	(NA)	(NA)	-	48
Separate vests	914	40	630	(NA)	(D)	(D)	-
Tailored suit-type jackets	(D)	556	6,712	1,066	869	535	(D)
Tops:							
Woven blouses and shirts	44,452	15,575	20,897	(NA)	36	1,425	6,519
Knit T-shirts and tank tops made for outerwear	63,466	41,622	7,594	(NA)	(NA)	636	13,614
Sweatshirts	(D)	4,571	5,478	(NA)	(NA)	-	(D)
Other knit blouses and shirts	24,961	12,039	6,976	(NA)	(D)	1,297	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters	10,447	2,730	5,514	(NA)	200	14	1,989
Bottoms:							
Shorts	41,112	27,228	9,808	(NA)	-	199	3,877
Skirts and divided skirts	22,791	2,945	10,238	880	(D)	755	(D)
Jeans	35,530	32,319	(D)	(D)	-	(D)	3,084
Slacks (except jeans)	43,186	13,616	21,783	2,663	1,400	519	5,868
Sweatpants	(D)	(D)	3,705	(NA)	(NA)	-	176
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux	69,192	4,133	64,428	(NA)	(NA)	-	631
Girdles, corsets, and other foundation garments	19,881	(D)	16,790	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear	15,575	2,580	11,122	(NA)	(NA)	(D)	(D)
Panties	160,634	123,764	34,061	(NA)	(NA)	-	2,809
Robes and dressing gowns	5,250	1,858	2,511	(NA)	(NA)	(D)	(D)
All other underwear, including slips, camisoles, teddies, undershirts, and union suits	11,942	2,913	7,889	(NA)	(NA)	52	1,088
Other garments:							
Bodysuits and bodyshirts	5,952	(D)	2,071	(NA)	(NA)	-	(D)
Jogging and warmup suits	2,827	110	2,236	(NA)	(NA)	-	481
Overalls, coveralls, and jumpsuits	860	287	492	(NA)	-	-	81
Playsuits, rompers, halters, etc.	3,007	792	1,348	(NA)	-	(D)	(D)
Ski apparel	(D)	-	45	(NA)	(NA)	-	(D)
Suits, including pant suits	(D)	16	(D)	(D)	399	9	1,100
Swimwear	20,107	1,753	15,774	(NA)	(NA)	-	2,580
Washable service apparel	8,799	(D)	3,319	(NA)	(NA)	-	(D)
Infants' apparel	42,046	31,096	9,698	(NA)	(NA)	709	543

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available.

**Table 49. Quantity of Production of Apparel by Type of Fabrics: 1996**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>TOTAL</b>							
Men's and boys' garments:							
Suits	(D)	536	4,412	1,125	2,609	128	(D)
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests	(D)	(D)	148	(NA)	-	-	13
Dress and sport coats (tailored)	11,328	377	6,749	2,290	2,493	740	969
Heavy nontailored coats and jackets	18,924	7,991	8,571	(NA)	609	(D)	(D)
Lightweight nontailored coats and jackets	23,497	8,104	11,335	(NA)	93	1	3,964
Overcoats and top coats	1,063	(D)	492	(NA)	186	(D)	122
Raincoats	(D)	(D)	1,343	(NA)	(NA)	(D)	457
Separate vests	(D)	88	1,389	(NA)	30	(D)	362
Work jackets	4,902	(D)	(D)	(NA)	(NA)	(D)	638
Tops:							
Woven dress and business shirts	(D)	27,221	24,849	(NA)	(NA)	(D)	4,405
Woven sport shirts	22,964	15,266	5,382	(NA)	(D)	(D)	(D)
Work shirts	49,464	10,056	36,519	(NA)	(NA)	-	2,889
Knit T-shirts and tank tops made for outerwear	912,476	774,587	84,203	(NA)	-	-	53,686
Sweatshirts	202,249	119,992	57,196	(NA)	-	-	25,061
Other knit shirts	110,479	69,365	29,651	(NA)	-	7	11,456
Sweaters	14,551	5,424	3,683	(NA)	529	(D)	(D)
Bottoms:							
Dress and sport trousers	113,863	58,376	42,586	17,115	5,138	1,320	6,443
Jeans	269,813	260,159	251	-	-	-	9,403
Jean-cut casual slacks	30,544	15,218	(D)	(NA)	(NA)	(D)	9,502
Shorts	107,703	71,980	20,222	(NA)	(D)	(D)	(D)
Sweatpants	57,440	26,763	29,671	(NA)	(NA)	-	1,006
Workpants	50,356	3,080	44,916	(NA)	(NA)	-	2,360
Underwear and nightwear:							
Pajamas and nightwear	16,837	4,102	11,309	(NA)	(NA)	(D)	(D)
Robes	(D)	1,049	(D)	(NA)	(NA)	-	126
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts	1,134,697	1,076,366	49,269	(NA)	(NA)	36	9,026
Other garments:							
Coveralls, overalls, and jumpsuits	17,530	6,392	9,170	(NA)	-	-	1,968
Jogging and warmup suits	10,782	(D)	7,686	(NA)	(NA)	(D)	2,426
Playsuits	(D)	(D)	1,325	(NA)	-	(D)	287
Ski apparel	(D)	-	(D)	(NA)	(NA)	-	292
Swimwear	2,272	484	1,234	(NA)	(NA)	-	554
Team sports uniforms	16,504	(D)	11,897	(NA)	-	-	(D)
Washable service apparel	19,816	(D)	8,612	(NA)	(NA)	(D)	(D)
Women's and girls' garments:							
Dresses	187,094	38,110	96,885	(NA)	2,218	4,327	45,554
Coats, jackets, and vests:							
Coats and capes	7,331	(D)	2,229	1,141	3,833	(D)	(D)
Down and feather filled coats, jackets, and vests	(D)	(D)	(D)	(NA)	(D)	(D)	(D)
Heavy nontailored coats and jackets	7,867	1,778	2,521	(NA)	123	(D)	(D)
Raincoats	(D)	(D)	(D)	(NA)	(NA)	(D)	203
Separate vests	3,125	585	1,424	(NA)	85	86	945
Tailored suit-type jackets	(D)	1,770	16,801	2,554	6,659	1,387	(D)
Tops:							
Woven blouses and shirts	196,043	68,454	89,598	(NA)	185	4,544	33,262
Knit T-shirts and tank tops made for outerwear	243,595	140,739	40,840	(NA)	(NA)	849	61,167
Sweatshirts	55,595	26,946	26,446	(NA)	(NA)	-	2,203
Other knit blouses and shirts	102,387	44,166	38,352	(NA)	(D)	3,798	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters	49,673	18,995	17,800	(NA)	862	(D)	(D)
Bottoms:							
Shorts	107,805	57,907	37,314	(NA)	(NA)	900	11,684
Skirts and divided skirts	86,223	13,656	41,763	4,953	12,150	2,074	16,580
Jeans	166,279	144,746	(D)	(D)	-	(D)	21,304
Slacks (except jeans)	179,681	58,326	83,500	7,658	8,059	1,682	28,114
Sweatpants	42,761	(D)	25,617	(NA)	(NA)	-	(D)
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux	264,962	13,078	248,880	(NA)	(NA)	-	3,004
Girdles, corsets, and other foundation garments	87,415	(D)	75,751	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear	66,947	12,961	46,941	(NA)	(NA)	653	6,392
Panties	657,287	472,538	172,660	(NA)	(NA)	-	12,089
Robes and dressing gowns	23,146	4,918	14,442	(NA)	(NA)	100	3,686
All other underwear, including slips, camisoles, teddies, undershirts, and union suits	52,664	12,189	35,376	(NA)	(NA)	488	4,611
Other garments:							
Bodysuits and bodyshirts	21,268	(D)	6,158	(NA)	(NA)	-	(D)
Jogging and warmup suits	14,852	763	12,894	(NA)	(NA)	5	1,190
Overalls, coveralls, and jumpsuits	6,606	3,398	2,420	(NA)	-	-	788
Playsuits, rompers, halters, etc.	17,376	4,494	11,153	(NA)	-	(D)	(D)
Ski apparel	(D)	-	(D)	(NA)	(NA)	-	205
Suits, including pant suits	(D)	304	4,606	1,737	1,679	32	(D)
Swimwear	51,853	4,230	41,299	(NA)	(NA)	-	6,324
Washable service apparel	27,880	9,429	13,546	(NA)	(NA)	-	4,905
Infants' apparel	151,927	98,397	46,802	(NA)	(NA)	2,541	4,187

See footnotes at end of table.

Table 49. **Quantity of Production of Apparel by Type of Fabrics: 1996—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>FOURTH QUARTER</b>							
Men's and boys' garments:							
Suits.....	(D)	145	1,233	277	514	29	(D)
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests.....	(D)	-	(D)	(NA)	-	-	3
Dress and sport coats (tailored).....	2,918	115	1,859	591	569	138	237
Heavy nontailored coats and jackets.....	5,940	3,099	2,379	(NA)	190	(D)	(D)
Lightweight nontailored coats and jackets.....	7,633	3,687	2,614	(NA)	(D)	(D)	1,307
Overcoats and top coats.....	336	(D)	148	(NA)	85	(D)	31
Raincoats.....	(D)	(D)	397	(NA)	(NA)	(D)	130
Separate vests.....	(D)	27	471	(NA)	9	(D)	103
Work jackets.....	1,413	(D)	(D)	(NA)	(NA)	(D)	171
Tops:							
Woven dress and business shirts.....	(D)	7,901	5,813	(NA)	(NA)	(D)	1,166
Woven sport shirts.....	6,278	4,189	1,493	(NA)	(D)	-	(D)
Work shirts.....	14,589	3,604	10,108	(NA)	(NA)	-	877
Knit T-shirts and tank tops made for outerwear.....	191,839	159,871	19,849	(NA)	-	-	12,119
Sweatshirts.....	62,336	23,723	17,205	(NA)	-	-	21,408
Other knit shirts.....	25,032	15,853	6,496	(NA)	-	(D)	(D)
Sweaters.....	4,403	1,775	1,284	(NA)	131	-	1,213
Bottoms:							
Dress and sport trousers.....	31,841	17,404	11,018	4,975	1,295	(D)	(D)
Jeans.....	71,406	68,858	21	(NA)	(NA)	(D)	(D)
Jeans-cut casual slacks.....	6,768	3,586	(D)	(NA)	(NA)	(D)	2,231
Shorts.....	19,128	12,242	3,848	(NA)	(D)	(D)	2,922
Sweatpants.....	19,509	12,418	6,808	(NA)	(NA)	-	283
Workpants.....	12,173	729	10,865	(NA)	(NA)	-	579
Underwear and nightwear:							
Pajamas and nightwear.....	3,289	(D)	2,537	(NA)	(NA)	(D)	(D)
Robes.....	(D)	357	582	(NA)	(NA)	-	(D)
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts.....	255,056	244,463	8,582	(NA)	(NA)	13	1,998
Other garments:							
Coveralls, overalls, and jumpsuits.....	4,077	1,407	2,388	(NA)	-	-	282
Jogging and warmup suits.....	(D)	(D)	2,666	(NA)	(NA)	(D)	695
Playsuits.....	(D)	(D)	445	(NA)	-	(D)	52
Ski apparel.....	(D)	-	(D)	(NA)	(NA)	-	72
Swimwear.....	375	(D)	178	(NA)	(NA)	-	(D)
Team sports uniforms.....	5,545	(D)	4,053	(NA)	-	-	(D)
Washable service apparel.....	5,386	(D)	2,028	(NA)	(NA)	(D)	850
Women's and girls' garments:							
Dresses.....	37,033	6,416	19,533	(NA)	466	742	9,876
Coats, jackets, and vests:							
Coats and capes.....	2,016	(D)	800	476	798	6	(D)
Down and feather filled coats, jackets, and vests.....	(D)	(D)	(D)	(NA)	-	(D)	(D)
Heavy nontailored coats and jackets.....	1,674	484	384	(NA)	(D)	(D)	668
Raincoats.....	(D)	(D)	(D)	(NA)	(NA)	(D)	47
Separate vests.....	778	95	447	(NA)	(D)	(D)	211
Tailored suit-type jackets.....	(D)	517	3,245	611	1,549	249	(D)
Tops:							
Woven blouses and shirts.....	41,114	16,042	16,145	(NA)	31	1,033	7,863
Knit T-shirts and tank tops made for outerwear.....	53,377	31,619	8,356	(NA)	(NA)	(D)	(D)
Sweatshirts.....	15,224	(D)	6,405	(NA)	(NA)	-	(D)
Other knit blouses and shirts.....	28,724	13,412	10,384	(NA)	(D)	940	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters.....	15,380	5,182	6,708	(NA)	216	(D)	(D)
Bottoms:							
Shorts.....	24,331	12,274	8,832	(NA)	(NA)	139	3,086
Skirts and divided skirts.....	17,016	2,662	7,997	984	2,436	398	3,523
Jeans.....	39,428	34,079	(D)	(D)	-	(D)	5,294
Slacks (except jeans).....	43,633	15,231	18,936	2,345	1,854	571	7,041
Sweatpants.....	(D)	(D)	4,927	(NA)	(NA)	-	640
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux.....	62,217	3,382	58,139	(NA)	(NA)	-	696
Girdles, corsets, and other foundation garments.....	20,641	(D)	17,073	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear.....	15,870	2,557	11,559	(NA)	(NA)	(D)	(D)
Panties.....	143,619	101,012	39,863	(NA)	(NA)	-	2,744
Robes and dressing gowns.....	6,294	1,364	4,086	(NA)	(NA)	-	844
All other underwear, including slips, camisoles, teddies, undershirts, and union suits.....	15,182	3,657	10,227	(NA)	(NA)	52	1,246
Other garments:							
Bodysuits and bodyshirts.....	3,438	(D)	(D)	(NA)	(NA)	-	(D)
Jogging and warmup suits.....	3,243	134	2,845	(NA)	(NA)	(D)	(D)
Overalls, coveralls, and jumpsuits.....	1,310	593	572	(NA)	-	-	145
Playsuits, rompers, halters, etc.....	4,491	1,045	2,998	(NA)	-	(D)	(D)
Ski apparel.....	(D)	-	(D)	(NA)	(NA)	-	62
Suits, including pant suits.....	(D)	(D)	(D)	(D)	303	7	840
Swimwear.....	14,279	865	11,838	(NA)	(NA)	-	1,576
Washable service apparel.....	7,650	3,172	3,255	(NA)	(NA)	-	1,223
Infants' apparel.....	36,455	22,860	11,865	(NA)	(NA)	620	1,110

See footnotes at end of table.



Table 49. **Quantity of Production of Apparel by Type of Fabrics: 1996—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>THIRD QUARTER</b>							
Men's and boys' garments:							
Suits .....	(D)	144	(D)	345	672	31	638
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests .....	(D)	-	(D)	(NA)	-	-	3
Dress and sport coats (tailored) .....	2,736	102	1,560	625	660	182	232
Heavy nontailored coats and jackets .....	6,238	3,653	2,191	(NA)	138	(D)	(D)
Lightweight nontailored coats and jackets .....	6,422	3,031	2,231	(NA)	18	-	1,142
Overcoats and top coats .....	254	(D)	110	(NA)	(D)	(D)	30
Raincoats .....	(D)	(D)	421	(NA)	(NA)	(D)	126
Separate vests .....	(D)	9	309	(NA)	14	(D)	85
Work jackets .....	1,137	(D)	(D)	(NA)	(NA)	(D)	154
Tops:							
Woven dress and business shirts .....	(D)	5,116	7,031	(NA)	(NA)	(D)	987
Woven sport shirts .....	5,309	3,715	1,055	(NA)	(D)	(D)	488
Work shirts .....	12,892	3,232	8,924	(NA)	(NA)	-	736
Knit T-shirts and tank tops made for outerwear .....	197,442	166,222	19,086	(NA)	-	-	12,134
Sweatshirts .....	55,977	35,594	18,931	(NA)	-	-	1,452
Other knit shirts .....	28,670	16,558	9,143	(NA)	-	-	2,969
Sweaters .....	4,110	1,442	1,136	(NA)	147	(D)	(D)
Bottoms:							
Dress and sport trousers .....	31,945	16,600	11,785	4,842	1,363	(D)	(D)
Jeans .....	69,027	66,528	59	(NA)	(NA)	(D)	(D)
Jeans-cut casual slacks .....	9,273	5,139	(D)	(NA)	(NA)	(D)	2,893
Shorts .....	19,829	12,434	4,226	(NA)	(D)	-	(D)
Sweatpants .....	17,313	6,916	10,073	(NA)	(NA)	-	324
Workpants .....	11,028	923	9,575	(NA)	(NA)	-	530
Underwear and nightwear:							
Pajamas and nightwear .....	5,182	(D)	3,310	(NA)	(NA)	(D)	492
Robes .....	(D)	285	1,196	(NA)	(NA)	-	(D)
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts .....	294,535	277,092	15,144	(NA)	(NA)	17	2,282
Other garments:							
Coveralls, overalls, and jumpsuits .....	4,569	1,760	2,428	(NA)	-	-	381
Jogging and warmup suits .....	(D)	(D)	2,627	(NA)	(NA)	(D)	587
Playsuits .....	(D)	(D)	(D)	(NA)	-	(D)	78
Ski apparel .....	(D)	-	(D)	(NA)	(NA)	-	136
Swimwear .....	421	(D)	225	(NA)	(NA)	-	(D)
Team sports uniforms .....	3,560	(D)	2,532	(NA)	-	-	(D)
Washable service apparel .....	4,959	(D)	2,238	(NA)	(NA)	-	(D)
Women's and girls' garments:							
Dresses .....	44,460	9,177	22,489	(NA)	602	1,239	10,953
Coats, jackets, and vests:							
Coats and capes .....	2,491	(D)	854	405	1,249	(D)	175
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(NA)	(D)	(D)	(D)
Heavy nontailored coats and jackets .....	2,181	491	682	(NA)	47	(D)	(D)
Raincoats .....	(D)	(D)	(D)	(NA)	(NA)	-	56
Separate vests .....	820	120	367	(NA)	53	20	260
Tailored suit-type jackets .....	(D)	524	3,418	705	3,405	460	(D)
Tops:							
Woven blouses and shirts .....	47,370	16,201	21,779	(NA)	30	988	8,372
Knit T-shirts and tank tops made for outerwear .....	53,129	30,787	9,067	(NA)	(NA)	(D)	(D)
Sweatshirts .....	16,591	7,459	8,539	(NA)	(NA)	-	593
Other knit blouses and shirts .....	24,569	10,095	9,621	(NA)	(D)	973	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters .....	14,950	5,164	5,989	(NA)	264	(D)	(D)
Bottoms:							
Shorts .....	16,619	6,718	6,702	(NA)	(NA)	(D)	(D)
Skirts and divided skirts .....	22,523	3,300	10,406	1,131	4,029	544	4,244
Jeans .....	47,164	41,300	(D)	(D)	-	(D)	5,812
Slacks (except jeans) .....	52,176	17,093	24,149	2,086	2,969	341	7,624
Sweatpants .....	(D)	(D)	8,643	(NA)	(NA)	-	715
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux .....	66,629	3,751	62,126	(NA)	(NA)	-	752
Girdles, corsets, and other foundation garments .....	21,871	(D)	18,531	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear .....	16,790	3,743	11,268	(NA)	(NA)	(D)	(D)
Panties .....	154,521	106,938	44,712	(NA)	(NA)	-	2,871
Robes and dressing gowns .....	6,444	2,088	3,341	(NA)	(NA)	-	1,015
All other underwear, including slips, camisoles, teddies, undershirts, and union suits .....	14,221	3,667	9,330	(NA)	(NA)	35	1,189
Other garments:							
Bodysuits and bodyshirts .....	5,012	(D)	(D)	(NA)	(NA)	-	1,256
Jogging and warmup suits .....	4,693	303	4,063	(NA)	(NA)	(D)	(D)
Overalls, coveralls, and jumpsuits .....	1,675	857	661	(NA)	-	-	157
Playsuits, rompers, halters, etc. ....	3,819	984	2,457	(NA)	-	(D)	(D)
Ski apparel .....	(D)	-	(D)	(NA)	(NA)	-	90
Suits, including pant suits .....	(D)	14	(D)	(D)	441	15	919
Swimwear .....	7,871	730	5,955	(NA)	(NA)	-	1,186
Washable service apparel .....	6,911	(D)	3,481	(NA)	(NA)	-	(D)
Infants' apparel .....	42,695	27,897	13,124	(NA)	(NA)	577	1,097

See footnotes at end of table.

Table 49. **Quantity of Production of Apparel by Type of Fabrics: 1996—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>SECOND QUARTER</b>							
Men's and boys' garments:							
Suits .....	(D)	103	(D)	243	670	31	(D)
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests .....	(D)	(D)	32	(NA)	-	-	3
Dress and sport coats (tailored) .....	(D)	64	1,727	548	609	192	(D)
Heavy nontailored coats and jackets .....	3,671	607	1,987	(NA)	117	(D)	(D)
Lightweight nontailored coats and jackets .....	4,505	939	2,698	(NA)	25	(D)	(D)
Overcoats and top coats .....	227	(D)	114	(NA)	(D)	(D)	30
Raincoats .....	(D)	(D)	287	(NA)	(NA)	(D)	100
Separate vests .....	(D)	28	187	(NA)	2	(D)	81
Work jackets .....	1,137	(D)	(D)	(NA)	(NA)	(D)	154
Tops:							
Woven dress and business shirts .....	(D)	7,207	5,950	(NA)	(NA)	(D)	1,072
Woven sport shirts .....	5,721	3,410	1,744	(NA)	(D)	-	(D)
Work shirts .....	11,389	1,457	9,272	(NA)	(NA)	-	660
Knit T-shirts and tank tops made for outerwear .....	265,924	226,054	25,090	(NA)	-	-	14,780
Sweatshirts .....	44,013	29,748	13,130	(NA)	-	-	1,135
Other knit shirts .....	28,700	18,455	7,339	(NA)	-	(D)	(D)
Sweaters .....	3,487	1,329	847	(NA)	(D)	(D)	1,178
Bottoms:							
Dress and sport trousers .....	25,224	12,228	9,944	3,712	1,299	252	1,501
Jeans .....	69,959	67,740	50	(NA)	(NA)	-	2,169
Jeans-cut casual slacks .....	7,697	3,670	(D)	(NA)	(NA)	(D)	2,212
Shorts .....	31,023	20,627	6,169	(NA)	-	(D)	(D)
Sweatpants .....	13,268	3,815	9,216	(NA)	(NA)	-	237
Workpants .....	11,407	635	10,225	(NA)	(NA)	-	547
Underwear and nightwear:							
Pajamas and nightwear .....	4,229	1,347	2,554	(NA)	(NA)	(D)	(D)
Robes .....	(D)	223	686	(NA)	(NA)	-	(D)
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts .....	307,917	290,707	14,705	(NA)	(NA)	4	2,501
Other garments:							
Coveralls, overalls, and jumpsuits .....	3,950	1,397	2,034	(NA)	-	-	519
Jogging and warmup suits .....	1,622	(D)	957	(NA)	(NA)	-	(D)
Playsuits .....	(D)	38	(D)	(NA)	-	(D)	77
Ski apparel .....	(D)	(D)	(D)	(NA)	(NA)	-	77
Swimwear .....	536	113	297	(NA)	(NA)	-	126
Team sports uniforms .....	3,719	(D)	2,658	(NA)	-	-	(D)
Washable service apparel .....	4,954	(D)	2,258	(NA)	(NA)	-	(D)
Women's and girls' garments:							
Dresses .....	51,141	11,089	26,210	(NA)	668	1,089	12,085
Coats, jackets, and vests:							
Coats and capes .....	1,835	89	318	158	1,240	20	168
Down and feather filled coats, jackets, and vests .....	(D)	(D)	(D)	(NA)	-	(D)	(D)
Heavy nontailored coats and jackets .....	1,592	347	400	(NA)	(D)	(D)	732
Raincoats .....	(D)	(D)	(D)	(NA)	(NA)	-	51
Separate vests .....	716	134	321	(NA)	15	19	227
Tailored suit-type jackets .....	(D)	338	3,972	632	1,004	255	(D)
Tops:							
Woven blouses and shirts .....	55,993	18,089	27,128	(NA)	(D)	1,284	(D)
Knit T-shirts and tank tops made for outerwear .....	63,209	35,073	12,351	(NA)	(NA)	(D)	(D)
Sweatshirts .....	13,648	(D)	(D)	(NA)	(NA)	-	(D)
Other knit blouses and shirts .....	26,541	11,141	10,602	(NA)	(D)	904	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters ..	10,256	4,852	2,500	(NA)	230	(D)	(D)
Bottoms:							
Shorts .....	28,900	15,523	10,286	(NA)	(NA)	(D)	(D)
Skirts and divided skirts .....	20,756	4,042	10,654	1,254	(D)	472	(D)
Jeans .....	43,122	37,594	(D)	(D)	-	-	5,469
Slacks (except jeans) .....	40,055	12,811	18,569	1,686	1,985	317	6,373
Sweatpants .....	9,967	(D)	(D)	(NA)	(NA)	-	674
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux .....	68,907	2,981	65,138	(NA)	(NA)	-	788
Girdles, corsets, and other foundation garments .....	23,077	(D)	20,807	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear .....	15,740	3,323	10,528	(NA)	(NA)	(D)	(D)
Panties .....	191,024	143,387	44,097	(NA)	(NA)	-	3,540
Robes and dressing gowns .....	5,651	487	4,196	(NA)	(NA)	(D)	(D)
All other underwear, including slips, camisoles, teddies, undershirts, and union suits .....	11,808	2,216	8,304	(NA)	(NA)	186	1,102
Other garments:							
Bodysuits and bodyshirts .....	6,588	(D)	1,763	(NA)	(NA)	-	(D)
Jogging and warmup suits .....	2,845	152	2,432	(NA)	(NA)	-	261
Overalls, coveralls, and jumpsuits .....	1,515	785	520	(NA)	(D)	-	(D)
Playsuits, rompers, halters, etc. ....	4,556	1,316	2,781	(NA)	-	(D)	(D)
Ski apparel .....	(D)	-	(D)	(NA)	(NA)	-	45
Suits, including pant suits .....	(D)	(D)	1,491	489	473	2	987
Swimwear .....	11,267	1,037	8,653	(NA)	(NA)	-	1,577
Washable service apparel .....	6,897	(D)	3,486	(NA)	(NA)	-	(D)
Infants' apparel .....	36,534	24,891	10,111	(NA)	(NA)	513	1,019

See footnotes at end of table.

Table 49. **Quantity of Production of Apparel by Type of Fabrics: 1996—Con.**

[Quantity in thousands of units]

Product description	Total	Cotton	Manmade		Wool	Other	Not specified by kind (n.s.k)
			Total	Wool blends			
<b>FIRST QUARTER</b>							
Men's and boys' garments:							
Suits	(D)	144	1,189	260	753	37	(D)
Coats, jackets, and vests:							
Down and feather filled coats, jackets, and vests	(D)	(D)	38	(NA)	-	-	4
Dress and sport coats (tailored)	(D)	96	1,603	526	655	228	(D)
Heavy nontailored coats and jackets	3,075	632	2,014	(NA)	164	(D)	(D)
Lightweight nontailored coats and jackets	4,937	447	3,792	(NA)	(D)	-	(D)
Overcoats and top coats	246	(D)	120	(NA)	34	(D)	31
Raincoats	(D)	(D)	238	(NA)	(NA)	(D)	101
Separate vests	(D)	24	422	(NA)	5	(D)	93
Work jackets	1,215	(D)	(D)	(NA)	(NA)	(D)	159
Tops:							
Woven dress and business shirts	(D)	6,997	6,055	(NA)	(NA)	(D)	1,180
Woven sport shirts	5,656	3,952	1,090	(NA)	(D)	-	(D)
Work shirts	10,594	1,763	8,215	(NA)	(NA)	-	616
Knit T-shirts and tank tops made for outerwear	257,271	222,440	20,178	(NA)	-	-	14,653
Sweatshirts	39,923	30,927	7,930	(NA)	-	-	1,066
Other knit shirts	28,077	18,499	6,673	(NA)	-	-	2,905
Sweaters	2,551	878	416	(NA)	(D)	(D)	1,138
Bottoms:							
Dress and sport trousers	24,853	12,144	9,839	3,586	1,181	(D)	(D)
Jeans	59,421	57,033	121	(NA)	(NA)	-	2,267
Jeans-cut casual slacks	6,806	2,823	(D)	(NA)	(NA)	(D)	2,166
Shorts	37,723	26,677	5,979	(NA)	-	(D)	(D)
Sweatpants	7,350	3,614	3,574	(NA)	(NA)	-	162
Workpants	15,748	793	14,251	(NA)	(NA)	-	704
Underwear and nightwear:							
Pajamas and nightwear	4,137	889	2,908	(NA)	(NA)	(D)	(D)
Robes	(D)	184	(D)	(NA)	(NA)	-	25
All other underwear, including thermal underwear, undershirts, knit undershorts, and woven boxer shorts	277,189	264,104	10,838	(NA)	(NA)	2	2,245
Other garments:							
Coveralls, overalls, and jumpsuits	4,934	1,828	2,320	(NA)	-	-	786
Jogging and warmup suits	(D)	(D)	1,436	(NA)	(NA)	-	719
Playsuits	(D)	38	(D)	(NA)	-	(D)	80
Ski apparel	(D)	-	(D)	(NA)	(NA)	-	7
Swimwear	940	214	534	(NA)	(NA)	-	192
Team sports uniforms	3,680	(D)	2,654	(NA)	-	-	(D)
Washable service apparel	4,517	(D)	2,088	(NA)	(NA)	-	(D)
Women's and girls' garments:							
Dresses	54,460	11,428	28,653	(NA)	482	1,257	12,640
Coats, jackets, and vests:							
Coats and capes	989	64	257	102	546	(D)	(D)
Down and feather filled coats, jackets, and vests	(D)	(D)	(D)	(NA)	-	(D)	(D)
Heavy nontailored coats and jackets	2,420	456	1,055	(NA)	(D)	(D)	722
Raincoats	(D)	(D)	19	(NA)	(NA)	-	49
Separate vests	811	236	289	(NA)	(D)	(D)	247
Tailored suit-type jackets	(D)	391	6,166	606	701	423	(D)
Tops:							
Woven blouses and shirts	51,566	18,122	24,546	(NA)	(D)	1,239	(D)
Knit T-shirts and tank tops made for outerwear	73,880	43,260	11,066	(NA)	(NA)	(D)	(D)
Sweatshirts	10,132	4,752	(D)	(NA)	(NA)	-	(D)
Other knit blouses and shirts	22,553	9,518	7,745	(NA)	(D)	981	(D)
Sweaters, including coat, cardigan, pullover, and vest sweaters	9,087	3,797	2,603	(NA)	152	(D)	(D)
Bottoms:							
Shorts	37,955	23,392	11,494	(NA)	(NA)	120	2,949
Skirts and divided skirts	25,928	3,652	12,706	1,584	(D)	660	(D)
Jeans	36,565	31,773	(D)	(D)	-	(D)	4,729
Slacks (except jeans)	43,817	13,191	21,846	1,541	1,251	453	7,076
Sweatpants	8,090	(D)	(D)	(NA)	(NA)	-	644
Underwear and nightwear:							
Brassieres, bra-lettes, and bandeaux	67,209	2,964	63,477	(NA)	(NA)	-	768
Girdles, corsets, and other foundation garments	21,826	(D)	19,340	(NA)	(NA)	-	(D)
Nightgowns, pajamas, and other nightwear	18,547	3,338	13,586	(NA)	(NA)	319	1,304
Panties	168,123	121,201	43,988	(NA)	(NA)	-	2,934
Robes and dressing gowns	4,757	979	2,819	(NA)	(NA)	(D)	(D)
All other underwear, including slips, camisoles, teddies, undershirts, and union suits	11,453	2,649	7,515	(NA)	(NA)	215	1,074
Other garments:							
Bodysuits and bodyshirts	6,230	(D)	1,561	(NA)	(NA)	-	(D)
Jogging and warmup suits	4,071	174	3,554	(NA)	(NA)	-	343
Overalls, coveralls, and jumpsuits	2,106	1,163	667	(NA)	(D)	-	(D)
Playsuits, rompers, halters, etc.	4,510	1,149	2,917	(NA)	-	(D)	(D)
Ski apparel	(D)	-	(D)	(NA)	(NA)	-	8
Suits, including pant suits	(D)	33	1,259	422	462	8	(D)
Swimwear	18,436	1,598	14,853	(NA)	(NA)	-	1,985
Washable service apparel	6,422	(D)	3,324	(NA)	(NA)	-	(D)
Infants' apparel	36,243	22,749	11,702	(NA)	(NA)	831	961

- Represents zero.

D Withheld to avoid disclosing data for individual companies.

NA Not available.

Table 50. **Shipments, Exports, Imports, and Apparent Consumption of Selected Apparel Items: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		"9802" imports <sup>2</sup>			Imports for consumption <sup>5</sup>		Apparent consumption <sup>7</sup>		Percent imports to apparent consumption	
	Quantity	Value f.o.b. plant	Quantity	Value at port	Quantity	Value U.S. content <sup>3</sup>	Total value <sup>4</sup>	Quantity	Value <sup>6</sup>	Quantity	Value	Quantity	Value
<b>1997</b>													
Men's and boys' apparel:													
Sweaters . . . . .	11,887	188.7	52,452	168.7	936	1.5	5.8	45,576	571.7	5,011	591.7	909.5	96.6
Tops (except sweaters) . . . . .	(D)	(D)	525,192	1,261.7	683,892	1,403.0	1,907.4	1,620,516	7,710.3	(D)	(D)	(D)	(D)
Bottoms . . . . .	602,289	7,793.4	300,120	1,172.7	346,080	1,306.1	2,299.4	715,920	4,703.3	1,018,089	11,324.0	70.3	41.5
Coats:													
Suit type, dress and sport . . . . .	11,784	731.3	5,976	61.2	6,828	106.6	181.7	14,160	494.3	19,968	1,164.4	70.9	42.5
Other coats . . . . .	57,643	1,664.3	17,112	94.0	7,212	60.5	109.5	144,684	2,312.0	185,215	3,882.3	78.1	59.6
Suits . . . . .	9,296	792.5	3,768	41.8	824	19.3	44.2	83,940	582.9	89,468	1,333.6	93.8	43.7
Swimwear . . . . .	1,940	32.3	876	4.2	780	2.2	3.3	43,608	151.1	44,672	179.2	97.6	84.3
Women's and girls' apparel:													
Sweaters . . . . .	56,153	743.8	2,808	15.1	1,512	1.3	35.1	193,344	2,056.6	246,689	2,785.3	78.4	73.8
Dresses . . . . .	178,702	4,341.3	28,896	147.7	35,832	105.5	261.9	200,736	1,980.3	350,542	6,173.9	57.3	32.1
Tops (except sweaters) . . . . .	(D)	(D)	220,632	469.8	230,460	440.8	723.0	1,194,240	6,437.9	(D)	(D)	(D)	(D)
Skirts . . . . .	76,131	1,119.7	11,496	53.3	25,884	65.2	157.1	125,004	978.2	189,639	2,044.6	65.9	47.8
Coats and jackets . . . . .	52,117	1,921.4	19,224	155.3	33,348	250.4	553.7	152,628	2,696.6	185,521	4,462.7	82.3	60.4
Bottoms (except skirts) . . . . .	526,438	5,569.5	159,960	543.9	242,723	798.9	1,433.7	590,628	4,082.9	957,106	9,108.5	61.7	44.8
Suits . . . . .	(D)	(D)	7,008	60.7	1,193	17.9	34.1	111,192	347.8	(D)	(D)	(D)	(D)
Swimwear . . . . .	55,846	938.3	12,264	56.5	19,332	73.5	99.1	41,448	237.1	85,030	1,118.9	48.7	21.2
Other apparel (men's/women's):													
Playsuits . . . . .	(D)	(D)	-	-	4,500	4.0	6.3	29,508	121.8	(D)	(D)	(D)	(D)
Coveralls, etc. . . . .	18,918	489.8	13,236	35.0	10,476	48.1	79.2	75,564	600.0	81,246	1,054.8	93.0	56.9
Robes and dressing gowns . . . . .	22,540	264.9	13,032	28.5	14,832	39.5	79.2	46,908	401.0	56,416	637.4	83.1	62.9
Pajamas and other nightwear . . . . .	69,512	549.6	26,784	75.1	55,500	110.2	213.3	170,076	968.5	212,804	1,443.0	79.9	67.1
Underwear (except foundation garments) . . . . .	2,064,935	2,803.8	929,088	876.1	1,502,964	1,002.4	1,415.6	2,148,408	2,348.4	3,284,255	4,276.1	65.4	54.9
Foundation garments . . . . .	360,681	1,946.1	293,892	468.2	220,560	424.6	620.4	363,336	970.1	430,125	2,448.0	84.5	39.6
Infants' apparel . . . . .	159,018	719.6	135,828	163.3	114,036	158.7	234.5	501,336	1,231.5	524,526	1,787.8	95.6	68.9
<b>1996</b>													
Men's and boys' apparel:													
Sweaters . . . . .	14,551	214.4	22,488	100.6	276	0.9	2.8	35,568	466.7	27,631	580.5	128.7	80.4
Tops (except sweaters) . . . . .	(D)	(D)	371,352	1,020.3	437,724	929.0	1,324.6	1,352,496	6,722.8	(D)	(D)	(D)	(D)
Bottoms . . . . .	629,719	8,013.1	256,728	1,032.4	282,324	1,077.7	1,813.7	610,488	3,926.8	983,479	10,907.5	62.1	36.0
Coats:													
Suit type, dress and sport . . . . .	11,328	718.0	6,816	57.0	5,028	73.2	127.8	11,472	414.4	15,984	1,075.4	71.8	38.5
Other coats . . . . .	52,829	1,467.0	20,376	99.1	5,664	46.3	79.5	117,528	1,840.4	149,981	3,208.3	78.4	57.4
Suits . . . . .	(D)	(D)	5,184	54.0	756	12.7	33.7	79,584	532.1	(D)	(D)	(D)	(D)
Swimwear . . . . .	2,272	21.7	1,320	6.3	732	1.9	2.9	42,456	149.2	43,408	164.6	97.8	90.6
Women's and girls' apparel:													
Sweaters . . . . .	49,673	652.4	3,972	22.7	1,044	1.6	16.9	152,088	1,601.2	197,789	2,230.9	76.9	71.8
Dresses . . . . .	187,094	4,454.7	21,432	114.1	30,588	101.9	238.7	189,564	1,928.0	355,226	6,268.6	53.4	30.8
Tops (except sweaters) . . . . .	597,620	4,167.8	176,748	434.6	161,112	327.1	488.8	1,013,892	5,433.2	1,434,764	9,166.4	70.7	59.3
Skirts . . . . .	86,223	1,245.9	10,248	43.8	23,532	68.0	155.8	137,760	1,063.2	213,735	2,265.3	64.5	46.9

See footnotes at end of table.

Table 50. **Shipments, Exports, Imports, and Apparent Consumption of Selected Apparel Items: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		"9802" imports <sup>2</sup>			Imports for consumption <sup>5</sup>		Apparent consumption <sup>7</sup>		Percent imports to apparent consumption	
	Quantity	Value f.o.b. plant	Quantity	Value at port	Quantity	Value U.S. content <sup>3</sup>	Total value <sup>4</sup>	Quantity	Value <sup>6</sup>	Quantity	Value	Quantity	Value
<b>1996—Con.</b>													
Women's and girls' apparel:—Con.													
Coats and jackets ..	50,909	1,897.4	16,632	124.7	25,200	216.8	472.1	127,560	2,847.6	161,837	4,620.3	78.8	61.6
Bottoms (except skirts) .....	496,526	5,125.3	139,896	480.3	222,288	713.1	1,183.6	597,072	3,800.5	953,702	8,445.5	62.6	45.0
Suits .....	(D)	(D)	7,032	62.4	1,465	30.0	51.1	105,288	361.1	(D)	(D)	(D)	(D)
Swimwear .....	51,853	757.1	7,332	37.6	12,828	44.9	63.5	30,780	189.3	75,301	908.8	40.9	20.8
Other apparel (men's/women's):													
Playsuits .....	(D)	(D)	-	-	4,440	4.7	7.6	35,520	144.9	(D)	(D)	(D)	(D)
Coveralls, etc. ....	24,136	472.9	8,280	28.1	8,688	39.4	63.8	53,580	427.6	69,436	872.4	77.2	49.0
Robes and dressing gowns .....	(D)	(D)	12,408	26.5	10,452	32.0	58.8	37,128	348.2	(D)	(D)	(D)	(D)
Pajamas and other nightwear .....	83,784	657.8	24,216	65.9	49,644	96.4	193.0	154,164	904.7	213,732	1,496.6	72.1	60.5
Underwear (except foundation garments) .....	1,844,648	2,741.7	770,532	715.0	1,185,060	733.1	1,041.6	1,718,532	1,802.0	2,792,648	3,828.7	61.5	47.1
Foundation garments .....	352,377	1,889.6	294,288	372.3	238,488	403.7	597.9	352,524	867.1	410,613	2,384.4	85.9	36.4
Infants' apparel .....	151,927	779.4	104,952	135.7	86,220	119.9	187.9	424,260	1,039.9	471,235	1,683.6	90.0	61.8

- Represents zero. D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Represents apparel that is cut in the United States, sent outside the country to be sewn, and then returned to the United States under 9802 (formerly 807) of Chapter 98, Special Classification Provisions of the Harmonized Tariff Schedules of the United States, and is included in domestic output, imports, and exports. Because 9802 garments are exported in pieces, the export quantity data may be overstated since some data may be reported in pieces rather than in completed garments.

<sup>3</sup>Represents value of the U.S. fabricated components.

<sup>4</sup>Represents total c.i.f. (cost, insurance, and freight) value of article, which includes value of the U.S. fabricated components and foreign processing.

<sup>5</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>6</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>7</sup>Apparent consumption represents new domestic supply and is derived by subtracting exports from sum of manufacturers' shipments plus imports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of subsection MA23D, Gloves and Mittens, page 2-81.

## GLOVES AND MITTENS (MA23D)

**Table 51. Quantity and Value of Shipments of Gloves and Mittens: 1997 and 1996**

[Quantity in thousand dozen pairs. Value in millions of dollars]

Product description	1997		1996	
	Quantity	Value	Quantity	Value
Gloves and mittens .....	'202,574	'907.7	302,849	984.7
All fabrics gloves and mittens .....	'38,267	r/374.3	33,564	374.3
All leather and leather and fabrics combination gloves and mittens .....	3,103	120.6	'2,912	129.2
All plastics gloves .....	41,312	58.5	32,000	43.9
All rubber gloves .....	119,892	354.3	234,373	437.3
Of total:				
Dress/casual gloves and mittens .....	251	18.3	265	21.2
Work/chore gloves and mittens .....	'202,323	'889.4	302,584	963.5

'Revised by 5 percent or more from previously published data.

**Table 52. Quantity and Value of Shipments of Gloves and Mittens: 1997 and 1996**

[Quantity in thousand dozen pairs. Value in millions of dollars]

Product description	1997		1996	
	Quantity	Value	Quantity	Value
<b>All fabrics gloves and mittens .....</b>	<b>'38,267</b>	<b>'374.3</b>	<b>33,564</b>	<b>374.3</b>
Woven fabrics gloves and mittens .....	3,519	62.1	3,870	66.2
Impregnated with rubber or plastics .....	370	6.0	476	7.3
Greater than 50 percent plastics or rubber .....	(D)	(D)	(D)	(D)
Cotton .....	(D)	(D)	(D)	(D)
Manmade .....	-	-	-	-
Other .....	-	-	-	-
Nonimpregnated .....	3,149	56.1	3,394	58.9
Cotton .....	2,846	45.2	3,321	52.3
Manmade .....	(D)	(D)	(D)	(D)
Wool .....	(D)	(D)	(D)	(D)
Other .....	(D)	(D)	(D)	(D)
Knit fabrics gloves and mittens .....	'34,748	'312.2	29,694	308.1
Impregnated with rubber or plastics .....	7,139	119.0	7,288	122.0
Greater than 50 percent plastics or rubber .....	3,196	67.8	3,244	69.2
Cotton .....	2,899	32.2	'2,798	'34.8
Manmade .....	(D)	(D)	(D)	(D)
Other .....	(D)	(D)	(D)	(D)
Nonimpregnated .....	'27,609	'193.2	22,406	186.1
Cotton .....	'26,140	'175.6	21,456	171.4
Terry/looped pile .....	782	9.1	848	'10.0
Jersey, brushed, napped .....	(D)	(D)	(D)	(D)
Lisle (no nap or brush) .....	(D)	(D)	(D)	(D)
Other .....	'20,435	'95.0	14,951	'81.3
Manmade .....	1,265	10.3	752	6.9
Wool .....	(D)	(D)	(D)	(D)
Other .....	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 52. **Quantity and Value of Shipments of Gloves and Mittens: 1997 and 1996**—Con.

[Quantity in thousand dozen pairs. Value in millions of dollars]

Product description	1997		1996	
	Quantity	Value	Quantity	Value
Leather and fabrics combination gloves . . . . .	372	29.5	309	29.8
All leather gloves and mittens . . . . .	2,731	91.1	<sup>r</sup> 2,603	99.4
All grain leather . . . . .	691	61.8	803	77.1
All split leather . . . . .	(D)	(D)	<sup>r</sup> 1,754	<sup>r</sup> 18.5
All other leather gloves . . . . .	(D)	(D)	46	3.8
All plastics gloves . . . . .	41,312	58.5	32,000	43.9
Medical and surgical . . . . .	(D)	(D)	(D)	(D)
All other . . . . .	(D)	(D)	(D)	(D)
All rubber gloves . . . . .	119,892	354.3	234,373	437.3
Medical and surgical . . . . .	<sup>b</sup> 97,428	<sup>a</sup> 230.6	211,508	319.1
All other . . . . .	22,464	123.7	22,865	<sup>r</sup> 118.2

D Withheld to avoid disclosing data for individual companies. <sup>r</sup>Revised by 5 percent or more from previously published data.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 19 percent of this item is estimated. <sup>b</sup>20 to 49 percent of this item is estimated.

Table 53. **Shipments, Exports, Imports, and Apparent Consumption of Gloves and Mittens: 1997 and 1996**

[Quantity in thousand dozen pairs. Value and calculated import duty in millions of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Percent exports to manufacturers' shipments		Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup>		Percent imports to apparent consumption	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value <sup>3</sup>	Quantity	Value	Quantity	Value
<b>1997</b>													
23813	Knitted, not coated or impregnated gloves and mittens . . . . .	<sup>r</sup> 27,609	<sup>r</sup> 193.2	886	13.9	<sup>r</sup> 3.2	<sup>r</sup> 7.2	38,660	235.9	<sup>r</sup> 65,383	<sup>r</sup> 415.2	<sup>r</sup> 59.1	<sup>r</sup> 56.8
3069D	Knitted, plastics or rubber, coated or impregnated gloves and mittens . . . . .	7,139	119.0	1,465	24.4	20.5	20.5	7,566	72.3	13,240	166.9	57.1	43.3
23813	Woven, nonimpregnated gloves and mittens . . . . .	3,149	56.1	1,208	15.4	38.4	27.5	10,554	68.3	12,495	109.0	84.5	62.7
3069D	Woven impregnated gloves and mittens . . . . .	370	6.0	110	1.4	29.7	23.3	1,419	9.3	1,679	13.9	84.5	66.9
23814, 31510	All leather and leather and fabrics combination gloves and mittens . . . . .	3,103	120.6	216	6.6	7.0	5.5	16,324	359.2	19,211	473.2	85.0	75.9
30698	Rubber, surgical and medical gloves . . . . .	97,428	230.6	13,724	38.3	14.1	16.6	862,610	762.6	946,314	954.9	91.2	79.9
3069D	Rubber, other gloves . . . . .	22,464	123.7	3,274	27.9	14.6	22.6	97,299	168.4	116,489	264.2	83.5	63.7
30896	Plastics, surgical and medical gloves <sup>5</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
30896	Plastics, other gloves <sup>5</sup> . . . . .	41,312	58.5	8,369	56.4	20.3	96.4	387,144	156.7	420,087	158.8	92.2	98.7
<b>1996</b>													
23813	Knitted, not coated or impregnated gloves and mittens . . . . .	22,406	186.1	1,019	13.9	4.5	7.5	35,577	207.0	56,964	379.2	62.5	54.6
3069D	Knitted, plastics or rubber, coated or impregnated gloves and mittens . . . . .	7,288	122.0	1,661	24.0	22.8	19.7	6,696	66.3	12,323	164.3	54.3	40.4
23813	Woven, nonimpregnated gloves and mittens . . . . .	3,394	58.9	1,313	11.8	38.7	20.0	9,790	67.9	11,871	115.0	82.5	59.0
3069D	Woven impregnated gloves and mittens . . . . .	476	7.3	88	1.3	18.5	17.8	1,482	10.1	1,870	16.1	79.3	62.7

See footnotes at end of table.

**Table 53. Shipments, Exports, Imports, and Apparent Consumption of Gloves and Mittens: 1997 and 1996—Con.**

[Quantity in thousand dozen pairs. Value and calculated import duty in millions of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Percent exports to manufacturers' shipments		Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup>		Percent imports to apparent consumption	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value <sup>3</sup>	Quantity	Value	Quantity	Value
	<b>1996—Con.</b>												
23814, 31510	All leather and leather and fabrics combination gloves and mittens. . . . .	2,912	129.2	268	10.0	9.2	7.7	15,995	343.1	18,639	462.3	85.8	74.2
30698	Rubber, surgical and medical gloves. . . . .	211,508	319.1	13,156	36.4	6.2	11.4	868,392	774.9	1,066,744	1,057.6	81.4	73.3
3069D	Rubber, other gloves. . . . .	22,865	118.2	2,484	23.2	10.9	19.6	102,676	168.4	123,057	263.4	83.4	63.9
30896	Plastics, surgical and medical gloves <sup>5</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
30896	Plastics, other gloves <sup>5</sup> . . . . .	32,000	43.9	8,706	43.1	27.2	98.2	282,871	113.0	306,165	113.8	92.4	99.3

D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>4</sup>Apparent consumption represents new domestic supply and is derived by subtracting exports from total of manufacturers' shipments plus imports.

<sup>5</sup>"Plastics, surgical and medical gloves" and "Plastics, other gloves" are combined to avoid disclosing data for individual companies.

Note: Export and import data include glove linings that are not available by separate classification; however, this item is not included in manufacturers' shipments. For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

### HISTORICAL NOTE

Data on apparel have been collected by the Census Bureau since 1923. In 1955, the MA23A apparel series consolidated, on an annual basis, five separate series that were formerly conducted independently (between 1923 and 1954). The 1968 apparel report was the first in this series to show quantity and value for each major product description. Previously, only product code values and/or production data were published.

For the years 1980 through 1985, similar data were published separately as MA23E, Men's and Boys' Outerwear, MA23F, Women's and Children's Outerwear, and MA23G, Underwear and Nightwear. Prior to 1984, data on foundation garments were published separately as MA23J, Foundation Garments.

The data were again published on an annual basis from 1986 through 1989 as the MA23A. Since 1990, the data have been published quarterly as the MQ23A. The annual summary shows any revisions to the quarterly data.

Data on gloves and mittens have also been collected since 1923. They are collected on MA23D, Gloves and Mittens.

Additional information for the apparel industry (employment, payroll, cost of materials, capital expenditures, inventories, etc.) is also collected by the Census Bureau and is shown in the census of manufactures and the annual survey of manufactures series.

### CONTACT FOR DATA USERS

For additional information on these data, contact Matt Gaines, 301-457-4642.



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## BED AND BATH FURNISHINGS (MQ23X) (Formerly Sheets, Pillowcases, and Towels)

### INTRODUCTION

The data shown for sheets, pillowcases, and towels are for finished products. They do not include sheeting fabrics that may be used later in items such as comforter sets. However, included is a category for terry towel blanks, which are generally sold for further embellishment.

### EXPLANATION OF TERMS

#### Distribution Channels

**Branded retail.** Sales of company brands, including premium goods, drops (closeouts), and seconds sold to domestic consumers through all types of retailers.

**Private ticket retail.** Sales with retail identification, with or without a manufacturer's corporate identification, but not with a manufacturer's brand name.

**Other (institutional).** Includes domestic distribution only and includes all federal and state contract business, commercial accounts (e.g., hotels) that are sold on a contract basis, and shipments to dealers who are involved in resale to the institutional trade.

**Exports.** Includes only direct company shipments for export, usually through a domestic international sales corporation, regardless of put-up or packaging. Export shipments through jobbers or distributors are included in the other categories (e.g., branded or private ticket).

**Inventories.** Represents the quantity of finished goods on hand, plus those held at private or public warehouses by the manufacturers who own the goods.

#### Products

**Sheets.** Excludes bedsheets fabrics used for bedspreads, shower curtains, tablecloths, piece goods, etc.

**Sheet sets.** Packages of at least two sheets and one pillowcase that may contain additional sheets, pillowcases, or other items.

**Kitchen accessories.** Includes items such as terry cloth aprons, pot holders, dish cloths, and toaster covers.

**Towel blanks.** Includes towels sold for further processing elsewhere. The figure reported for finished terry woven towels includes towel blanks; thus, both sets of data are not additive.

#### Types of Finish

**Solids (sheets).** Includes solid color sheets with attached hems or piping.

**Fancies.** Towels include jacquards, mixed color or pattern weaves, prints, embroidered, and attached or embellished hems. Excludes solid color, white doobby, and white cam. Sheets include prints and solids with embroidery, lace, or other embellishments, except attached hems or piping.

**Table 54. Summary of Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1990 to 1997**

[Thousands of dozens]

Year and quarter	Sheets, flat and fitted <sup>1</sup>			Pillowcases			Terry towels		
	Production (quantity)	Shipments		Production (quantity)	Shipments		Production (quantity)	Shipments	
		Quantity	Value		Quantity	Value		Quantity	Value
<b>1997, total</b> .....	16,545	16,480	1,420,070	15,405	15,305	430,272	46,133	44,940	1,289,592
Fourth quarter .....	3,791	4,030	358,808	3,903	3,804	97,552	11,808	11,146	326,495
Third quarter .....	3,992	4,499	386,251	4,173	4,217	124,376	10,996	11,058	321,918
Second quarter .....	4,375	4,086	337,462	3,692	3,750	103,207	11,688	11,334	322,655
First quarter .....	4,387	3,865	337,549	3,637	3,534	105,137	11,641	11,402	318,524
<b>1996, total</b> .....	19,257	16,108	1,344,525	14,192	14,234	398,722	45,323	46,991	1,224,654
Fourth quarter .....	4,825	4,235	351,212	3,520	3,629	101,773	10,342	11,090	310,656
Third quarter .....	5,432	4,426	364,414	3,969	3,782	110,698	10,848	11,466	319,792
Second quarter .....	4,918	3,997	336,427	3,623	3,661	97,551	11,694	12,232	306,572
First quarter .....	4,082	3,450	292,472	3,080	3,162	88,700	12,439	12,203	287,634
1995 .....	18,302	15,282	1,242,271	13,901	14,232	388,185	49,084	47,939	1,147,510
1994 .....	17,906	16,190	1,230,863	13,701	14,622	372,227	48,974	48,348	1,130,082
1993 .....	16,826	16,331	1,197,095	12,304	14,464	370,620	48,529	47,161	1,071,837
1992 .....	14,908	15,300	1,129,122	12,528	12,945	322,304	48,789	46,885	1,053,042
1991 .....	13,851	14,505	1,076,310	11,301	12,082	302,073	43,158	43,596	991,756
1990 .....	15,152	14,716	1,088,690	12,665	12,443	305,447	42,376	41,855	968,329

<sup>1</sup>Excludes crib sheets.

Note: For 1993, a number of companies were added based on information in the 1992 Census of Manufactures. Data were received from these companies for 1993; therefore, information shown for years prior to 1993 may not be directly comparable. These changes represent approximately 2.0 percent of total value of shipments for sheets, pillowcases, and towels.

**Table 55. Inventories and Unfilled Orders of Sheets, Pillowcases, and Finished Terry Towels: 1996 and 1997**

[Thousands of dozens]

Year and quarter	Inventories			Unfilled orders		
	Sheets, flat and fitted <sup>1</sup>	Pillowcases	Terry towels	Sheets, flat and fitted <sup>1</sup>	Pillowcases	Terry towels
<b>1997</b>						
Fourth quarter .....	2,710	2,330	7,187	121,264	32,449	(D)
Third quarter .....	2,692	2,245	6,570	113,966	34,197	(D)
Second quarter .....	2,880	2,496	8,647	148,252	44,950	(D)
First quarter .....	2,752	2,319	7,301	131,996	40,312	(D)
<b>1996</b>						
Fourth quarter .....	2,324	1,995	7,136	140,588	38,808	(D)
Third quarter .....	2,568	1,974	8,443	133,739	42,217	(D)
Second quarter .....	3,047	2,335	9,886	148,503	47,443	(D)
First quarter .....	3,059	2,314	10,672	129,593	41,823	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Excludes crib sheets.

Table 56. **Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>TOTAL</b>						
Sheets and pillowcases.....	32,892	32,725	1,889,150	34,301	31,181	1,775,068
Crib size sheets and pillowcases.....	942	940	38,808	852	839	31,821
Sheets, excluding crib.....	16,545	16,480	1,420,070	19,257	16,108	1,344,525
By type:						
Flat sheets.....	8,556	8,336	734,704	10,118	8,224	696,637
Fitted sheets.....	6,815	6,972	583,716	8,051	6,791	562,334
Not specified by kind (n.s.k.).....	1,174	1,172	101,650	1,088	1,093	85,554
By thread count:						
195 and over.....	4,717	4,381	498,786	3,121	3,520	423,397
180 to 194.....	6,549	6,643	516,148	9,257	7,327	544,404
135 to 179.....	579	554	45,083	919	513	50,616
125 to 134.....	1,081	1,342	107,204	1,659	1,166	92,521
Under 125.....	2,445	2,388	151,199	3,213	2,489	148,033
Not specified by kind (n.s.k.).....	1,174	1,172	101,650	1,088	1,093	85,554
By fabrics:						
Chiefly polyester blends with cotton.....	8,740	8,651	675,439	10,902	9,082	713,296
All cotton and chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
By size:						
King.....	(X)	2,347	294,321	(X)	2,263	279,131
Queen.....	(X)	3,810	422,420	(X)	3,674	392,751
Full.....	(X)	3,708	293,743	(X)	3,612	283,976
Twin.....	(X)	5,082	288,824	(X)	5,021	274,137
Single and smaller.....	(X)	361	19,112	(X)	445	28,976
Not specified by kind (n.s.k.).....	(X)	1,172	101,650	(X)	1,093	85,554
Flannel sheets.....	(D)	(D)	(D)	(D)	(D)	(D)
Pillowcases, excluding crib size.....	15,405	15,305	430,272	14,192	14,234	398,722
By thread count:						
195 and over.....	3,802	4,310	184,346	2,772	3,436	156,253
180 to 194.....	6,447	6,889	155,144	6,861	6,897	157,553
135 to 179.....	898	426	9,264	683	427	12,304
125 to 134.....	1,812	1,187	22,093	1,162	824	16,030
Under 125.....	2,016	2,069	42,993	2,151	2,071	40,050
Not specified by kind (n.s.k.).....	430	424	16,432	563	579	16,532
By fabrics:						
Chiefly polyester blends with cotton.....	10,304	8,491	200,181	8,917	8,216	190,599
All cotton and chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
Flannel pillowcases.....	(D)	(D)	(D)	(D)	(D)	(D)
Branded retail shipments of sheets and pillowcases (except crib).....	(X)	20,113	1,224,576	(X)	18,245	1,105,121
Upstairs brand.....	(X)	9,757	712,253	(X)	8,777	645,107
Open brand.....	(X)	10,356	512,323	(X)	9,468	460,014
Sheet sets, excluding waterbed sheet sets.....	(X)	3,125	674,558	(X)	3,136	663,119
Waterbed sheet sets.....	(X)	(D)	(D)	(X)	341	19,134
Finished towels.....	46,133	44,940	1,289,592	45,323	46,991	1,224,654
By type:						
Sheared.....	3,180	3,007	59,159	4,704	5,697	81,976
Nonsheared.....	35,403	34,545	1,072,370	33,044	34,024	999,406
Not specified by kind (n.s.k.).....	7,550	7,388	158,063	7,575	7,270	143,272
By end use:						
Kitchen.....	2,669	2,573	49,058	3,492	3,358	43,439
Bath.....	23,982	23,063	814,761	22,808	23,514	765,448
Hand, face, guest, and fingertip.....	15,121	15,338	285,731	15,364	16,584	280,278
Bath/tub mats.....	1,060	1,002	32,539	723	772	25,748
All other types, including larger than bath (queen/king size bath towels, bath sheets, beach towels, and bath mats).....	3,301	2,964	107,503	2,936	2,763	109,741
Not specified by kind (n.s.k.).....	-	-	-	-	-	-
Terry towels sold for further processing.....	(X)	1,184	12,888	(X)	2,643	26,003

See footnotes at end of table.

Table 56. **Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>TOTAL—Con.</b>						
Washcloths .....	27,878	27,967	228,933	27,732	28,574	220,158
Branded shipments of towels and washcloths .....	(X)	40,194	896,515	(X)	44,411	887,231
Upstairs brand.....	(X)	7,833	271,362	(X)	7,626	258,487
Open brand .....	(X)	32,361	625,153	(X)	36,785	628,744
Huck and crash towels .....	(D)	(D)	(D)	(D)	(D)	(D)
Other terry products:						
Terry cloth sold by the yard <sup>1</sup> .....	2,398	2,483	9,634	4,411	4,469	13,483
Pot holders, aprons, dishcloths, etc.....	(X)	1,371	10,752	(X)	1,237	8,667
Knit and/or crocheted bedspreads .....	(D)	(D)	(D)	(D)	(D)	(D)
Tailored bedspreads (except knit) .....	648	708	129,983	790	778	130,515
Quilted:						
All cotton and chiefly cotton .....	180	238	40,635	219	247	42,589
All manmade and chiefly manmade .....	443	445	83,805	567	527	84,086
Nonquilted:						
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All manmade and chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored bedspreads .....	374	270	62,248	375	240	83,926
All cotton and chiefly cotton .....	247	141	31,844	208	68	50,553
All manmade and chiefly manmade .....	127	129	30,404	167	172	33,373
Comforters and quilts .....	2,748	2,748	940,548	3,313	3,388	957,827
All cotton and chiefly cotton .....	702	694	266,318	1,144	1,100	299,767
All manmade and chiefly manmade .....	1,829	1,842	562,193	1,981	2,119	555,224
Downfilled .....	217	212	112,037	188	169	102,836
Blankets .....	2,885	2,872	431,076	4,564	5,137	569,681
<b>FOURTH QUARTER</b>						
Sheets and pillowcases.....	7,915	8,053	465,787	34,301	31,181	1,775,068
Crib size sheets and pillowcases .....	221	219	9,427	852	839	31,821
Sheets, excluding crib .....	3,791	4,030	358,808	19,257	16,108	1,344,525
By type:						
Flat sheets .....	1,917	1,998	185,305	10,118	8,224	696,637
Fitted sheets .....	1,599	1,762	151,170	8,051	6,791	562,334
Not specified by kind (n.s.k.) .....	275	270	22,333	1,088	1,093	85,554
By thread count:						
195 and over.....	902	947	115,942	3,121	3,520	423,397
180 to 194 .....	1,526	1,624	132,478	9,257	7,327	544,404
135 to 179 .....	129	130	10,557	919	513	50,616
125 to 134 .....	268	339	28,209	1,659	1,166	92,521
Under 125 .....	691	720	49,289	3,213	2,489	148,033
Not specified by kind (n.s.k.) .....	275	270	22,333	1,088	1,093	85,554
By fabrics:						
Chiefly polyester blends with cotton.....	2,202	2,109	165,459	10,902	9,082	713,296
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
By size:						
King .....	(X)	579	77,528	(X)	2,263	279,131
Queen .....	(X)	947	109,687	(X)	3,674	392,751
Full .....	(X)	892	72,518	(X)	3,612	283,976
Twin.....	(X)	1,258	72,287	(X)	5,021	274,137
Single and smaller .....	(X)	84	4,455	(X)	445	28,976
Not specified by kind (n.s.k.) .....	(X)	270	22,333	(X)	1,093	85,554
Flannel sheets.....	(D)	(D)	(D)	(D)	(D)	(D)
Pillowcases, excluding crib size .....	3,903	3,804	97,552	14,192	14,234	398,722
By thread count:						
195 and over.....	968	1,033	40,473	2,772	3,436	156,253
180 to 194 .....	1,658	1,666	34,652	6,861	6,897	157,553
135 to 179 .....	200	104	2,037	683	427	12,304
125 to 134 .....	424	310	4,741	1,162	824	16,030
Under 125 .....	558	593	12,406	2,151	2,071	40,050
Not specified by kind (n.s.k.) .....	95	98	3,243	563	579	16,532

See footnotes at end of table.

**Table 56. Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>FOURTH QUARTER—Con.</b>						
Sheets and pillowcases—Con.						
Pillowcases, excluding crib size—Con.						
By fabrics:						
Chiefly polyester blends with cotton . . . . .	2,538	2,109	43,434	8,917	8,216	190,599
All cotton and chiefly cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Flannel pillowcases . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Branded retail shipments of sheets and pillowcases (except crib) . . . . .						
Upstairs brand . . . . .	(X)	4,895	302,203	(X)	18,245	1,105,121
Open brand . . . . .	(X)	2,412	178,846	(X)	8,777	645,107
Sheet sets, excluding waterbed sheet sets . . . . .	(X)	2,483	123,357	(X)	9,468	460,014
Waterbed sheet sets . . . . .	(X)	824	182,570	(X)	3,136	663,119
Finished towels . . . . .	(X)	(D)	(D)	(X)	341	19,134
By type:	11,808	11,146	326,495	45,323	46,991	1,224,654
Sheared . . . . .	604	480	12,058	4,704	5,697	81,976
Nonsheared . . . . .	9,482	8,958	279,432	33,044	34,024	999,406
Not specified by kind (n.s.k.) . . . . .	1,722	1,708	35,005	7,575	7,270	143,272
By end use:						
Kitchen . . . . .	705	600	13,174	3,492	3,358	43,439
Bath . . . . .	6,254	5,817	208,094	22,808	23,514	765,448
Hand, face, guest, and fingertip . . . . .	3,787	3,785	71,869	15,364	16,584	280,278
Bath/tub mats . . . . .	287	258	8,458	723	772	25,748
All other types, including larger than bath (queen/king size bath towels, bath sheets, beach towels, and bath mats) . . . . .	775	686	24,900	2,936	2,763	109,741
Not specified by kind (n.s.k.) . . . . .	-	-	-	-	-	-
Terry towels sold for further processing . . . . .	(X)	129	1,783	(X)	2,643	26,003
Washcloths . . . . .	7,157	7,198	57,629	27,732	28,574	220,158
Branded shipments of towels and washcloths . . . . .						
Upstairs brand . . . . .	(X)	10,548	235,082	(X)	44,411	887,231
Open brand . . . . .	(X)	1,665	53,192	(X)	7,626	258,487
Huck and crash towels . . . . .	(X)	8,883	181,890	(X)	36,785	628,744
Other terry products:	(D)	(D)	(D)	(D)	(D)	(D)
Terry cloth sold by the yard <sup>1</sup> . . . . .	526	436	1,668	4,411	4,469	13,483
Pot holders, aprons, dishcloths, etc. . . . .	(X)	326	2,571	(X)	1,233	8,667
Knit and/or crocheted bedspreads . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Tailored bedspreads (except knit) . . . . .	175	198	30,753	790	778	130,515
Quilted:						
All cotton and chiefly cotton . . . . .	41	63	9,715	219	247	42,589
All manmade and chiefly manmade . . . . .	127	128	19,599	567	527	84,086
Nonquilted:						
All cotton and chiefly cotton . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
All manmade and chiefly manmade . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored bedspreads . . . . .	100	88	16,927	375	240	83,926
All cotton and chiefly cotton . . . . .	71	60	9,535	208	68	50,553
All manmade and chiefly manmade . . . . .	29	28	7,392	167	172	33,373
Comforters and quilts . . . . .	724	744	260,286	3,313	3,388	957,827
All cotton and chiefly cotton . . . . .	176	185	67,344	1,144	1,100	299,767
All manmade and chiefly manmade . . . . .	464	477	147,872	1,981	2,119	555,224
Downfilled . . . . .	84	82	45,070	188	169	102,836
Blankets . . . . .	807	1,051	164,059	4,564	5,137	569,681

See footnotes at end of table.

Table 56. **Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>THIRD QUARTER</b>						
Sheets and pillowcases.....	8,394	8,955	520,407	9,604	8,432	483,530
Crib size sheets and pillowcases.....	229	239	9,780	203	224	8,418
Sheets, excluding crib.....	3,992	4,499	386,251	5,432	4,426	364,414
By type:						
Flat sheets.....	2,046	2,239	199,871	2,882	2,233	187,912
Fitted sheets.....	1,626	1,950	160,343	2,285	1,921	155,065
Not specified by kind (n.s.k.).....	320	310	26,037	265	272	21,437
By thread count:						
195 and over.....	978	1,212	138,294	806	1,076	127,485
180 to 194.....	1,570	1,775	137,867	2,523	1,912	135,042
135 to 179.....	163	153	11,111	332	146	13,935
125 to 134.....	308	339	26,443	595	306	23,610
Under 125.....	653	710	46,499	911	714	42,905
Not specified by kind (n.s.k.).....	320	310	26,037	265	272	21,437
By fabrics:						
Chiefly polyester blends with cotton.....	2,208	2,333	171,932	3,142	2,354	189,003
All cotton and chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
By size:						
King.....	(X)	652	80,927	(X)	617	75,054
Queen.....	(X)	1,048	114,971	(X)	1,005	105,941
Full.....	(X)	1,021	80,560	(X)	975	75,922
Twin.....	(X)	1,377	78,739	(X)	1,415	75,977
Single and smaller.....	(X)	91	5,017	(X)	142	10,083
Not specified by kind (n.s.k.).....	(X)	310	26,037	(X)	272	21,437
Flannel sheets.....	(D)	(D)	(D)	(D)	(D)	(D)
Pillowcases, excluding crib size.....	4,173	4,217	124,376	3,969	3,782	110,698
By thread count:						
195 and over.....	922	1,182	52,705	703	1,038	47,106
180 to 194.....	1,785	1,878	44,237	1,895	1,684	39,855
135 to 179.....	259	120	2,175	243	119	3,079
125 to 134.....	561	315	5,739	405	212	4,163
Under 125.....	552	619	13,937	577	576	12,262
Not specified by kind (n.s.k.).....	94	103	5,583	146	153	4,233
By fabrics:						
Chiefly polyester blends with cotton.....	2,740	2,282	55,427	2,508	2,184	51,613
All cotton and chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
Flannel pillowcases.....	(D)	(D)	(D)	(D)	(D)	(D)
Branded retail shipments of sheets and pillowcases (except crib).....	(X)	5,491	340,330	(X)	5,007	303,388
Upstairs brand.....	(X)	2,551	190,624	(X)	2,454	179,187
Open brand.....	(X)	2,940	149,706	(X)	2,553	124,201
Sheet sets, excluding waterbed sheet sets.....	(X)	856	184,276	(X)	858	183,718
Waterbed sheet sets.....	(X)	(D)	(D)	(X)	21	4,596
Finished towels.....	10,996	11,058	321,918	10,848	11,466	319,792
By type:						
Sheared.....	619	633	14,251	688	1,007	17,495
Nonsheared.....	8,656	8,754	273,129	8,386	8,763	263,254
Not specified by kind (n.s.k.).....	1,721	1,671	34,538	1,774	1,696	39,043
By end use:						
Kitchen.....	624	551	10,692	797	693	11,183
Bath.....	5,706	5,676	201,413	5,646	6,020	206,672
Hand, face, guest, and fingertip.....	3,598	3,836	73,649	3,492	3,899	70,808
Bath/tub mats.....	277	271	8,820	192	191	6,553
All other types, including larger than bath (queen/king size bath towels, bath sheets, beach towels, and bath mats).....	791	724	27,344	721	663	24,576
Not specified by kind (n.s.k.).....	-	-	-	-	-	-

See footnotes at end of table.

Table 56. **Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>THIRD QUARTER—Con.</b>						
Terry towels sold for further processing.....	(X)	219	2,571	(X)	554	5,832
Washcloths .....	6,491	6,759	58,594	6,700	6,804	57,475
Branded shipments of towels and washcloths .....	(X)	9,264	221,111	(X)	10,863	232,543
Upstairs brand.....	(X)	2,193	76,409	(X)	1,909	65,681
Open brand .....	(X)	7,071	144,702	(X)	8,954	166,862
Huck and crash towels .....	(D)	(D)	(D)	(D)	(D)	(D)
Other terry products:						
Terry cloth sold by the yard <sup>1</sup> .....	629	646	2,534	1,192	1,158	3,315
Pot holders, aprons, dishcloths, etc.....	(X)	318	2,408	(X)	274	1,825
Knit and/or crocheted bedspreads .....	(D)	(D)	(D)	-	-	-
Tailored bedspreads (except knit) .....	175	199	41,899	178	185	29,590
Quilted:						
All cotton and chiefly cotton .....	47	72	11,706	48	52	7,601
All manmade and chiefly manmade .....	122	121	28,826	129	132	21,018
Nonquilted:						
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All manmade and chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored bedspreads .....	122	66	16,060	143	68	21,798
All cotton and chiefly cotton .....	96	38	8,914	100	21	13,463
All manmade and chiefly manmade .....	26	28	7,146	43	47	8,335
Comforters and quilts .....	695	693	247,332	816	893	253,002
All cotton and chiefly cotton .....	175	167	66,556	289	294	82,585
All manmade and chiefly manmade .....	450	457	141,606	491	563	144,131
Downfilled .....	70	69	39,170	36	36	26,286
Blankets .....	688	786	145,991	1,276	1,983	217,402
<b>SECOND QUARTER</b>						
Sheets and pillowcases.....	8,321	8,079	450,584	8,774	7,877	442,361
Crib size sheets and pillowcases .....	254	243	9,915	233	219	8,383
Sheets, excluding crib .....	4,375	4,086	337,462	4,918	3,997	336,427
By type:						
Flat sheets .....	2,308	2,119	176,668	2,587	2,094	175,234
Fitted sheets .....	1,783	1,673	135,142	2,079	1,649	140,785
Not specified by kind (n.s.k.) .....	284	294	25,652	252	254	20,408
By thread count:						
195 and over .....	1,407	1,070	116,869	739	885	105,520
180 to 194 .....	1,709	1,656	123,444	2,502	1,931	145,257
135 to 179 .....	140	145	10,649	200	108	11,238
125 to 134 .....	272	395	30,286	304	296	23,799
Under 125 .....	563	526	30,562	921	523	30,205
Not specified by kind (n.s.k.) .....	284	294	25,652	252	254	20,408
By fabrics:						
Chiefly polyester blends with cotton .....	2,080	2,148	159,899	2,703	2,390	186,690
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
By size:						
King.....	(X)	566	66,079	(X)	552	66,867
Queen.....	(X)	917	97,056	(X)	906	95,900
Full .....	(X)	931	71,255	(X)	944	74,109
Twin.....	(X)	1,273	71,999	(X)	1,232	71,878
Single and smaller .....	(X)	105	5,421	(X)	109	7,265
Not specified by kind (n.s.k.) .....	(X)	294	25,652	(X)	254	20,408
Flannel sheets.....	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 56. Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>SECOND QUARTER—Con.</b>						
Sheets and pillowcases—Con.						
Pillowcases, excluding crib size .....	3,692	3,750	103,207	3,623	3,661	97,551
By thread count:						
195 and over .....	891	1,005	43,937	676	855	36,202
180 to 194 .....	1,551	1,732	38,828	1,871	1,899	42,785
135 to 179 .....	235	103	1,831	165	104	3,008
125 134 .....	466	347	6,228	191	188	3,920
Under 125 .....	452	462	9,261	570	463	7,591
Not specified by kind (n.s.k.) .....	97	101	3,122	150	152	4,045
By fabrics:						
Chiefly polyester blends with cotton .....	2,491	2,057	47,643	2,216	2,204	49,761
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics .....	(D)	(D)	(D)	(D)	(D)	(D)
Flannel pillowcases .....	(D)	(D)	(D)	(D)	(D)	(D)
Branded retail shipments of sheets and pillowcases (except crib) .....	(X)	4,840	286,112	(X)	4,433	263,185
Upstairs brand .....	(X)	2,306	163,897	(X)	2,149	154,579
Open brand .....	(X)	2,534	122,215	(X)	2,284	108,606
Sheet sets, excluding waterbed sheet sets .....	(X)	764	159,375	(X)	789	164,581
Waterbed sheet sets .....	(X)	(D)	(D)	(X)	19	3,999
Finished towels .....	11,688	11,334	322,655	11,694	12,232	306,572
By type:						
Sheared .....	1,040	893	17,086	1,432	1,861	24,092
Nonsheared .....	8,955	8,737	271,027	8,617	8,828	247,032
Not specified by kind (n.s.k.) .....	1,693	1,704	34,542	1,645	1,543	35,448
By end use:						
Kitchen .....	551	548	9,766	729	722	10,905
Bath .....	5,999	5,803	204,167	5,906	5,956	182,326
Hand, face, guest, and fingertip .....	4,045	3,997	73,042	4,089	4,550	72,530
Bath/tub mats .....	264	252	8,108	181	200	6,487
All other types, including larger than bath (queen/king size bath towels, bath sheets, beach towels, and bath mats) .....	829	734	27,572	789	804	34,324
Not specified by kind (n.s.k.) .....	-	-	-	-	-	-
Terry towels sold for further processing .....	(X)	401	4,226	(X)	891	8,945
Washcloths .....	7,057	7,102	55,633	7,209	7,914	55,616
Branded shipments of towels and washcloths .....	(X)	10,423	224,002	(X)	12,370	227,607
Upstairs brand .....	(X)	2,272	78,023	(X)	1,866	62,836
Open brand .....	(X)	8,151	145,979	(X)	10,504	164,771
Huck and crash towels .....	(D)	(D)	(D)	(D)	(D)	(D)
Other terry products:						
Terry cloth sold by the yard <sup>1</sup> .....	629	613	2,156	1,176	1,118	3,317
Pot holders, aprons, dishcloths, etc. ....	(X)	308	2,395	(X)	331	2,395
Knit and/or crocheted bedspreads .....	(D)	(D)	(D)	-	-	-
Tailored bedspreads (except knit) .....	156	167	31,292	215	189	29,623
Quilted:						
All cotton and chiefly cotton .....	47	57	10,377	50	59	8,762
All manmade and chiefly manmade .....	103	104	19,547	164	129	19,900
Nonquilted:						
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All manmade and chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored bedspreads .....	105	79	17,923	66	68	22,457
All cotton and chiefly cotton .....	67	35	8,717	15	15	11,991
All manmade and chiefly manmade .....	38	44	9,206	51	53	10,466
Comforters and quilts .....	693	668	220,139	955	841	230,919
All cotton and chiefly cotton .....	176	193	71,147	382	308	75,765
All manmade and chiefly manmade .....	482	441	134,990	538	505	135,076
Downfilled .....	35	34	14,002	35	28	20,078
Blankets .....	582	499	66,364	1,113	885	78,991

See footnotes at end of table.



Table 56. **Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>FIRST QUARTER</b>						
Sheets and pillowcases.....	8,262	7,638	452,372	7,360	6,807	389,251
Crib size sheets and pillowcases.....	238	239	9,686	198	195	8,079
Sheets, excluding crib.....	4,387	3,865	337,549	4,082	3,450	292,472
By type:						
Flat sheets.....	2,285	1,980	172,860	2,136	1,789	153,093
Fitted sheets.....	1,807	1,587	137,061	1,723	1,435	121,841
Not specified by kind (n.s.k.).....	295	298	27,628	223	226	17,538
By thread count:						
195 and over.....	1,430	1,152	127,681	716	677	84,004
180 to 194.....	1,744	1,588	122,359	2,075	1,706	133,103
135 179.....	147	126	12,766	137	121	11,976
125 to 134.....	233	269	22,266	295	280	23,138
Under 125.....	538	432	24,849	636	440	22,713
Not specified by kind (n.s.k.).....	295	298	27,628	223	226	17,538
By fabrics:						
Chiefly polyester blends with cotton.....	2,250	2,061	178,149	2,248	1,952	150,924
All cotton and chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
By size:						
King.....	(X)	550	69,787	(X)	481	61,562
Queen.....	(X)	898	100,706	(X)	790	86,134
Full.....	(X)	864	69,410	(X)	768	61,880
Twin.....	(X)	1,174	65,799	(X)	1,093	59,612
Single and smaller.....	(X)	81	4,219	(X)	92	5,746
Not specified by kind (n.s.k.).....	(X)	298	27,628	(X)	226	17,538
Flannel sheets.....	(D)	(D)	(D)	(D)	(D)	(D)
Pillowcases, excluding crib size.....	3,637	3,534	105,137	3,080	3,162	88,700
By thread count:						
195 and over.....	1,021	1,090	47,231	608	684	33,366
180 to 194.....	1,453	1,613	37,427	1,547	1,633	37,700
135 to 179.....	204	99	3,221	105	96	2,921
125 to 134.....	361	215	5,385	238	216	3,963
Under 125.....	454	395	7,389	430	378	5,885
Not specified by kind (n.s.k.).....	144	122	4,484	152	155	4,865
By fabrics:						
Chiefly polyester blends with cotton.....	2,535	2,043	53,677	1,862	1,764	40,795
All cotton and chiefly cotton.....	(D)	(D)	(D)	(D)	(D)	(D)
All other fabrics.....	(D)	(D)	(D)	(D)	(D)	(D)
Flannel pillowcases.....	(D)	(D)	(D)	(D)	(D)	(D)
Branded retail shipments of sheets and pillowcases (except crib).....	(X)	4,887	295,931	(X)	4,193	256,201
Upstairs brand.....	(X)	2,488	178,886	(X)	2,005	149,141
Open brand.....	(X)	2,399	117,045	(X)	2,188	107,060
Sheet sets, excluding waterbed sheet sets.....	(X)	681	148,337	(X)	704	148,117
Waterbed sheet sets.....	(X)	(D)	(D)	(X)	282	6,434
Finished towels.....	11,641	11,402	318,524	12,439	12,203	287,634
By type:						
Sheared.....	917	1,001	15,764	1,672	1,684	23,274
Nonsheared.....	8,310	8,096	248,782	8,191	8,046	232,330
Not specified by kind (n.s.k.).....	2,414	2,305	53,978	2,576	2,473	32,030
By end use:						
Kitchen.....	789	874	15,426	1,262	1,254	10,250
Bath.....	6,023	5,767	201,087	5,891	5,833	176,600
Hand, face, guest, and fingertip.....	3,691	3,720	67,171	4,287	4,183	66,830
Bath/tub mats.....	232	221	7,153	151	160	5,741
All other types, including larger than bath (queen/king size bath towels, bath sheets, beach towels, and bath mats).....	906	820	27,687	848	773	28,213
Not specified by kind (n.s.k.).....	-	-	-	-	-	-

See footnotes at end of table.

Table 56. **Production and Shipments of Sheets, Pillowcases, and Terry Towels: 1997 and 1996—Con.**

[Production and shipments in thousands of dozens. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments	Value of shipments	Production	Shipments	Value of shipments
<b>FIRST QUARTER—Con.</b>						
Terry towels sold for further processing .....	(X)	435	4,308	(X)	661	6,351
Washcloths .....	7,173	6,908	57,077	7,310	7,039	50,225
Branded shipments of towels and washcloths .....	(X)	9,959	216,320	(X)	11,022	209,416
Upstairs brand .....	(X)	1,703	63,738	(X)	1,822	60,722
Open brand .....	(X)	8,256	152,582	(X)	9,200	148,694
Huck and crash towels .....	(D)	(D)	(D)	(D)	(D)	(D)
Other terry products:						
Terry cloth sold by the yard <sup>1</sup> .....	614	788	3,276	1,070	1,146	3,378
Pot holders, aprons, dish cloths, etc. ....	(X)	419	3,378	(X)	266	1,815
Knit and/or crocheted bedspreads .....	(D)	(D)	(D)	(D)	(D)	(D)
Tailored bedspreads (except knit) .....	142	144	26,039	217	212	40,937
Quilted:						
All cotton and chiefly cotton .....	45	46	8,837	75	81	18,173
All manmade and chiefly manmade .....	91	92	15,833	141	130	21,804
Nonquilted:						
All cotton and chiefly cotton .....	(D)	(D)	(D)	(D)	(D)	(D)
All manmade and chiefly manmade .....	(D)	(D)	(D)	(D)	(D)	(D)
Nontailored bedspreads .....	47	37	11,338	48	45	18,204
All cotton and chiefly cotton .....	13	8	4,678	15	15	12,275
All manmade and chiefly manmade .....	34	29	6,660	33	30	5,929
Comforters and quilts .....	636	643	212,791	814	831	228,727
All cotton and chiefly cotton .....	175	149	61,271	276	268	70,393
All manmade and chiefly manmade .....	433	467	137,725	475	507	136,459
Downfilled .....	28	27	13,795	63	56	21,875
Blankets .....	808	536	54,662	1,292	884	79,854

- Represents zero.    D Withheld to avoid disclosing data for individual companies.    n.s.k. Not specified by kind.    X Not applicable.

<sup>1</sup>To extent that terry cloth yard goods are fabricated into towels and washcloths, duplication exists in production of these items.

**Table 57. Quantity and Value of Shipments of Sheets, Pillowcases, and Terry Towels by Distribution Channel: 1997**

[Quantity in thousands of dozens. Value in thousands of dollars]

Product description	Total shipments		Branded retail		Private ticket retail		Export		Institutional and other		Total n.s.k. shipments	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>TOTAL</b>												
Sheets, flat and fitted (except crib) . . . . .	16,480	1,420,070	10,037	919,697	2,173	203,662	519	40,557	2,579	154,504	1,172	101,650
Less than 180 count . . . . .	4,284	303,486	2,630	194,823	402	35,592	253	16,005	999	57,066	-	-
180 count and greater . . . . .	11,024	1,014,934	7,407	724,874	1,771	168,070	266	24,552	1,580	97,438	-	-
Not specified by kind (n.s.k.) . . . . .	1,172	101,650	-	-	-	-	-	-	-	-	1,172	101,650
Pillowcases (except crib) . . . . .	15,305	430,272	10,076	304,879	2,100	61,839	490	9,851	2,215	37,271	424	16,432
Less than 180 count . . . . .	3,682	74,350	2,531	52,445	391	8,557	261	3,900	499	9,448	-	-
180 count and greater . . . . .	11,199	339,490	7,545	252,434	1,709	53,282	229	5,951	1,716	27,823	-	-
Not specified by kind (n.s.k.) . . . . .	424	16,432	-	-	-	-	-	-	-	-	424	16,432
Terry towels . . . . .	44,940	1,289,592	23,963	753,283	4,338	187,402	950	32,642	8,301	158,202	7,388	158,063
Washcloths, terry . . . . .	27,967	228,933	16,231	143,232	1,954	27,265	418	4,262	5,754	26,492	3,610	27,682
<b>FOURTH QUARTER</b>												
Sheets, flat and fitted (except crib) . . . . .	4,030	358,808	2,440	235,842	562	54,415	126	9,846	632	36,372	270	22,333
Less than 180 count . . . . .	1,189	88,055	783	61,973	92	9,046	63	4,064	251	12,972	-	-
180 count and greater . . . . .	2,571	248,420	1,657	173,869	470	45,369	63	5,782	381	23,400	-	-
Not specified by kind (n.s.k.) . . . . .	270	22,333	-	-	-	-	-	-	-	-	270	22,333
Pillowcases (except crib) . . . . .	3,804	97,552	2,455	66,361	548	16,175	122	2,463	581	9,310	98	3,243
Less than 180 count . . . . .	1,007	19,184	690	13,387	106	2,311	66	1,051	145	2,435	-	-
180 count and greater . . . . .	2,699	75,125	1,765	52,974	442	13,864	56	1,412	436	6,875	-	-
Not specified by kind (n.s.k.) . . . . .	98	3,243	-	-	-	-	-	-	-	-	98	3,243
Terry towels . . . . .	11,146	326,495	6,123	197,297	1,079	44,200	216	7,445	2,020	42,548	1,708	35,005
Washcloths, terry . . . . .	7,198	57,629	4,425	37,785	430	6,300	85	994	1,442	6,606	816	5,944
<b>THIRD QUARTER</b>												
Sheets, flat and fitted (except crib) . . . . .	4,499	386,251	2,695	251,784	634	57,368	125	9,885	735	41,177	310	26,037
Less than 180 count . . . . .	1,202	84,053	707	54,125	144	11,795	52	3,228	299	14,905	-	-
180 count and greater . . . . .	2,987	276,161	1,988	197,659	490	45,573	73	6,657	436	26,272	-	-
Not specified by kind (n.s.k.) . . . . .	310	26,037	-	-	-	-	-	-	-	-	310	26,037
Pillowcases (except crib) . . . . .	4,217	124,376	2,796	88,546	600	17,730	126	2,725	592	9,792	103	5,583
Less than 180 count . . . . .	1,054	21,851	731	15,546	118	2,851	62	962	143	2,492	-	-
180 count and greater . . . . .	3,060	96,942	2,065	73,000	482	14,879	64	1,763	449	7,300	-	-
Not specified by kind (n.s.k.) . . . . .	103	5,583	-	-	-	-	-	-	-	-	103	5,583
Terry towels . . . . .	11,058	321,918	5,631	185,209	1,252	56,268	205	6,869	2,299	39,034	1,671	34,538
Washcloths, terry . . . . .	6,759	58,594	3,633	35,902	545	7,221	76	809	1,662	7,818	843	6,844
<b>SECOND QUARTER</b>												
Sheets, flat and fitted (except crib) . . . . .	4,086	337,462	2,419	212,630	467	45,511	140	10,600	766	43,069	294	25,652
Less than 180 count . . . . .	1,066	71,497	599	42,368	85	8,814	73	4,674	309	15,641	-	-
180 count and greater . . . . .	2,726	240,313	1,820	170,262	382	36,697	67	5,926	457	27,428	-	-
Not specified by kind (n.s.k.) . . . . .	294	25,652	-	-	-	-	-	-	-	-	294	25,652
Pillowcases (except crib) . . . . .	3,750	103,207	2,421	73,482	462	13,656	135	2,606	631	10,341	101	3,122
Less than 180 count . . . . .	912	17,320	600	11,591	93	2,050	75	1,075	144	2,604	-	-
180 count and greater . . . . .	2,737	82,765	1,821	61,891	369	11,606	60	1,531	487	7,737	-	-
Not specified by kind (n.s.k.) . . . . .	101	3,122	-	-	-	-	-	-	-	-	101	3,122
Terry towels . . . . .	11,334	322,655	6,120	189,184	1,098	49,969	273	9,719	2,139	39,241	1,704	34,542
Washcloths, terry . . . . .	7,102	55,633	4,303	34,818	451	6,751	132	1,336	1,351	6,307	865	6,421
<b>FIRST QUARTER</b>												
Sheets, flat and fitted (except crib) . . . . .	3,865	337,549	2,483	219,441	510	46,368	128	10,226	446	33,886	298	27,628
Less than 180 count . . . . .	827	59,881	541	36,357	81	5,937	65	4,039	140	13,548	-	-
180 count and greater . . . . .	2,740	250,040	1,942	183,084	429	40,431	63	6,187	306	20,338	-	-
Not specified by kind (n.s.k.) . . . . .	298	27,628	-	-	-	-	-	-	-	-	298	27,628
Pillowcases (except crib) . . . . .	3,534	105,137	2,404	76,490	490	14,278	107	2,057	411	7,828	122	4,484
Less than 180 count . . . . .	709	15,995	510	11,921	74	1,345	58	812	67	1,917	-	-
180 count and greater . . . . .	2,703	84,658	1,894	64,569	416	12,933	49	1,245	344	5,911	-	-
Not specified by kind (n.s.k.) . . . . .	122	4,484	-	-	-	-	-	-	-	-	122	4,484
Terry towels . . . . .	11,402	318,524	6,089	181,593	909	36,965	256	8,609	1,843	37,379	2,305	53,978
Washcloths, terry . . . . .	6,908	57,077	3,870	34,727	528	6,993	125	1,123	1,299	5,761	1,086	8,473

See footnotes at end of Table 60.

**Table 58. Quantity and Value of Shipments of Sheets, Pillowcases, and Terry Towels by Distribution Channel: 1996**

[Quantity in thousands of dozens. Value in thousands of dollars]

Product description	Total shipments		Branded retail		Private ticket retail		Export		Institutional and other		Total n.s.k. shipments	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>TOTAL</b>												
Sheets, flat and fitted (except crib) .....	16,108	1,344,525	9,498	837,054	2,319	223,259	621	50,361	2,577	148,297	1,093	85,554
Less than 180 count .....	4,168	291,170	2,527	187,163	353	33,137	322	20,782	966	50,088	-	-
180 count and greater .....	10,847	967,801	6,971	649,891	1,966	190,122	299	29,579	1,611	98,209	-	-
Not specified by kind (n.s.k.) ..	1,093	85,554	-	-	-	-	-	-	-	-	1,093	85,554
Pillowcases (except crib) .....	14,234	398,722	8,747	268,067	2,212	67,003	579	12,049	2,117	35,071	579	16,532
Less than 180 count .....	3,322	68,384	2,219	46,845	336	8,159	304	4,642	463	8,738	-	-
180 count and greater .....	10,333	313,806	6,528	221,222	1,876	58,844	275	7,407	1,654	26,333	-	-
Not specified by kind (n.s.k.) ..	579	16,532	-	-	-	-	-	-	-	-	579	16,532
Terry towels .....	46,991	1,224,654	27,003	747,248	3,554	135,000	806	26,922	8,358	172,212	7,270	143,272
Washcloths, terry .....	28,574	220,158	17,408	139,983	2,126	21,638	332	3,096	5,455	27,483	3,253	27,958
<b>FOURTH QUARTER</b>												
Sheets, flat and fitted (except crib) .....	4,235	351,212	2,397	213,219	654	60,718	167	13,517	676	37,587	341	26,171
Less than 180 count .....	1,234	87,651	755	56,961	136	12,018	88	5,649	255	13,023	-	-
180 count and greater .....	2,660	237,390	1,642	156,258	518	48,700	79	7,868	421	24,564	-	-
Not specified by kind (n.s.k.) ..	341	26,171	-	-	-	-	-	-	-	-	341	26,171
Pillowcases (except crib) .....	3,629	101,773	2,215	69,128	623	17,573	152	3,157	520	8,526	119	3,389
Less than 180 count .....	970	21,592	638	15,061	134	3,109	82	1,254	116	2,168	-	-
180 count and greater .....	2,540	76,792	1,577	54,067	489	14,464	70	1,903	404	6,358	-	-
Not specified by kind (n.s.k.) ..	119	3,389	-	-	-	-	-	-	-	-	119	3,389
Terry towels .....	11,090	310,656	6,357	184,259	1,145	45,332	249	8,657	1,781	35,657	1,558	36,751
Washcloths, terry .....	6,817	56,842	3,799	33,406	652	8,498	106	959	1,456	6,546	804	7,433
<b>THIRD QUARTER</b>												
Sheets, flat and fitted (except crib) .....	4,426	364,414	2,696	229,631	645	64,714	137	11,110	676	37,522	272	21,437
Less than 180 count .....	1,166	80,450	740	53,389	91	8,944	66	4,060	269	14,057	-	-
180 count and greater .....	2,988	262,527	1,956	176,242	554	55,770	71	7,050	407	23,465	-	-
Not specified by kind (n.s.k.) ..	272	21,437	-	-	-	-	-	-	-	-	272	21,437
Pillowcases (except crib) .....	3,782	110,698	2,311	73,757	604	20,386	125	2,729	589	9,593	153	4,233
Less than 180 count .....	907	19,504	629	13,986	84	2,192	57	919	137	2,407	-	-
180 count and greater .....	2,722	86,961	1,682	59,771	520	18,194	68	1,810	452	7,186	-	-
Not specified by kind (n.s.k.) ..	153	4,233	-	-	-	-	-	-	-	-	153	4,233
Terry towels .....	11,466	319,792	6,736	195,758	784	32,994	171	5,706	2,079	46,291	1,696	39,043
Washcloths, terry .....	6,804	57,475	4,127	36,785	489	5,266	65	599	1,291	7,086	832	7,739
<b>SECOND QUARTER</b>												
Sheets, flat and fitted (except crib) .....	3,997	336,427	2,266	199,800	622	60,468	164	13,571	691	42,180	254	20,408
Less than 180 count .....	927	65,242	534	40,440	74	6,972	84	5,530	235	12,300	-	-
180 count and greater .....	2,816	250,777	1,732	159,360	548	53,496	80	8,041	456	29,880	-	-
Not specified by kind (n.s.k.) ..	254	20,408	-	-	-	-	-	-	-	-	254	20,408
Pillowcases (except crib) .....	3,661	97,551	2,167	63,385	593	17,203	159	3,248	590	9,670	152	4,045
Less than 180 count .....	755	14,519	502	9,568	60	1,558	87	1,280	106	2,113	-	-
180 count and greater .....	2,754	78,987	1,665	53,817	533	15,645	72	1,968	484	7,557	-	-
Not specified by kind (n.s.k.) ..	152	4,045	-	-	-	-	-	-	-	-	152	4,045
Terry towels .....	12,232	306,572	7,252	190,877	745	25,899	217	6,739	2,475	47,609	1,543	35,448
Washcloths, terry .....	7,914	55,616	5,118	36,730	474	3,646	97	883	1,467	7,165	758	7,192
<b>FIRST QUARTER</b>												
Sheets, flat and fitted (except crib) .....	3,450	292,472	2,139	194,404	398	37,359	153	12,163	534	31,008	226	17,538
Less than 180 count .....	841	57,827	498	36,373	52	5,203	84	5,543	207	10,708	-	-
180 count and greater .....	2,383	217,107	1,641	158,031	346	32,156	69	6,620	327	20,300	-	-
Not specified by kind (n.s.k.) ..	226	17,538	-	-	-	-	-	-	-	-	226	17,538
Pillowcases (except crib) .....	3,162	88,700	2,054	61,797	392	11,841	143	2,915	418	7,282	155	4,865
Less than 180 count .....	690	12,769	450	8,230	58	1,300	78	1,189	104	2,050	-	-
180 count and greater .....	2,317	71,066	1,604	53,567	334	10,541	65	1,726	314	5,232	-	-
Not specified by kind (n.s.k.) ..	155	4,865	-	-	-	-	-	-	-	-	155	4,865
Terry towels .....	12,203	287,634	6,658	176,354	880	30,775	169	5,820	2,023	42,655	2,473	32,030
Washcloths, terry .....	7,039	50,225	4,364	33,062	511	4,228	64	655	1,241	6,686	859	5,594

See footnotes at end of Table 60.

**Table 59. Quantity and Value of Shipments of Sheets, Pillowcases, and Terry Towels by Type and Finish: 1997**

[Quantity in thousands of dozens. Value in thousands of dollars]

Product description	Total shipments		White		Solid colors		Fancies <sup>1</sup>		Total n.s.k. shipments	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>TOTAL</b>										
Sheets, flat and fitted (except crib) . . . . .	16,480	1,420,070	2,106	147,118	4,840	410,987	8,362	760,315	1,172	101,650
Less than 180 count . . . . .	4,284	303,486	473	25,962	1,078	70,797	2,733	206,727	-	-
180 count and greater . . . . .	11,024	1,014,934	1,633	121,156	3,762	340,190	5,629	553,588	-	-
Not specified by kind (n.s.k.) . . . . .	1,172	101,650	-	-	-	-	-	-	1,172	101,650
Pillowcases (except crib) . . . . .	15,305	430,272	2,267	41,548	4,604	136,622	8,010	235,670	424	16,432
Less than 180 count . . . . .	3,682	74,350	386	6,527	926	21,583	2,370	46,240	-	-
180 count and greater . . . . .	11,199	339,490	1,881	35,021	3,678	115,039	5,640	189,430	-	-
Not specified by kind (n.s.k.) . . . . .	424	16,432	-	-	-	-	-	-	424	16,432
Terry towels . . . . .	44,940	1,289,592	9,480	213,725	23,481	792,402	4,591	125,402	7,388	158,063
Washcloths, terry . . . . .	27,967	228,933	-	-	-	-	-	-	(X)	(X)
<b>FOURTH QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	4,030	358,808	499	35,907	1,165	99,785	2,096	200,783	270	22,333
Less than 180 count . . . . .	1,189	88,055	104	5,529	332	20,718	753	61,808	-	-
180 count and greater . . . . .	2,571	248,420	395	30,378	833	79,067	1,343	138,975	-	-
Not specified by kind (n.s.k.) . . . . .	270	22,333	-	-	-	-	-	-	270	22,333
Pillowcases (except crib) . . . . .	3,804	97,552	585	9,927	1,111	29,340	2,010	55,042	98	3,243
Less than 180 count . . . . .	1,007	19,184	111	1,519	306	5,677	590	11,988	-	-
180 count and greater . . . . .	2,699	75,125	474	8,408	805	23,663	1,420	43,054	-	-
Not specified by kind (n.s.k.) . . . . .	98	3,243	-	-	-	-	-	-	98	3,243
Terry towels . . . . .	11,146	326,495	2,568	56,400	5,892	205,865	978	29,225	1,708	35,005
Washcloths, terry . . . . .	7,198	57,629	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
<b>THIRD QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	4,499	386,251	584	37,615	1,323	115,086	2,282	207,513	310	26,037
Less than 180 count . . . . .	1,202	84,053	137	6,639	328	20,579	737	56,835	-	-
180 count and greater . . . . .	2,987	276,161	447	30,976	995	94,507	1,545	150,678	-	-
Not specified by kind (n.s.k.) . . . . .	310	26,037	-	-	-	-	-	-	310	26,037
Pillowcases (except crib) . . . . .	4,217	124,376	608	10,475	1,289	40,280	2,217	68,038	103	5,583
Less than 180 count . . . . .	1,054	21,851	96	1,486	287	6,131	671	14,234	-	-
180 count and greater . . . . .	3,060	96,942	512	8,989	1,002	34,149	1,546	53,804	-	-
Not specified by kind (n.s.k.) . . . . .	103	5,583	-	-	-	-	-	-	103	5,583
Terry towels . . . . .	11,058	321,918	2,078	55,412	6,062	202,671	1,247	29,297	1,671	34,538
Washcloths, terry . . . . .	6,759	58,594	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
<b>SECOND QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	4,086	337,462	532	36,817	1,172	92,544	2,088	182,449	294	25,652
Less than 180 count . . . . .	1,066	71,497	123	6,739	245	15,222	698	49,536	-	-
180 count and greater . . . . .	2,726	240,313	409	30,078	927	77,322	1,390	132,913	-	-
Not specified by kind (n.s.k.) . . . . .	294	25,652	-	-	-	-	-	-	294	25,652
Pillowcases (except crib) . . . . .	3,750	103,207	582	10,422	1,085	30,271	1,982	59,392	101	3,122
Less than 180 count . . . . .	912	17,320	95	1,517	192	4,520	625	11,283	-	-
180 count and greater . . . . .	2,737	82,765	487	8,905	893	25,751	1,357	48,109	-	-
Not specified by kind (n.s.k.) . . . . .	101	3,122	-	-	-	-	-	-	101	3,122
Terry towels . . . . .	11,334	322,655	2,529	53,080	6,129	206,734	972	28,299	1,704	34,542
Washcloths, terry . . . . .	7,102	55,633	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
<b>FIRST QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	3,865	337,549	491	36,779	1,180	103,572	1,896	169,570	298	27,628
Less than 180 count . . . . .	827	59,881	109	7,055	173	14,278	545	38,548	-	-
180 count and greater . . . . .	2,740	250,040	382	29,724	1,007	89,294	1,351	131,022	-	-
Not specified by kind (n.s.k.) . . . . .	298	27,628	-	-	-	-	-	-	298	27,628
Pillowcases (except crib) . . . . .	3,534	105,137	492	10,724	1,119	36,731	1,801	53,198	122	4,484
Less than 180 count . . . . .	709	15,995	84	2,005	141	5,255	484	8,735	-	-
180 count and greater . . . . .	2,703	84,658	408	8,719	978	31,476	1,317	44,463	-	-
Not specified by kind (n.s.k.) . . . . .	122	4,484	-	-	-	-	-	-	122	4,484
Terry towels . . . . .	11,402	318,524	2,305	48,833	5,398	177,132	1,394	38,581	2,305	53,978
Washcloths, terry . . . . .	6,908	57,077	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)

See footnotes at end of Table 60.

**Table 60. Quantity and Value of Shipments of Sheets, Pillowcases, and Terry Towels by Type and Finish: 1996**

[Quantity in thousands of dozens. Value in thousands of dollars]

Product description	Total shipments		White		Solid colors		Fancies <sup>1</sup>		Total n.s.k. shipments	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>TOTAL</b>										
Sheets, flat and fitted (except crib) . . . . .	16,108	1,344,525	2,410	176,919	4,826	412,971	7,779	669,081	1,093	85,554
Less than 180 count . . . . .	4,168	291,170	511	32,088	1,130	74,047	2,527	185,035	-	-
180 count and greater . . . . .	10,847	967,801	1,899	144,831	3,696	338,924	5,252	484,046	-	-
Not specified by kind (n.s.k.) . . .	1,093	85,554	-	-	-	-	-	-	1,093	85,554
Pillowcases (except crib) . . . . .	14,234	398,722	2,420	50,897	4,385	134,732	6,850	196,561	579	16,532
Less than 180 count . . . . .	3,322	68,384	440	8,608	898	22,319	1,984	37,457	-	-
180 count and greater . . . . .	10,333	313,806	1,980	42,289	3,487	112,413	4,866	159,104	-	-
Not specified by kind (n.s.k.) . . .	579	16,532	-	-	-	-	-	-	579	16,532
Terry towels . . . . .	46,991	1,224,654	11,288	210,335	21,541	693,189	6,892	177,858	7,270	143,272
Washcloths, terry . . . . .	28,574	220,158	-	-	-	-	-	-	(X)	(X)
<b>FOURTH QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	4,235	351,212	558	38,347	1,241	110,794	2,095	175,900	341	26,171
Less than 180 count . . . . .	1,234	87,651	123	7,351	346	23,412	765	56,888	-	-
180 count and greater . . . . .	2,660	237,390	435	30,996	895	87,382	1,330	119,012	-	-
Not specified by kind (n.s.k.) . . .	341	26,171	-	-	-	-	-	-	341	26,171
Pillowcases (except crib) . . . . .	3,629	101,773	560	10,606	1,078	34,976	1,872	52,802	119	3,389
Less than 180 count . . . . .	970	21,592	105	2,066	255	6,614	610	12,912	-	-
180 count and greater . . . . .	2,540	76,792	455	8,540	823	28,362	1,262	39,890	-	-
Not specified by kind (n.s.k.) . . .	119	3,389	-	-	-	-	-	-	119	3,389
Terry towels . . . . .	11,090	310,656	2,523	51,142	5,562	184,379	1,447	38,384	1,558	36,751
Washcloths, terry . . . . .	6,817	56,842	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
<b>THIRD QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	4,426	364,414	787	57,338	1,245	106,774	2,122	178,865	272	21,437
Less than 180 count . . . . .	1,166	80,450	165	10,270	320	20,161	681	50,019	-	-
180 count and greater . . . . .	2,988	262,527	622	47,068	925	86,613	1,441	128,846	-	-
Not specified by kind (n.s.k.) . . .	272	21,437	-	-	-	-	-	-	272	21,437
Pillowcases (except crib) . . . . .	3,782	110,698	766	18,043	1,097	35,384	1,766	53,038	153	4,233
Less than 180 count . . . . .	907	19,504	156	2,956	263	6,182	488	10,366	-	-
180 count and greater . . . . .	2,722	86,961	610	15,087	834	29,202	1,278	42,672	-	-
Not specified by kind (n.s.k.) . . .	153	4,233	-	-	-	-	-	-	153	4,233
Terry towels . . . . .	11,466	319,792	2,936	56,297	5,319	179,422	1,515	45,030	1,696	39,043
Washcloths, terry . . . . .	6,804	57,475	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
<b>SECOND QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	3,997	336,427	597	44,658	1,331	112,324	1,815	159,037	254	20,408
Less than 180 count . . . . .	927	65,242	121	7,707	266	16,542	540	40,993	-	-
180 count and greater . . . . .	2,816	250,777	476	36,951	1,065	95,782	1,275	118,044	-	-
Not specified by kind (n.s.k.) . . .	254	20,408	-	-	-	-	-	-	254	20,408
Pillowcases (except crib) . . . . .	3,661	97,551	620	12,132	1,248	35,742	1,641	45,632	152	4,045
Less than 180 count . . . . .	755	14,519	90	1,808	222	4,648	443	8,063	-	-
180 count and greater . . . . .	2,754	78,987	530	10,324	1,026	31,094	1,198	37,569	-	-
Not specified by kind (n.s.k.) . . .	152	4,045	-	-	-	-	-	-	152	4,045
Terry towels . . . . .	12,232	306,572	3,253	55,585	5,568	169,782	1,868	45,757	1,543	35,448
Washcloths, terry . . . . .	7,914	55,616	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
<b>FIRST QUARTER</b>										
Sheets, flat and fitted (except crib) . . . . .	3,450	292,472	468	36,576	1,009	83,079	1,747	155,279	226	17,538
Less than 180 count . . . . .	841	57,827	102	6,760	198	13,932	541	37,135	-	-
180 count and greater . . . . .	2,383	217,107	366	29,816	811	69,147	1,206	118,144	-	-
Not specified by kind (n.s.k.) . . .	226	17,538	-	-	-	-	-	-	226	17,538

See footnotes at end of table.

Table 60. **Quantity and Value of Shipments of Sheets, Pillowcases, and Terry Towels by Type and Finish: 1996**

[Quantity in thousands of dozens. Value in thousands of dollars]

Product description	Total shipments		White		Solid colors		Fancies <sup>1</sup>		Total n.s.k. shipments	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>FIRST QUARTER—Con.</b>										
Pillowcases (except crib) . . . . .	3,162	88,700	474	10,116	962	28,630	1,571	45,089	155	4,865
Less than 180 count . . . . .	690	12,769	89	1,778	158	4,875	443	6,116	-	-
180 count and greater . . . . .	2,317	71,066	385	8,338	804	23,755	1,128	38,973	-	-
Not specified by kind (n.s.k.) . . .	155	4,865	-	-	-	-	-	-	155	4,865
Terry towels . . . . .	12,203	287,634	2,576	47,311	5,092	159,606	2,062	48,687	2,473	32,030
Washcloths, terry . . . . .	7,039	50,225	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)

- Represents zero.    n.s.k. Not specified by kind.    X Not applicable.

<sup>1</sup>Prints, special hems, jacquards, etc.

**HISTORICAL NOTE**

Data on sheets, pillowcases, and towels have been collected by the Census Bureau since 1960. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Karen Harshbarger, 301-457-4674.

## CARPET AND RUGS (MA22Q)

### INTRODUCTION

The data shown for carpet and rugs represent primary production and shipments of carpet and rugs. Data are not included for those rugs or carpet tiles that are cut from purchased roll goods. Data from those establishments that are dyeing and/or finishing carpets or rugs only are

excluded also. Data are shown for type of carpet or rug and by fiber of face yarn for woven carpet and rugs and for tufted roll goods.

### EXPLANATION OF TERMS

See explanation of terms at the beginning of this chapter.

**Table 61. Shipments of Carpet and Rugs: 1988 to 1997**

[Millions of dollars]

Year	Rugs, carpet, and carpeting	Woven carpet and rugs	Tufted carpet and rugs	Other carpet and rugs
1997.....	10,261.8	347.9	9,491.4	422.5
1996.....	10,148.2	289.9	9,430.6	427.7
1995.....	9,769.7	311.2	9,100.1	358.3
1994.....	9,530.6	307.3	8,885.9	337.4
1993.....	9,282.5	281.6	8,653.2	347.8
1992.....	8,749.3	301.1	8,135.9	312.3
1991.....	7,980.4	295.6	7,407.3	277.5
1990.....	8,527.1	293.2	7,977.5	256.4
1989.....	8,431.1	299.0	7,932.8	199.3
1988.....	8,417.3	286.3	7,891.3	239.7

<sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 62. Shipments, Exports, Imports, and Apparent Consumption of Carpet and Rugs: 1997 and 1996**

[Quantity in millions of square meters. Value in millions of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Percent exports to manufacturers' shipments		Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup>		Percent imports to apparent consumption	
		Quantity	Value	Quantity	Value at port	Quantity	Value	Quantity	Value <sup>3</sup>	Quantity	Value	Quantity	Value
<b>1997</b>													
22731	Carpet and rugs .....	1,418.0	10,261.8	119.5	858.1	8.4	8.4	68.8	870.6	1,367.3	10,274.3	5.0	8.5
22732	Woven carpet and rugs .	22.6	347.9	8.5	72.0	37.7	20.7	37.3	328.8	51.4	604.7	72.6	54.4
22732	Tufted carpet and rugs .	1,282.0	9,491.4	82.2	606.3	6.4	6.4	17.4	142.1	1,217.2	9,027.2	1.4	1.6
22733	Other carpet and rugs ..	113.4	422.5	28.8	179.8	25.4	42.6	14.1	399.7	98.7	642.4	14.3	62.2
<b>1996</b>													
22731	Carpet and rugs .....	1,386.2	10,148.2	110.6	754.5	8.0	7.4	61.6	746.0	1,337.2	10,139.7	4.6	7.4
22732	Woven carpet and rugs .	18.5	289.9	9.0	71.7	48.6	24.7	36.2	308.0	45.7	526.2	79.1	58.5
22732	Tufted carpet and rugs .	1,259.0	9,430.6	76.9	531.4	6.1	5.6	14.2	110.7	1,196.3	9,009.9	1.2	1.2
22733	Other carpet and rugs ..	108.7	427.7	24.7	151.4	22.7	35.4	11.2	327.3	95.2	603.6	11.8	54.2

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>4</sup>Apparent consumption is derived by subtracting exports from the total manufacturers' shipments plus imports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.



**Table 63. Shipments of Carpet and Rugs: 1997 and 1996**

[Quantity in thousands of square yards. Value in thousands of dollars]

Product code	Product description	1997		1996	
		Quantity	Value	Quantity	Value
	<b>Total .....</b>	<b>1,696,158</b>	<b>10,261,816</b>	<b>1,658,193</b>	<b>10,148,225</b>
22731 00	Woven carpet and rugs .....	26,989	347,894	22,174	289,875
	By fiber of face yarn:				
22731 01	Cotton .....	(D)	(D)	(D)	(D)
22731 03	Manmade .....	22,760	239,131	18,418	196,360
22731 05	Wool .....	(D)	(D)	(D)	(D)
22731 07	Other .....	(D)	(D)	(D)	(D)
22732 20	Tufted carpet and rugs .....	1,533,513	9,491,380	1,506,036	9,430,608
	By type:				
22732 01	Washable scatter rugs, bathmats, and sets (rugs 6' x 9' and smaller) .....	91,628	719,798	87,780	707,175
22732 02	Hard-backed nonwashable accent/area rugs (6' x 9' and smaller) .....	20,385	117,661	(D)	(D)
22732 03	Room size rugs over 6' x 9' .....	3,741	48,971	(D)	(D)
22732 04	Roll goods, excluding artificial grass .....	1,309,582	8,087,474	1,295,408	8,022,109
22732 05	Tufted artificial grass for nonathletic surface .....	26,494	56,708	36,639	83,684
22732 07	Automobile and aircraft carpeting .....	81,683	460,768	54,956	'411,767
	By fiber of face yarn:				
22732 11	Nylon .....	998,318	6,855,980	993,226	6,806,883
22732 13	Polyester .....	75,178	416,276	'80,114	'455,840
22732 17	Polypropylene .....	353,394	1,586,489	287,590	1,259,765
22732 19	All other .....	106,623	632,635	145,106	908,120
	Other carpet and rugs .....	135,656	422,542	129,983	'427,742
22733 10	Knitted .....	(D)	(D)	(D)	(D)
22733 20	Needle punched .....	118,783	251,563	113,800	'245,645
22733 30	Felt .....	(D)	(D)	-	-
22733 90	Braided, hooked, and other carpet and rugs, n.e.c. ....	13,943	134,981	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. 'Revised by 5 percent or more from previously published data.

**HISTORICAL NOTE**

The annual MA22Q, Carpet and Rugs, was published for 6 years, 1962 to 1967. The semiannual, M22L, Tufted Textile Products, was initiated in 1951 and was published for 17 consecutive years. Both of these surveys were discontinued at the end of 1967 when the quarterly survey, MQ22Q, was established. The collection of data on a quarterly basis, for this series, began with the first quarter of 1968 and continued until 1985. (Also, for the years 1988

and 1989, the quarterly survey was conducted.) Since 1986, the series has been published as an annual, MA22Q, Carpet and Rugs. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Kay Hanks, 301-457-4620.

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## FOOTWEAR (MQ31A/MA31A)

### INTRODUCTION

The "Footwear" series includes data on the production, quantity, and value of shipments for various types of footwear. Included in these data are footwear that are cut in the United States, exported for sewing, and imported under special tariff provisions number 9802.

These data are intended to represent domestic manufacturing. In some cases, domestic manufacturers who also import completed products have difficulty separating their shipment data. Every effort is made to ensure that the shipment data include only domestically manufactured footwear, but the data user should be aware that the shipment data could include some imported footwear.

### SUMMARY OF FINDINGS

Nonrubber footwear production for 1997 totaled 123.7 million pairs, a 3.4-percent decrease from the 1996 production of 128.0 million pairs. Of the total 1997 production, 39.8 million pairs were men's, 0.4 million pairs were youth's and boys', 32.0 million were women's, 0.3 million were misses', and 2.0 million were children's shoes.

In 1997, 39.2 million pairs of slippers were produced, a 6.4-percent increase from the 1996 production of 36.7 million pairs.

### EXPLANATION OF TERMS

**Athletic shoes.** Includes skating shoes, shoes with cleats, and joggers whether for organized sports or street wear.

#### Footwear With Rubber or Plastics Soles/Fabrics Uppers

*Fabrics upper espadrilles.* Footwear with open toes or open heels, or of the slip on type, that is, held to the foot without the use of laces or buckles or other fasteners, except footwear having foxing or foxing-like band that is wholly or almost wholly of rubber or plastics applied or molded at the sole and overlapping the upper.

*Fabrics upper cement process shoes.* Footwear having soles (or midsoles, if any) of rubber or plastics that are affixed to the upper exclusively with an adhesive (any midsoles also being affixed exclusively to one another and to the out sole with an adhesive), except footwear having a foxing or foxing-like band applied to or molded at the sole and overlapping the upper and except footwear with soles that overlap the upper other than the toe or heel.

*Other fabrics shoes.* This includes all fabrics shoes with rubber or plastics soles vulcanized or molded to a fabrics upper, except slippers primarily intended for indoor household use, and sandals. Includes sneakers.

**Men's workshoes.** Includes safety shoes with sole that is an inch or more thick.

**Nonrubber footwear.** Includes shoes made by conventional processes such as cemented, welt, slip-lasted, and shoes with rubber sole vulcanized to leather uppers. Includes slippers, except slipper socks, regardless of material or construction. Excludes all other rubber or plastics boots and shoes, whether sold for over-the-foot wear or not.

**Other footwear, except footwear with rubber or plastics soles/fabrics uppers.** Includes ballet and other theatrical shoes.

**Protective footwear.** Boots, lumberman and PACS, arctics and gaiters, rubbers, and other footwear designed to be worn over, or in lieu of, other footwear as a protection against water, oil, grease, or chemicals, or cold or inclement weather.

*Boots.* These are worn over the foot or over the sock and are normally worn for industrial, commercial, or sporting use, but boots for dress or commuter use are also included if they are over the sock and not over the shoe. No distinction is made to reflect varying processes of manufacture.

*Lumberman and PACS.* These are worn over the foot and are normally used for industrial, commercial, or sporting purposes. They include PACS, work shoes, and lumberman overs, with or without tops. No distinction is made to reflect varying processes of manufacture.

*Arctics and gaiters.* These are worn over the shoes and are above ankle height, all weights, work and dress, with or without fasteners.

*Light and heavy rubbers.* These are worn over the shoe and are ankle height or below and include work and dress weights, with or without fasteners.

*Protective footwear with fabrics upper.* Boots, lumberman and PACS, and arctics and gaiters designed to be worn over, or in lieu of, other footwear as a protection against water, oil, grease, chemicals, or cold or inclement weather, having upper of more than 10 percent fabrics.

#### Sizes

Men's shoes: sizes 6 and over, including big boys' shoes.

Youth's and boys' shoes: sizes 12-1/2 to 5-1/2.

Women's shoes: sizes 4 and over, including growing girls' shoes.

Misses' shoes: sizes 12-1/2 to 3-1/2.

Children's shoes: sizes 8-1/2 to 12, including little boys' shoes.

Infants' shoes: sizes 0 to 8.

**Slippers.** Includes foldable and packable slippers.

**Table 64. Footwear Production: 1983 to 1997**

[Million pairs]

Year	Total	Nonrubber footwear	Rubber or plastics soles/fabrics uppers	Rubber and plastics footwear
1997.....	188.4	123.7	49.2	15.5
1996.....	196.0	128.0	51.4	16.6
1995.....	220.4	147.0	56.1	17.4
1994.....	242.5	163.0	59.3	20.2
1993 <sup>1</sup> .....	252.0	171.7	62.5	17.8
1992.....	273.6	164.8	92.7	16.1
1991.....	282.1	169.0	97.5	15.6
1990.....	290.3	184.6	89.7	16.0
1989.....	312.8	221.9	76.8	14.1
1988.....	325.3	234.8	76.7	13.8
1987.....	312.1	230.0	71.0	11.1
1986.....	310.9	240.9	57.9	12.1
1985.....	336.5	265.1	54.9	16.5
1984.....	383.5	303.2	62.8	17.5
1983.....	432.8	339.2	78.1	15.5

<sup>1</sup>For 1993, a number of companies were added based on information in the 1992 Census of Manufactures. Data were not collected from these establishments for 1992; therefore, information shown for years prior to 1992 may not be directly comparable. These changes represent approximately 2.7 percent of total rubber and plastics footwear production. Puerto Rican manufacturing facilities, also newly included for 1993, represent approximately 1.3 percent of nonrubber footwear production and less than 1 percent of total footwear production.

Note: For 1994, Puerto Rican manufacturing facilities accounted for approximately 1 percent of nonrubber footwear production and less than 1 percent of total footwear production.

**Table 65. Quantity and Value of Shipments of Nonrubber Footwear: 1997 and 1996**

[Production and quantity in thousands of pairs. Value in thousands of dollars]

Product description	1997			1996		
	Production	Quantity	Value	Production	Quantity	Value
Footwear (except rubber).....	123,739	127,269	2,761,035	128,006	135,553	2,991,639
Shoes (except slippers).....	84,552	85,075	2,584,650	91,299	95,119	2,822,370
Men's (except athletic).....	39,765	40,506	1,679,874	38,944	28,710	1,779,584
Dress and casual.....	16,514	16,405	586,990	18,170	18,660	684,332
Boots, dress and casual (except western style).....	737	792	42,730	769	873	45,898
Western style boots.....	9,216	9,679	326,397	6,911	7,436	377,291
Work oxfords.....	1,782	1,835	93,877	1,687	1,741	76,536
Workboots, ankle height or higher.....	11,516	11,795	629,880	11,407	11,726	595,527
Youth's and boys' (except athletic).....	390	358	5,822	412	373	5,950
Women's (except athletic).....	31,976	31,904	745,572	37,230	39,502	865,777
Sandals.....	1,761	1,721	52,294	1,793	1,880	38,926
Dress and casual (except sandals).....	28,241	27,940	596,655	33,266	35,196	699,685
Uniform duty shoes.....	414	417	14,861	611	630	17,913
Boots, ankle height or higher.....	1,560	1,826	81,762	1,560	1,796	109,253
Misses' shoes and boots (except athletic).....	313	313	6,137	332	321	4,953
Children's shoes and boots (except athletic).....	1,976	1,938	40,828	2,362	2,224	37,055
Infants' and babies'.....	4,912	4,869	34,879	5,596	5,753	40,754
Athletic.....	3,501	3,481	54,464	4,505	4,515	67,601
Men's.....	268	249	26,165	290	300	30,528
Women's.....	157	151	8,059	174	176	8,850
All other.....	(D)	(D)	(D)	(D)	(D)	(D)
Not specified by kind (n.s.k.).....	(D)	(D)	(D)	(D)	(D)	(D)
All other shoes (ballet, theatrical, etc.).....	1,719	1,706	17,074	1,918	1,995	20,696
Slippers.....	39,187	42,194	176,385	36,707	40,434	169,269
Men's.....	5,146	5,858	51,777	4,907	5,129	44,394
Women's.....	32,089	34,351	117,276	29,256	32,592	115,759
All other.....	1,952	1,985	7,332	2,544	2,713	9,116

D Withheld to avoid disclosing data for individual companies.

Note: Some companies are unable to exclude resales from their shipments' data.

**Table 66. Production of Shoes and Slippers: 1997 and 1996**

[Thousands of pairs]

Product description	Total	First quarter	Second quarter	Third quarter	Fourth quarter
<b>1997</b>					
Shoes and slippers . . . . .	As published.. 136,870	35,582	37,276	31,810	32,202
	As revised.. 123,739	31,437	33,129	28,611	30,562
Shoes, including athletics . . . . .	As published.. 93,833	25,833	25,331	20,915	21,754
	As revised.. 84,552	22,816	22,549	18,814	20,373
Men's shoes (except athletic) . . . . .	As published.. 36,714	9,841	9,411	8,458	9,004
	As revised.. 39,765	10,695	10,246	9,162	9,662
Work shoes . . . . .	As published.. 16,458	4,334	4,106	3,786	4,232
	As revised.. 13,298	3,501	3,317	3,059	3,421
Shoes and boots (except work and athletic) . . . . .	As published.. 20,256	5,507	5,305	4,672	4,772
	As revised.. 26,467	7,194	6,929	6,103	6,241
Youth's and boys' . . . . .	As published.. 403	86	106	110	101
	As revised.. 390	82	101	109	98
Women's . . . . .	As published.. 43,382	12,135	11,929	9,550	9,768
	As revised.. 31,976	8,634	8,633	7,035	7,674
Misses' . . . . .	As published.. 796	189	245	215	147
	As revised.. 313	72	94	85	62
Children's . . . . .	As published.. 1,612	542	464	300	306
	As revised.. 1,976	664	569	368	375
Infants' and babies' . . . . .	As published.. 5,481	1,572	1,569	1,221	1,119
	As revised.. 4,912	1,277	1,375	1,081	1,179
Athletic shoes . . . . .	As published.. (D)	1,063	(D)	741	940
	As revised.. 3,501	945	1,050	630	876
All other footwear . . . . .	As published.. (D)	405	(D)	320	369
	As revised.. 1,719	447	481	344	447
Slippers . . . . .	As published.. 43,037	9,749	11,945	10,895	10,448
	As revised.. 39,187	8,621	10,580	9,797	10,189
<b>1996</b>					
Shoes and slippers . . . . .	As published.. 127,315	33,434	31,894	29,875	32,112
	As revised.. 128,006	33,225	31,844	29,720	33,217
Shoes, including athletics . . . . .	As published.. 90,914	24,005	23,020	21,238	22,651
	As revised.. 91,299	24,048	23,034	21,277	22,940
Men's shoes (except athletic) . . . . .	As published.. 36,928	9,922	9,120	8,437	9,449
	As revised.. 38,944	10,438	9,583	8,890	10,033
Work shoes . . . . .	As published.. 12,444	3,630	2,896	2,497	3,421
	As revised.. 13,094	3,797	3,012	2,619	3,666
Shoes and boots (except work and athletic) . . . . .	As published.. 24,484	6,292	6,224	5,940	6,028
	As revised.. 25,850	6,641	6,571	6,271	6,367
Youth's and boys' . . . . .	As published.. 283	55	61	87	80
	As revised.. 412	78	86	123	125
Women's . . . . .	As published.. 39,059	10,001	10,218	9,185	9,655
	As revised.. 37,230	9,531	9,739	8,753	9,207
Misses' . . . . .	As published.. 332	94	88	80	70
	As revised.. (NC)	(NC)	(NC)	(NC)	(NC)
Children's . . . . .	As published.. 2,279	627	551	651	450
	As revised.. 2,362	650	571	675	466
Infants' and babies' . . . . .	As published.. 5,610	1,336	1,190	1,441	1,643
	As revised.. 5,596	1,287	1,175	1,399	1,735
Athletic shoes . . . . .	As published.. 4,505	1,457	1,300	848	900
	As revised.. (NC)	(NC)	(NC)	(NC)	(NC)
All other footwear . . . . .	As published.. 1,918	513	492	509	404
	As revised.. (NC)	(NC)	(NC)	(NC)	(NC)
Slippers . . . . .	As published.. 36,401	9,429	8,874	8,637	9,461
	As revised.. 36,707	9,177	8,810	8,443	10,277

D Withheld to avoid disclosing data for individual companies. NC No change.

Note: Detail may not add to total because of independent rounding.

**Table 67. Production for Nonrubber Footwear by State: 1997 and 1996**

[Thousands of pairs]

State	Production	
	1997	1996
<b>United States</b> .....	<b>123,739</b>	<b>128,006</b>
Arkansas .....	(D)	(D)
California .....	3,574	3,504
Georgia .....	(D)	(D)
Illinois .....	1,161	1,163
Maine .....	14,604	15,380
Missouri .....	3,530	4,307
New Hampshire .....	2,054	2,856
New York .....	5,094	5,123
North Carolina .....	1,827	2,558
Ohio .....	(D)	(D)
Pennsylvania .....	5,327	6,328
Tennessee .....	3,260	3,558
Texas .....	38,142	32,996
Wisconsin .....	2,507	2,613
All other states .....	35,665	36,092

D Withheld to avoid disclosing data for individual companies.

Note: Each state not shown separately has been withheld to avoid disclosing data for individual companies.

**Table 68. Quantity and Value of Shipments of Shoes and Slippers: 1997 and 1996**

[Quantity in thousands of pairs. Value in thousands of dollars]

Item	Total	First quarter	Second quarter	Third quarter	Fourth quarter
<b>1997</b>					
Quantity .....					
As published..	128,671	27,968	29,645	34,447	36,611
As revised..	127,269	27,656	29,310	34,070	36,233
Value .....					
As published..	2,603,506	573,579	584,613	700,294	745,020
As revised..	2,761,035	608,256	619,852	742,442	790,485
<b>1996</b>					
Quantity .....					
As published..	134,761	30,104	28,456	34,765	41,436
As revised..	135,553	30,269	28,615	34,959	41,710
Value .....					
As published..	2,989,400	715,492	651,561	773,613	848,734
As revised..	2,991,639	715,898	651,878	773,937	849,926

**Table 69. Production and Shipments of Shoes With Rubber or Plastics Soles/Fabrics Uppers and Rubber and Plastics Footwear: 1997 and 1996**

[Production and quantity in thousands of pairs. Value in thousands of dollars]

Product description	1997			1996		
	Production	Shipments		Production	Shipments	
		Quantity	Value		Quantity	Value
<b>SHOES WITH RUBBER OR PLASTICS SOLES/ FABRICS UPPERS</b>						
<b>Total</b> .....	<b>49,183</b>	<b>50,309</b>	<b>532,134</b>	<b>51,351</b>	<b>52,031</b>	<b>464,026</b>
Athletic .....	26,148	24,385	367,265	28,677	26,631	303,821
Men's .....	19,355	18,941	244,777	19,787	18,753	217,701
Women's .....	3,396	2,566	107,294	4,286	3,943	63,414
Other .....	3,397	2,878	15,194	4,604	3,935	22,706
Nonathletic .....	23,035	25,924	164,869	22,674	25,400	160,205
Men's .....	4,052	4,767	61,562	4,184	4,387	54,876
Women's .....	10,168	10,720	56,005	11,570	12,238	70,375
Other .....	8,815	10,437	47,302	6,920	8,775	34,954
<b>RUBBER AND PLASTICS FOOTWEAR</b>						
<b>Total</b> .....	<b>15,512</b>	<b>15,348</b>	<b>224,129</b>	<b>16,618</b>	<b>16,474</b>	<b>253,894</b>
Rubber upper protective footwear .....	4,156	4,220	91,804	4,599	4,018	92,357
Boots, lumberman, and PACS .....	(D)	(D)	(D)	(D)	(D)	(D)
Arctics and gaiters, light and heavy rubbers ...	(D)	(D)	(D)	(D)	(D)	(D)
Plastics or fabrics protective footwear .....	11,356	11,128	132,325	12,019	12,456	161,537
Slush molded .....	(D)	(D)	(D)	(D)	(D)	(D)
Injection molded .....	8,241	8,243	76,226	8,155	8,039	81,231
Other .....	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

**Table 70. Production of Shoes With Rubber or Plastics Soles/Fabrics Uppers and Rubber and Plastics Protective Footwear by Quarter: 1997 and 1996**

[Thousand of pairs]

Product description	Total	First quarter	Second quarter	Third quarter	Fourth quarter
<b>1997</b>					
Shoes with rubber or plastics soles/fabrics uppers . . .As published..	41,622	14,274	10,223	7,000	10,125
As revised..	49,183	16,865	12,079	8,268	11,971
Rubber and plastics protective footwear . . . . .As published..	16,899	4,209	4,722	4,069	3,899
As revised..	15,512	3,864	4,334	3,735	3,579
<b>1996</b>					
Shoes with rubber or plastics soles/fabrics uppers . .As published..	48,747	15,138	12,184	8,921	12,504
As revised..	51,351	15,944	12,833	9,397	13,177
Rubber and plastics protective footwear . . . . .As published..	16,618	4,363	4,389	3,541	4,325
As revised..	(NC)	(NC)	(NC)	(NC)	(NC)

NC No change.

**Table 71. Production of Footwear by Type of Upper and Type of Sole: 1997 and 1996**

[Thousands of pairs]

Product description	1997	1996
<b>Total. . . . .</b>	<b>188,434</b>	<b>195,975</b>
Rubber or plastics uppers and rubber or plastics soles, including rubber or plastics coated fabrics uppers . . . . .	21,338	24,174
Waterproof . . . . .	12,299	12,934
Made with steel safety toes . . . . .	2,646	(D)
Boots (except with steel safety toes) . . . . .	6,614	8,649
All other . . . . .	3,039	(D)
Not waterproof . . . . .	9,039	11,240
Athletic: . . . . .		
Made with cleats, spikes, sprigs, stops, etc. . . . .	(D)	(D)
Other . . . . .	(D)	(D)
Made with steel safety toes . . . . .	(D)	(D)
Boots (except with steel safety toes) . . . . .	598	770
All other . . . . .	3,290	3,950
Leather uppers . . . . .	66,296	73,744
Athletic . . . . .	5,061	4,055
Made with cleats, spikes, sprigs, stops, etc. . . . .	(D)	485
Other . . . . .	(D)	3,570
Leather soles . . . . .	21,767	22,872
Made with steel safety toes . . . . .	1,724	1,545
Boots (except with steel safety toes) . . . . .	6,824	6,526
Shoes (except with steel safety toes) . . . . .	13,219	14,801
Other soles . . . . .	39,468	46,847
Made with steel safety toes . . . . .	1,965	2,058
Boots (except with steel safety toes) . . . . .	7,952	7,345
Shoes (except with steel safety toes) . . . . .	29,551	37,444
Fabrics uppers . . . . .	85,884	87,305
Rubber or plastics soles . . . . .	57,752	60,019
Athletic . . . . .	14,538	16,451
All other . . . . .	43,214	43,568
With all other soles . . . . .	28,132	27,286
Footwear not specified by type of material . . . . .	14,916	10,752

D Withheld to avoid disclosing data for individual companies.

**Table 72. Production, Exports, Imports, and Apparent Consumption of Footwear: 1997 and 1996**

[Quantity in thousands of pairs. Value in thousands of dollars]

Product description	Manufacturers' shipments <sup>1</sup> (quantity)	Exports of domestic merchandise <sup>2</sup>		Percent exports to domestic production	Imports for consumption <sup>3</sup>		Apparent consumption <sup>5</sup>	Percent imports to apparent consumption
		Quantity	Value		Quantity	Value <sup>4</sup>		
<b>1997</b>								
<b>Total</b> .....	<b>188,434</b>	<b>27,731</b>	<b>412,057</b>	<b>14.7</b>	<b>1,459,736</b>	<b>15,137,411</b>	<b>1,620,439</b>	<b>90.1</b>
Rubber or plastics uppers and rubber or plastics soles, including rubber or plastics coated fabrics uppers .....	21,338	4,307	44,492	20.2	517,924	3,095,025	534,955	96.8
Waterproof .....	12,299	384	5,219	3.1	3,389	26,046	15,304	22.1
Made with steel safety toes .....	(D)	184	2,975	(D)	235	4,107	2,697	(D)
All other .....	(D)	200	2,244	(D)	3,154	21,939	12,607	(D)
Not waterproof .....	9,039	3,923	39,273	43.4	514,535	3,068,979	519,651	99.0
Made with cleats, spikes, sprigs, stops, etc. ....	(D)	527	5,082	(D)	11,038	121,581	(D)	(D)
Other .....	(D)	953	13,917	(D)	40,335	228,289	(D)	(D)
Made with steel safety toes .....	(D)	256	1,435	(D)	561	6,243	(D)	(D)
Boots (except with steel safety toes) .....	598	284	2,969	47.5	74,104	786,686	74,418	99.6
All other .....	3,290	1,903	15,870	57.8	388,497	1,926,180	389,884	99.6
Leather uppers .....	66,296	11,287	274,734	17.0	628,766	9,845,954	683,775	92.0
Athletic .....	5,061	7,080	156,680	139.9	434,992	5,961,894	432,973	100.5
Made with cleats, spikes, sprigs, stop, etc. ....	(D)	3,229	75,323	(D)	9,742	238,251	(D)	(D)
Other .....	(D)	3,851	81,357	(D)	425,250	5,723,643	(D)	(D)
Leather soles .....	21,767	2,816	77,819	12.9	52,213	1,282,976	71,164	73.4
Made with steel safety toes .....	1,724	173	9,588	10.0	8,584	193,321	10,135	84.7
Boots (except with steel safety toes) .....	6,824	488	14,265	7.2	4,682	112,721	11,018	42.5
Shoes (except with steel safety toes) .....	13,219	2,155	53,966	16.3	38,947	976,934	50,011	77.9
Other soles .....	39,468	1,391	40,235	3.5	141,561	2,601,084	179,638	78.8
Made with steel safety toes .....	1,965	-	-	(NA)	-	-	1,965	(NA)
Boots (except with steel safety toes) .....	7,952	1,391	40,235	17.5	141,561	2,601,084	148,122	95.6
Shoes (except with steel safety toes) .....	29,551	-	-	(NA)	-	-	29,551	(NA)
Fabric uppers .....	85,884	9,624	92,831	11.2	313,046	2,196,432	389,306	80.4
Rubber or plastics soles .....	57,752	7,111	73,625	12.3	255,355	1,780,502	305,996	83.5
Athletic .....	14,538	5,931	62,929	(D)	82,986	1,105,174	(D)	(D)
All other .....	43,214	1,180	10,696	(D)	172,369	675,328	(D)	(D)
With all other soles .....	28,132	2,513	19,206	8.9	57,691	415,930	72,677	79.4
Footwear not specified by type of material .....	14,916	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
<b>1996</b>								
<b>Total</b> .....	<b>195,975</b>	<b>27,904</b>	<b>414,615</b>	<b>14.2</b>	<b>1,351,683</b>	<b>13,839,766</b>	<b>1,519,754</b>	<b>88.9</b>
Rubber or plastics uppers and rubber or plastic soles, including rubber or plastics coated fabrics uppers .....	24,174	4,954	48,146	20.5	468,874	2,977,616	488,094	96.1
Waterproof .....	12,934	502	5,571	3.9	2,927	20,901	15,359	19.1
Made with steel safety toes .....	(D)	229	3,172	(D)	131	2,378	(D)	(D)
All other .....	(D)	273	2,399	(D)	2,796	18,523	(D)	(D)
Not waterproof .....	11,240	4,452	42,575	39.6	465,947	2,956,715	472,735	98.6
Made with cleats, spikes, sprigs, stop, etc. ....	(D)	642	6,201	(D)	9,856	110,456	(D)	(D)
Other .....	(D)	779	11,398	(D)	32,912	187,452	(D)	(D)
Made with steel safety toes .....	(D)	245	1,269	(D)	703	8,377	(D)	(D)
Boots (except with steel safety toes) .....	770	340	3,496	44.2	76,347	838,923	76,777	99.4
All other .....	3,950	2,446	20,211	61.9	346,129	1,811,507	347,633	99.6

See footnotes at end of table.



Table 72. **Production, Exports, Imports, and Apparent Consumption of Footwear: 1997 and 1996—Con.**

[Quantity in thousands of pairs. Value in thousands of dollars]

Product description	Manufacturers' shipments <sup>1</sup> (quantity)	Exports of domestic merchandise <sup>2</sup>		Percent exports to domestic production	Imports for consumption <sup>3</sup>		Apparent consumption <sup>5</sup>	Percent imports to apparent consumption
		Quantity	Value		Quantity	Value <sup>4</sup>		
<b>1996—Con.</b>								
Leather uppers .....	73,744	12,078	285,534	16.4	587,077	9,040,167	648,743	90.5
Athletic .....	4,055	7,454	158,522	183.8	415,187	5,613,759	411,788	100.8
Made with cleats, spikes, sprigs, stops, etc.....	485	3,604	75,716	743.1	8,047	184,419	4,928	163.3
Other .....	3,570	3,850	82,806	107.8	407,140	5,429,340	406,860	100.1
Leather soles .....	22,872	3,040	85,349	13.3	54,080	1,384,093	73,912	163.3
Made with steel safety toes .....	1,545	199	10,585	12.9	6,925	147,212	8,271	100.1
Boots (except with steel safety toes) .....	6,526	484	15,248	7.4	4,024	101,116	10,066	73.2
Shoes (except with steel safety toes) .....	14,801	2,357	59,516	15.9	43,131	1,135,765	55,575	83.7
Other soles .....	46,847	1,584	41,663	3.4	117,810	2,042,315	163,073	40.0
Made with steel safety toes .....	2,058	-	-	(NA)	-	-	2,058	77.6
Boots (except with steel safety toes) .....	7,345	1,584	41,663	21.6	117,810	2,042,315	123,571	72.2
Shoes (except with steel safety toes) .....	37,444	-	-	(NA)	-	-	37,444	(NA)
Fabric uppers .....	87,305	10,872	80,935	12.5	295,732	1,821,983	372,165	79.5
Rubber or plastics soles .....	60,019	6,210	66,269	10.3	246,525	1,538,385	300,334	82.1
Athletic .....	16,451	4,662	47,219	(D)	82,655	929,803	(D)	(D)
All other .....	43,568	1,548	19,050	(D)	163,870	608,582	(D)	(D)
With all other soles .....	27,286	4,662	14,666	17.1	49,207	283,598	71,831	68.5
Footwear not specified by type of material .....	10,752	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

- Represents zero.      D Withheld to avoid disclosing data for individual companies.      NA Not available.

<sup>1</sup>Represents production.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report EM 145, *U.S. Imports for Consumption*.

<sup>4</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus import duties.

<sup>5</sup>Apparent consumption is derived by subtracting exports from total production plus imports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

## HISTORICAL NOTE

Data on footwear have been collected in this program since 1921. For some period, data were collected monthly, with a more comprehensive survey done annually. In 1991, due to budget reductions, the monthly program was canceled and replaced with a quarterly survey that collected similar data. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before

1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

## CONTACT FOR DATA USERS

For additional information about these data, contact Venita Powell, 301-457-1320.

# Chapter 3. Building Materials

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## LUMBER PRODUCTION AND MILL STOCKS (MA24T)

### INTRODUCTION

The Current Industrial Report on lumber production and mill stocks is a cut-off sample survey that canvasses approximately 2,000 establishments engaging in sawmill activity. Establishments are included in this survey even if the operation of the sawmill is a secondary activity. For example, a furniture manufacturer that manufactures the lumber they use to make furniture is considered as operating a sawmill and is in scope of this survey.

All sawmills producing lumber, sawed ties, and timbers from roundwood, whether sawed for their own use, sawed on contract for others, custom sawed, or sawed for sale are considered in scope of this survey. All sawmills with hardwood lumber production greater than or equal to 2 million board feet or softwood lumber production greater than or equal to 5 million board feet are included in this survey.

Since the MA24T survey is a cut-off sample, the panel does not include the entire universe of lumber manufacturers. The universe was calculated for 1994 based on the MA24T database, the 1992 Census of Manufactures, and state sawmill directories. The difference between the universe and the sample is the block estimate. The block estimate is carried forward by multiplying each cell of the block estimate by the rate of change of each cell for the sample. This new block estimate is added to the figures for the sample and any new lumber producers to calculate subsequent total production and inventories for all U.S. sawmills.

### SUMMARY OF FINDINGS

Production of lumber in the United States amounted to 47.3 billion board feet in 1997, 5.7 percent above the 1996 level of 44.8 billion board feet.

Eastern lumber production was 29.4 billion board feet in 1997, 4.6 percent above the 1996 level of 28.2 billion board feet. Southern yellow pine production amounted to

15.7 billion board feet in 1997, a 4.5-percent increase from the 15.1 billion board feet in 1996. Production of eastern hardwoods, at 10.7 billion board feet in 1997, was 4.2 percent below the 1996 level of 10.2 billion board feet.

Western lumber production was 17.9 billion board feet in 1997, an increase of 7.7 percent, from the 1996 production level of 16.6 billion board feet. Production of western softwoods increased in 1997 by 7.7 percent to 17.4 billion board feet. Total western hardwood production increased by 5.1 percent.

### EXPLANATION OF TERMS

**Lumber.** Timber sawed into beams, planks, boards, pallets stock, etc., of convenient sizes. Lumber is collected in this report in board feet. A board foot is a linear measure of lumber equal to a board 1-foot square and 1-inch thick.

**Hardwood lumber.** Wood obtained from a class of trees known as angiosperms (having seeds produced within a closed pod). These trees are characterized by broad leaves and are usually deciduous in the temperate zones. Some examples of hardwood lumber include such trees as oak, yellow-poplar, maple, gum, and ash.

**Softwood lumber.** Wood from coniferous trees whose leaves are needle-like. Some examples of softwood trees are pine, fir, cedar, redwood, and spruce.

**Eastern hardwoods and softwoods.** Those species of trees that are grown and harvested in states considered part of the eastern United States.

**Western softwoods.** Those species of trees that are grown and harvested in states considered part of the western United States.

## LUMBER INDUSTRY REGIONS

### Eastern Lumber Regions

#### Southern Pine:

Southern yellow pine.

#### Southern Hardwood:

All hardwoods in Alabama, Arkansas, Delaware, Florida, Louisiana, Mississippi, Missouri, Oklahoma, and Texas; and the lowland counties of Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, and Virginia.

#### Appalachian:

All hardwoods and softwoods, except southern yellow pine, in West Virginia, and the Appalachian range counties of Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, and Virginia.

#### Northern Hemlock and Hardwood:

All hardwoods and softwoods, except southern yellow pine, in Michigan and the Wisconsin.

#### Northeastern:

All hardwoods and softwoods, except southern yellow pine, in Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont.

#### Other:

All hardwoods and softwoods, except southern yellow pine, in Illinois, Indiana, Iowa, Kansas, Minnesota, Nebraska, New Jersey, North Dakota, and Ohio;

all softwoods, except southern yellow pine, in the lowland counties of Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, and Virginia; and all softwoods, except southern yellow pine, in Alabama, Arkansas, Delaware, Florida, Louisiana, Mississippi, Missouri, Oklahoma, and Texas.

### Western Lumber Regions

#### Douglas Fir:

All softwoods and hardwoods in Oregon and Washington west of the Cascades, and in Jackson and Josephine counties in Oregon.

#### Western Pine:

All softwoods and hardwoods in Oregon (except in Jackson and Josephine counties in Oregon) and Washington east of the Cascades; in California (except the Redwood Region counties); and in Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, South Dakota, Utah, and Wyoming.

#### California Redwood:

All softwoods and hardwoods in the following 15 counties of California: Alameda, Contra Costa, Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma.

#### Alaska and Hawaii:

All softwoods and hardwoods in Alaska and Hawaii.

**Table 1. Production and Mill Stocks of Lumber: 1994 to 1997**

[Millions of board feet, lumber tally]

Year	Production					Mill stocks		
	Total production	Softwoods			Total hardwoods	Total mill stocks	Softwoods	Hardwoods
		Total	Southern yellow pine	Other				
1997.....	47,312	36,167	15,741	20,426	11,145	4,422	3,182	1,240
1996.....	44,755	34,065	15,060	19,005	10,690	4,247	2,964	1,283
1995.....	43,971	33,043	14,700	18,343	10,928	4,633	3,297	1,336
1994.....	46,466	35,556	15,221	20,335	10,910	4,600	3,302	1,298

**Table 2. Production of Softwoods and Hardwoods by Geographic Area: 1997 and 1996**

[Millions of board feet, lumber tally]

Geographic area	Total		Softwoods		Hardwoods	
	1997	1996	1997	1996	1997	1996
<b>United States</b> .....	<b>47,312</b>	<b>44,755</b>	<b>36,167</b>	<b>34,065</b>	<b>11,145</b>	<b>10,690</b>
<b>Eastern United States</b> .....	<b>29,437</b>	<b>28,153</b>	<b>18,764</b>	<b>17,912</b>	<b>10,673</b>	<b>10,241</b>
Alabama .....	2,519	2,463	2,155	2,110	364	353
Arkansas .....	2,415	2,316	1,976	1,852	439	464
Connecticut .....	48	'44	6	6	42	'38
Delaware .....	15	15	(Z)	(D)	15	(D)
Florida .....	807	773	794	761	13	12
Georgia .....	3,170	2,985	2,790	2,632	380	353
Illinois .....	93	85	-	-	93	85
Indiana .....	370	355	(Z)	(Z)	370	355
Iowa .....	77	73	(Z)	(Z)	77	73
Kansas .....	10	10	-	-	10	10
Kentucky .....	723	743	8	7	715	736
Louisiana .....	1,266	1,248	1,069	1,023	197	225
Maine .....	1,082	1,069	931	939	151	130
Maryland .....	250	240	87	82	163	158
Massachusetts .....	(D)	(D)	(D)	(D)	(D)	(D)
Michigan .....	673	652	147	140	526	512
Minnesota .....	337	315	170	161	167	154
Mississippi .....	2,773	2,792	2,287	2,301	486	491
Missouri .....	583	545	27	27	556	518
Nebraska .....	25	25	2	2	23	23
New Hampshire .....	294	275	262	244	32	31
New Jersey .....	8	8	1	1	7	7
New York .....	565	534	99	91	466	443
North Carolina .....	2,418	2,238	1,757	1,648	661	590
North Dakota .....	1	3	(Z)	(Z)	1	3
Ohio .....	401	382	3	3	398	379
Oklahoma .....	(D)	(D)	(D)	(D)	(D)	(D)
Pennsylvania .....	1,089	1,042	39	38	1,050	1,004
Rhode Island .....	11	11	3	3	8	8
South Carolina .....	1,483	1,409	1,352	1,301	131	108
Tennessee .....	943	908	134	130	809	778
Texas .....	1,575	1,478	1,416	1,333	159	145
Vermont .....	277	228	162	124	115	104
Virginia .....	1,328	1,258	600	567	728	691
West Virginia .....	701	653	3	1	698	652
Wisconsin .....	659	617	107	88	552	529
<b>Western United States</b> .....	<b>17,875</b>	<b>16,602</b>	<b>17,403</b>	<b>16,153</b>	<b>472</b>	<b>449</b>
Alaska .....	(D)	(D)	(D)	(D)	-	-
Arizona .....	115	121	115	121	-	-
California .....	3,529	3,304	(D)	(D)	(D)	(D)
Colorado .....	114	113	114	113	(Z)	(Z)
Hawaii .....	(Z)	(Z)	-	-	(Z)	(Z)
Idaho .....	2,058	1,833	2,058	1,833	-	-
Montana .....	1,350	1,290	1,350	1,290	-	-
Nevada .....	(Z)	(Z)	(Z)	(Z)	-	-
New Mexico .....	119	90	119	90	-	-
Oregon .....	5,870	5,318	5,748	5,205	122	'113
South Dakota .....	(D)	(D)	(D)	(D)	(D)	(D)
Utah .....	27	36	(D)	(D)	(D)	(D)
Washington .....	4,252	4,064	3,907	3,732	345	332
Wyoming .....	226	227	226	227	-	-

- Represents zero. D Withheld to avoid disclosing data for individual companies. 'Revised by 5 percent or more from previously published data. Z Represents less than 500,000 board feet.

**Table 3. Lumber Production by Species: 1994 to 1997**

[Millions of board feet, lumber tally]

Product description	1997	1996	1995	1994
<b>United States</b> .....	<b>47,312</b>	<b>44,755</b>	<b>43,971</b>	<b>46,466</b>
<b>All eastern species</b> .....	<b>29,437</b>	<b>28,153</b>	<b>27,984</b>	<b>28,486</b>
Eastern softwoods .....	18,764	17,912	17,497	18,021
Pine, southern yellow .....	15,741	15,060	14,700	15,221
Pine, eastern white .....	515	467	464	464
Pine, other <sup>1</sup> .....	281	244	250	226
Spruce or fir <sup>2</sup> .....	616	615	585	586
Other eastern softwood <sup>3</sup> .....	156	151	148	159
Eastern softwoods, n.s.k. ....	1,455	1,375	1,350	1,365
Eastern hardwoods .....	10,673	10,241	10,487	10,465
Ash .....	194	200	208	192
Beech .....	69	61	70	72
Birch .....	71	64	68	70
Cherry .....	197	186	184	170
Cottonwood .....	75	84	95	100
Aspen .....	140	131	137	162
Gum, black, tupelo, and sweet .....	195	187	217	243
Hickory and pecan .....	98	99	98	103
Hard maple .....	435	376	383	349
Soft maple .....	259	223	231	233
Oak, red .....	1,998	1,974	1,945	1,914
Oak, white .....	938	877	933	884
Black walnut .....	26	27	34	33
Yellow-poplar .....	957	869	871	858
Other eastern hardwoods <sup>4</sup> .....	305	303	330	336
Mixed hardwoods <sup>5</sup> .....	1,167	1,193	1,248	1,376
Eastern hardwoods, n.s.k. ....	3,549	3,387	3,435	3,370
<b>All western species</b> .....	<b>17,875</b>	<b>16,602</b>	<b>15,987</b>	<b>17,980</b>
Western softwoods .....	17,403	16,153	15,546	17,535
Cedar, western red .....	655	652	619	673
Cedar, other <sup>6</sup> .....	209	186	186	178
Douglas fir .....	7,210	6,792	6,386	6,959
Fir, white, hem-fir, and other .....	3,645	3,151	2,801	3,382
Pine, ponderosa .....	2,414	2,320	2,395	2,819
Pine, western white .....	41	40	49	68
Pine, lodgepole .....	677	635	599	814
Pine, sugar .....	173	161	131	166
Redwood .....	735	686	762	808
Spruce <sup>7</sup> .....	321	331	307	355
Other western softwoods <sup>8</sup> .....	860	759	885	853
Western softwoods, n.s.k. ....	463	440	426	460
Western hardwoods <sup>9</sup> .....	472	449	441	445

n.s.k. Not specified by kind. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Includes jack and red (Norway) pines.

<sup>2</sup>Includes balsam fir and eastern spruce.

<sup>3</sup>Includes eastern red cedar, northern white cedar, southern white cedar, cypress, eastern hemlock, tamarack, and mixed woods.

<sup>4</sup>Includes basswood, boxwood, butternut, elm, hackberry, and sycamore.

<sup>5</sup>Includes mixed, ungraded hardwoods sawn for ties, timbers, blocking cants, and pallet stock.

<sup>6</sup>Includes Alaska, incense, and Port Orford cedars.

<sup>7</sup>Includes Sitka and western/Engelmann spruce.

<sup>8</sup>Includes western hemlock, western larch, and mixed woods.

<sup>9</sup>Includes alder, aspen, birch, cottonwood, maple, oak, mixed woods, and western hardwoods not specified.

**Table 4. Production of Softwoods and Hardwoods by Lumber Industry Regions: 1997 and 1996**

[Millions of board feet, lumber tally]

Lumber industry region	Total		Softwoods		Hardwoods	
	1997	1996	1997	1996	1997	1996
<b>United States</b> .....	<b>47,312</b>	<b>44,755</b>	<b>36,167</b>	<b>34,065</b>	<b>11,145</b>	<b>10,690</b>
<b>Eastern lumber regions</b> .....	<b>29,437</b>	<b>28,153</b>	<b>18,764</b>	<b>17,912</b>	<b>10,673</b>	<b>10,241</b>
Southern pine .....	15,741	15,060	15,741	15,060	-	-
Southern hardwood .....	4,542	4,425	-	-	4,542	4,425
Appalachian .....	(D)	(D)	(D)	(D)	(D)	(D)
Northern hemlock and hardwood .....	1,332	1,269	254	228	1,078	1,041
Northeastern .....	(D)	(D)	(D)	(D)	(D)	(D)
Other .....	2,229	2,102	1,083	1,013	1,146	1,089
<b>Western lumber regions</b> .....	<b>17,875</b>	<b>16,602</b>	<b>17,403</b>	<b>16,153</b>	<b>472</b>	<b>449</b>
Douglas fir .....	8,100	7,533	7,632	7,088	468	445
Western pine .....	8,583	7,925	(D)	(D)	(D)	(D)
California redwood .....	(D)	(D)	(D)	(D)	(D)	(D)
Alaska and Hawaii .....	(D)	(D)	(D)	(D)	(Z)	(Z)

- Represents zero. D Withheld to avoid disclosing data for individual companies. Z Represents less than 500,000 board feet.

**Table 5. Production, Exports, Imports, and Apparent Consumption of Softwoods and Hardwoods: 1997 and 1996**

[Thousands of cubic meters]

Product code	Product description	Production <sup>1</sup>	Exports of domestic merchandise <sup>2</sup>	Percent exports to production	Imports for consumption <sup>2</sup>	Apparent consumption <sup>3</sup>	Percent imports to apparent consumption
	<b>1997</b>						
	<b>Total softwoods and hardwoods</b> .	<b>111,644</b>	<b>7,023</b>	<b>6.3</b>	<b>43,129</b>	<b>147,750</b>	<b>29.2</b>
	Softwoods <sup>4</sup> .....	85,345	4,132	4.8	42,066	123,279	34.1
	Pine .....	46,822	1,252	2.7	1,538	47,108	3.3
24212 74	Lodgepole pine .....	1,598	52	3.3	100	1,646	6.1
24212 71	Ponderosa pine .....	5,696	117	2.1	211	5,790	3.6
24212 14, 16, 17, 72, 76	Other pine, including southern yellow and eastern white pine .....	39,528	1,083	2.7	1,227	39,672	3.1
24212 63	Douglas fir .....	17,014	1,029	6.0	623	16,608	3.8
24212 60	Western red cedar .....	1,546	73	4.7	1,278	2,751	46.5
24212 18, 20, 62, 66, 75, 78-80	Other softwoods, including hemlock, spruce, fir (other than Douglas fir), cedar (other than western red cedar), and mixed softwoods .....	15,437	1,778	11.5	38,627	52,286	73.9
24212 00	Softwoods, n.s.k. ....	4,526	(NA)	(NA)	(NA)	4,526	(NA)
	Hardwoods <sup>4</sup> .....	26,299	2,891	11.0	1,063	24,471	4.3
24211 51	Ash .....	458	152	33.2	7	313	2.2
24211 53	Beech .....	163	34	20.9	5	134	3.7
24211 55	Birch .....	167	27	16.2	63	203	31.0
24211 57	Cherry .....	465	113	24.3	7	359	1.9
24211 65	Hickory and pecan .....	231	18	7.8	1	214	0.5
24211 67, 69	Maple .....	1,638	391	23.9	176	1,423	12.4
24211 71	Red oak .....	4,715	649	13.8	19	4,085	0.5
24211 73	White oak .....	2,213	666	30.1	8	1,555	0.5
24211 75	Black walnut .....	61	20	32.8	1	42	2.4
24211 77	Yellow-poplar .....	2,258	204	9.0	1	2,055	-
24211 59, 61, 63, 79, 83, 99	Other hardwoods, including cottonwood, aspen, gum, and mixed hardwoods ...	5,510	617	11.2	775	5,668	13.7
24211 00	Hardwoods, n.s.k. ....	8,420	(NA)	(NA)	(NA)	8,420	(NA)

See footnotes at end of table.

Table 5. **Production, Exports, Imports, and Apparent Consumption of Softwoods and Hardwoods: 1997 and 1996—Con.**

[Thousands of cubic meters]

Product code	Product description	Production <sup>1</sup>	Exports of domestic merchandise <sup>2</sup>	Percent exports to production	Imports for consumption <sup>2</sup>	Apparent consumption <sup>3</sup>	Percent imports to apparent consumption
	<b>1996</b>						
	<b>Total softwoods and hardwoods .</b>	<b>105,610</b>	<b>6,955</b>	<b>6.6</b>	<b>43,420</b>	<b>142,075</b>	<b>30.6</b>
	Softwoods <sup>4</sup> . . . . .	80,384	4,387	5.5	42,530	118,527	35.9
	Pine . . . . .	44,663	1,170	2.6	1,372	44,865	3.1
24212 74	Lodgepole pine . . . . .	1,498	43	2.9	85	1,540	5.5
24212 71	Ponderosa pine . . . . .	5,475	102	1.9	219	5,592	3.9
24212 14, 16, 17, 72, 76	Other pine, including southern yellow and eastern white pine . . . . .	37,690	1,025	2.7	1,068	37,733	2.8
24212 63	Douglas fir . . . . .	16,027	1,605	10.0	624	15,046	4.1
24212 60	Western red cedar . . . . .	1,538	66	4.3	1,643	3,115	52.7
24212 18, 20, 62, 66, 75, 78-80	Other softwoods, including hemlock, spruce, fir (other than Douglas fir), cedar (other than western red cedar), and mixed softwoods . . . . .	13,873	1,546	11.1	38,891	51,218	75.9
24212 00	Softwoods, n.s.k. . . . .	4,283	(NA)	(NA)	(NA)	4,283	(NA)
	Hardwoods <sup>4</sup> . . . . .	25,226	2,568	10.2	890	23,548	3.8
24211 51	Ash . . . . .	472	147	31.1	8	333	2.4
24211 53	Beech . . . . .	144	32	22.2	5	117	4.3
24211 55	Birch . . . . .	151	25	16.6	56	182	30.8
24211 57	Cherry . . . . .	439	86	19.6	5	358	1.4
24211 65	Hickory and pecan . . . . .	234	15	6.4	1	220	0.5
24211 67, 69	Maple . . . . .	1,413	321	22.7	170	1,262	13.5
24211 71	Red oak . . . . .	4,658	631	13.5	14	4,041	0.3
24211 73	White oak . . . . .	2,069	592	28.6	9	1,486	0.6
24211 75	Black walnut . . . . .	64	18	28.1	4	50	8.0
24211 77	Yellow-poplar . . . . .	2,051	162	7.9	1	1,890	0.1
24211 59, 61, 63, 79, 83, 99	Other hardwoods, including cottonwood, aspen, gum, and mixed hardwoods . . . . .	5,498	539	9.8	617	5,576	11.1
24211 00	Hardwoods, n.s.k. . . . .	8,033	(NA)	(NA)	(NA)	8,033	(NA)

- Represents zero. NA Not available. n.s.k. Not specified by kind.

<sup>1</sup>Harmonized import and export data were collected in cubic meters. A conversion factor of 2.35973725 thousands of cubic meters per 1 million of board feet was used to convert from millions of board feet to thousands of cubic meters.

<sup>2</sup>Import and export numbers for 1997 and 1996 do not include cross-ties.

<sup>3</sup>Apparent consumption is equal to production plus imports minus exports.

<sup>4</sup>Totals for "Hardwoods and Softwoods" include n.s.k. production data.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

**HISTORICAL NOTE**

Data on lumber production and stocks have been collected by the Census Bureau since 1904. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also

available on microfiche; contact the Census Bureau, Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Jim Jamski, 301-457-1603.

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## REFRACTORIES (MA32C)

### INTRODUCTION

The data in this section are from a survey of all companies engaged in the manufacture of refractories. The survey panel for this survey includes all known manufacturers of refractories, approximately 200 companies. Data are collected in quantity and value of shipments. Quantity of shipments is measured in short tons, metric tons, and M bricks (thousand 9-inch equivalent). Related imports and exports are also shown.

### SUMMARY OF FINDINGS

In 1997, total manufacturers' shipments of refractories amounted to \$2,403 million, an increase of 3 percent, from \$2,341 million in 1996.

Shipments of clay refractories increased 4 percent to \$968 million in 1997, from \$930 million in 1996. Clay refractories shipments accounted for 40 percent of total refractories shipments in 1997 and 1996.

Shipments of nonclay refractories increased 2 percent to \$1,436 million in 1997, from \$1,411 million in 1996. Nonclay refractories shipments accounted for 60 percent of total refractories shipments in 1997 and 1996.

Brick and shapes continue to be the dominant form of refractories, showing an increase of 1 percent to \$1,350 million in 1997, from \$1,340 million in 1996. Unshaped clay refractories increased 5 percent to \$355 million in 1997, from \$338 million in 1996. Mortars decreased 21 percent to \$30 million in 1997, from \$38 million in 1996. Plastic refractories and ramming mixes increased 10 percent to \$165 million in 1997, from \$150 million in 1996.

### EXPLANATION OF TERMS

**Unit of measure.** Data for quantity of shipments have been collected in two distinct units of measure. Shipments of all refractories are collected in metric tons, and shipments of brick and shapes are also collected in thousand 9-inch equivalents. (A 9-inch equivalent is a solid volume of 101.25 cubic inches.) For ease of comparison, the metric tons data have been multiplied by the appropriate factor (1.103) to derive the short tons figures.

**High alumina brick and shapes (50 percent to 87.5 percent  $\text{Al}_2\text{O}_3$ ).** Brick and shapes made substantially of calcined diaspore or bauxite. Calcined as applied to diaspore and bauxite implies heat treatment short of fusion for volume stability prior to use in a refractory product. In the process, volatile materials are driven off and chemical changes take place.

**Ladle brick.** Alumina ladle brick less than 50 percent  $\text{Al}_2\text{O}_3$ .

**High alumina ladle brick.** Ladle brick containing 50 percent or more  $\text{Al}_2\text{O}_3$ .

**Sleeves, nozzles, runner brick, tuyeres, and side grate brick.** Includes nozzles and sleeves described in American Society of Testing and Materials (ASTM) C-435, runner brick, tuyeres, and slide gate brick, externally applied, all compositions.

**Refractory bonding mortars, wet and dry tapes.** Includes both air-setting and heatsetting bonding mortars that contain up to 60 percent  $\text{Al}_2\text{O}_3$ , dry basis, by analysis.

**Plastic refractories and ramming mixes.** Includes products referred to as plastic fire brick and the less-plastic materials intended for ramming into place after the addition of water (when shipped in dry form) containing less than 50 percent  $\text{Al}_2\text{O}_3$ .

**High alumina plastic refractories and ramming mixes.** Plastic refractories and ramming mixes containing 50 percent to 87.5 percent  $\text{Al}_2\text{O}_3$ .

**Clay castable refractories (hydraulic setting).** Hydraulic setting castables containing up to 50 percent  $\text{Al}_2\text{O}_3$  and made from calcined fireclay, diaspore or bauxite base, and Portland or calcium aluminate cements. Castables based on mullite, fused or tabular alumina, or other nonclay materials are excluded.

**High alumina castable refractories (hydraulic setting).** Castable refractories containing more than 50 percent  $\text{Al}_2\text{O}_3$  excluding those based on mullite or extra-high alumina.

**Insulating castables.** Hydraulic setting castables designed for low thermal conductivity and having bulk densities as defined in ASTM Classification C-401 no greater than 105 pounds per cubic foot.

**Fireclay gunning mixes.** Alumina-silicate compositions up to 50 percent  $\text{Al}_2\text{O}_3$ , specifically engineered for gunning applications; may include hydraulic setting or other chemical bonding agents.

**Molten cast refractories.** Products made by fusing refractory oxides, as in an electric furnace, and pouring the molten material into molds to form finished shapes.

**Magnesite and magnesite-chrome brick and shapes (magnesite predominating; products analyzing greater than 55 percent Mg).** Pitch-bonded magnesite and magnesite-dolomite brick (magnesite predominating), not including burned impregnated brick, molten cast magnesite and magnesite-chrome brick and shapes, or those made of fused magnesia.



**Chrome and chrome-magnesite brick and shapes.**

Chrome predominating products analyzing no more than 55 percent Mg. Molten cast chrome and shapes are excluded.

**Mullite brick and shapes.** Mullite brick and shapes made predominantly of kyanite, sillimanite, and alusite, or synthetic mullite (excluding molten cast).

**Extra-high alumina brick and shapes (over 87.5 percent  $Al_2O_3$ ).** Products made predominantly of fused bauxite or fused or dense-sintered alumina. Molten cast extra-high alumina brick and shapes are excluded.

**Fused.** As applied to bauxite and alumina, fused means melting, as in an electric furnace; after cooling, the product is crushed and graded for use in the refractory.

**Dense-sintered alumina.** Refers to heat treatment (short of melting) of alumina to render it relatively volume-stable for use in a refractory.

**High alumina mortars.** Mortars containing more than 60 percent  $Al_2O_3$ .

**Other nonclay mortars.** Includes sterite, zircon, zirconia, and mullite.

**Nonclay castable refractories (hydraulic setting).** Hydraulic setting castables made from nonclay refractory materials and Portland or calcium aluminate cements.

**Basic nonclay gunning mixes.** Includes chrome, chrome-magnesia, and dolomite gunning mixes.

**Other nonclay gunning mixes.** Includes extra-high alumina, mullite, zircon, and other gunning mixes.

Table 6. **Value of Shipments of Refractories: 1990 to 1997**

[Thousands of dollars]

Year	Total	Clay	Nonclay
1997 .....	2,403,518	967,640	1,435,878
1996 .....	2,340,757	930,006	1,410,751
1995 .....	2,222,384	940,835	1,281,549
1994 .....	2,046,979	906,165	1,140,814
1993 .....	1,930,233	772,986	1,157,247
1992 .....	1,956,083	786,078	1,170,005
1991 .....	1,946,842	784,331	1,162,511
1990 .....	2,002,833	771,315	1,231,518

**Table 7. Quantity and Value of Shipments of Refractories by Type: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity shipped (unit of measure)			Value of shipments
			Short tons	Metric tons	M bricks (1,000 9-inch equivalent)	
<b>1997</b>						
3255—	Clay and nonclay refractories .....	(X)	(X)	(X)	(X)	2,403,518
	Clay refractories .....	(X)	(X)	(X)	(X)	967,640
32550 11	Brick and shapes .....	(X)	904,544	820,077	273,113	555,492
32550 14	Fireclay, including semisilica, bloating and superduty fireclay brick and shapes, fireclay and high alumina pouring pit refractories; clay kiln furniture; radiant heater elements; and other miscellaneous clay refractory shapes .....	31	433,398	392,927	130,555	179,505
32550 35	High alumina brick and shapes containing 50 percent alumina and over, including glass-house pots, tank blocks, feeder parts, and upper structure shapes, made predominantly of calcined bauxite, kyanite, andalusite, and similar raw materials. Includes high alumina pouring pit refractories (containing 50 percent alumina and over), sleeves, nozzles, runners, and ladle gate parts <sup>1</sup> .....	34	417,153	378,199	101,370	317,722
32550 55	Insulating brick and shapes .....	13	53,993	48,951	41,188	58,265
32550 61	Unshaped clay refractories .....	(X)	740,295	671,164	(X)	355,051
32550 65	Refractory bonding mortars, wet and dry, including clay and high alumina .....	32	65,110	59,030	(X)	30,464
32550 70	Plastic refractories and ramming mixes, less than 50 percent alumina; high alumina plastic refractories and ramming mixes, 50 percent alumina and over; and high alumina phosphate bonded plastic refractories and ramming mixes, 50 percent alumina and over <sup>2</sup> .....	27	153,229	138,920	(X)	76,661
32550 85	Castable refractories less than 50 percent alumina; high alumina castables 50 percent alumina and over; and insulating castables (hydraulic setting), density up to 105 pounds/cubic foot <sup>3</sup> .....	38	343,960	311,840	(X)	184,800
32550 95	Fireclay gunning mixes, including hydraulic setting gunning mixes, less than 50 percent alumina; high alumina gunning mixes, 50 percent alumina and over; and insulating gunning mixes (hydraulic setting) .....	31	177,996	161,374	(X)	63,126
32550 00	Other refractory raw materials and refractory materials sold in lump or ground form, either for direct use by customer as a finished refractory product or as exported material .....	(X)	206,760	187,452	(X)	28,913
3297—	Clay and high alumina refractory raw materials <sup>4</sup> .....	18	196,889	178,503	(X)	26,712
32970 12	Clay and high alumina refractory materials <sup>5</sup> .....	10	9,871	8,949	(X)	2,201
32970 13	Clay refractories, n.s.k. <sup>6</sup> .....	(X)	(X)	(X)	(X)	28,184
32970 15	Nonclay refractories .....	(X)	(X)	(X)	(X)	1,435,878
32970 19	Brick and shapes .....	(X)	508,120	460,670	111,897	794,548
32970 48	All silica brick and shapes, excluding semisilica .....	17	43,614	39,541	20,473	67,384
32970 50	Magnesite-carbon brick and shapes, both less than 7 percent carbon, 7 percent carbon and over, predominantly pitch and resin bonded, and carbon magnesite brick .....	9	111,096	100,722	20,721	115,731
32970 55	Magnesite brick and shapes, burned and unburned .....	10	31,023	28,126	5,769	24,400
32970 58	Magnesite-chrome, chrome-magnesite, including high fires, burned and unburned brick, and chrome brick .....	6	57,948	52,537	10,478	59,701
32970 61	Silicon-carbide brick and shapes (made predominantly of silicon carbide), including kiln furniture .....	16	20,053	18,180	4,714	84,171
32970 65	Extra-high alumina brick and shapes containing 87.5 percent alumina and higher, and extra-high alumina pouring pit refractories, including sleeves, nozzles, runners, tuyeres, ladle gate parts, and mullite brick and shapes .....	29	39,708	36,000	9,315	136,668
32970 70	Zircon and zirconia brick and shapes (made predominantly of either of these materials, including electrocast) .....	14	9,130	8,277	2,877	58,284
32970 75	All other brick and shapes, including dolomite, dolomite-magnesite, forsterite, pyrophyllite-zircon, carbon and graphite crucibles, retorts, stopper heads, natural graphite, refractories, and molten cast .....	20	195,548	177,287	37,550	248,209
32970 80	Mortars .....	(X)	82,967	75,219	(X)	30,376
32970 85	Unshaped nonclay refractories basic bonding mortars made predominantly of magnesite or chrome ore, dolomite, and other nonclay mortars (made predominantly of forsterite, zircon, and silica) .....	11	(D)	(D)	(X)	22,357

See footnotes at end of table.

Table 7. **Quantity and Value of Shipments of Refractories by Type: 1997 and 1996—Con.**

[Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity shipped (unit of measure)			Value of shipments
			Short tons	Metric tons	M bricks (1,000 9-inch equivalent)	
<b>1997—Con.</b>						
Clay and nonclay refractories—Con.						
Nonclay refractories—Con.						
Mortars—Con.						
32970 63	Extra-high alumina refractory mortars (made predominantly of fused or synthetic alumina and mullite) . . . . .	19	(D)	(D)	(X)	8,019
32970 65	Plastic refractories and ramming mixes . . . . .	(X)	175,894	159,469	(X)	165,536
32970 67	Basic castable mixes, including chrome, chrome-magnesia, magnesia-chrome, magnesia, and dolomite . . . . .	13	53,493	48,498	(X)	35,574
32970 70	Extra-high alumina plastic refractories and ramming mixes, 87.5 percent alumina and higher (made predominantly of fused or synthetic aluminas and mullites), and extra-high alumina phosphate bonded plastic refractories and ramming mixes . . . . .	21	69,137	62,681	(X)	80,950
32970 69	Extra-high alumina castable and gunning mixes . . . . .	10	11,660	10,571	(X)	15,417
32970 68	Other nonclay plastic refractories and ramming mixes . . . . .	13	(D)	(D)	(X)	13,973
32970 72	Other nonclay refractory castables and plastic refractories . . . . .	12	(D)	(D)	(X)	19,622
Gunning mixes:						
32970 75	Basic nonclay gunning mixes, including chrome, chrome-magnesia, magnesia-chrome, magnesia, and dolomite and other nonclay gunning mixes . . . . .	16	269,934	244,727	(X)	101,577
32970 94	Ceramic refractory fibers, 1,500° F and higher . . . . .	11	45,356	41,121	(X)	137,650
32970 96	Other nonclay refractory materials sold in lump or ground form, including ground silica . . . . .	(X)	467,531	423,872	(X)	168,207
32970 00	Domestic shipments for direct use by customers as a finished refractory and all exported material <sup>5</sup> . . . . .	20	240,651	218,179	(X)	101,286
32950 23	All other domestic shipments of nonclay refractory materials sold in lump or ground form as a refractory raw material <sup>4</sup> . . . . .	9	226,879	205,693	(X)	66,921
32950 25	Nonclay refractories, n.s.k. <sup>6</sup> . . . . .	(X)	(X)	(X)	(X)	37,984
32740 71	Dead-burned magnesia or magnesite . . . . .	(X)	(D)	(D)	(X)	(D)
32950 23	Domestic shipments for direct use as finished refractory products and all exported material <sup>9</sup> . . . . .	7	(D)	(D)	(X)	(D)
32950 25	All other domestic shipments predominantly for use as a refractory raw material . . . . .	8	(D)	(D)	(X)	(D)
32740 71	Dead-burned dolomite . . . . .	2	(D)	(D)	(X)	(D)
<b>1996</b>						
3255—	Clay and nonclay refractories . . . . .	(X)	(X)	(X)	(X)	2,340,757
32550 11	Clay refractories . . . . .	(X)	(X)	(X)	(X)	930,006
32550 14	Brick and shapes . . . . .	(X)	895,335	811,727	284,409	532,865
32550 35	Fireclay, including semisilica, bloating and superduty fireclay brick and shapes, fireclay and high alumina pouring pit refractories; clay kiln furniture; radiant heater elements; and other miscellaneous clay refractory shapes . . . . .	31	419,880	380,671	130,469	<sup>†</sup> 177,709
32550 55	High alumina brick and shapes containing 50 percent alumina and over, including glass-house pots, tank blocks, feeder parts, and upper structure shapes, made predominantly of calcined bauxite, kyanite, andalusite, and similar raw materials. Includes high alumina pouring pit refractories (containing 50 percent alumina and over), sleeves, nozzles, runners, and ladle gate parts <sup>1</sup> . . . . .	33	412,239	373,743	102,046	291,092
32550 61	Insulating brick and shapes . . . . .	14	63,216	57,313	51,894	64,064
32550 61	Unshaped clay refractories . . . . .	(X)	728,855	660,794	(X)	337,621
32550 61	Refractory bonding mortars, wet and dry, including clay and high alumina . . . . .	32	<sup>†</sup> 57,345	<sup>†</sup> 51,990	(X)	<sup>†</sup> 27,863
32550 61	Plastic refractories and ramming mixes, less than 50 percent alumina; high alumina plastic refractories and ramming mixes, 50 percent alumina and over; and high alumina phosphate bonded plastic refractories and ramming mixes, 50 percent alumina and over <sup>2</sup> . . . . .	27	158,654	143,839	(X)	76,816

See footnotes at end of table.

Table 7. **Quantity and Value of Shipments of Refractories by Type: 1997 and 1996—Con.**

[Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity shipped (unit of measure)			Value of shipments
			Short tons	Metric tons	M bricks (1,000 9-inch equivalent)	
<b>1996—Con.</b>						
Clay and nonclay refractories—Con.						
Clay refractories—Con.						
32550 65	Castable refractories less than 50 percent alumina; high alumina castables 50 percent alumina and over; and insulating castables (hydraulic setting), density up to 105 pounds/cubic foot <sup>3</sup> . . . . .	38	331,490	300,535	(X)	170,804
32550 70	Fireclay gunning mixes, including hydraulic setting gunning mixes, less than 50 percent alumina; high alumina gunning mixes, 50 percent alumina and over; and insulating gunning mixes (hydraulic setting) . . . . .	31	181,366	164,430	(X)	62,138
	Other refractory raw materials and refractory materials sold in lump or ground form, either for direct use by customer as a finished refractory product or as exported material . . . . .	(X)	219,570	199,066	(X)	127,566
32550 85	Clay and high alumina refractory raw materials <sup>4</sup> . . . . .	18	207,420	188,051	(X)	24,409
32550 95	Clay and high alumina refractory materials <sup>5</sup> . . . . .	10	12,150	11,015	(X)	3,157
32550 00	Clay refractories, n.s.k. <sup>6</sup> . . . . .	(X)	(X)	(X)	(X)	31,954
3297—	Nonclay refractories . . . . .	(X)	(X)	(X)	(X)	1,410,751
	Brick and shapes . . . . .	(X)	547,919	496,753	124,430	807,612
32970 12	All silica brick and shapes, excluding semisilica . . . . .	17	67,999	61,649	30,655	70,589
32970 13	Magnesite-carbon brick and shapes, both less than 7 percent carbon, 7 percent carbon and over, predominantly pitch and resin bonded, and carbon magnesite brick . . . . .	8	111,563	101,145	20,849	117,007
32970 15	Magnesite brick and shapes, burned and unburned . . . . .	9	31,666	28,709	5,938	24,894
32970 19	Magnesite-chrome, chrome-magnesite, including high fires, burned and unburned brick, and chrome brick . . . . .	6	64,192	58,198	11,602	67,931
32970 48	Silicon carbide brick and shapes made predominately of silicon carbide), including kiln furniture . . . . .	13	22,592	20,482	5,147	91,082
32970 50	Extra-high alumina brick and shapes containing 87.5 percent alumina and higher, and extra-high alumina pouring pit refractories, including sleeves, nozzles, runners, tuyeres, ladle gate parts, and mullite brick and shapes . . . . .	28	36,750	33,318	8,828	117,990
32970 55	Zircon and zirconia brick and shapes (made predominantly of either of these materials, including electrocast) . . . . .	15	7,810	7,081	2,564	59,141
32970 58	All other brick and shapes, including dolomite, dolomite-magnesite, forsterite, pyrophyllite-zircon, carbon and graphite crucibles, retorts, stopper heads, natural graphite, refractories, and molten cast . . . . .	20	205,347	186,171	38,847	258,978
	Mortars . . . . .	(X)	80,746	73,206	(X)	37,698
32970 61	Unshaped nonclay refractories basic bonding mortars made predominantly of magnesite or chrome ore, dolomite, and other nonclay mortars (made predominantly of forsterite, zircon, and silica) . . . . .	11	(D)	(D)	(X)	29,078
32970 63	Extra-high alumina refractory mortars (made predominantly of fused or synthetic alumina and mullite) . . . . .	21	(D)	(D)	(X)	8,620
	Plastic refractories and ramming mixes . . . . .	(X)	179,710	162,929	(X)	150,470
32970 65	Basic castable mixes, including chrome, chrome-magnesia, magnesia-chrome, magnesia, and dolomite . . . . .	13	52,504	47,601	(X)	33,425
32970 67	Extra-high alumina plastic refractories and ramming mixes, 87.5 percent alumina and higher (made predominantly of fused or synthetic aluminas and mullites), and extra-high alumina phosphate bonded plastic refractories and ramming mixes . . . . .	23	73,453	66,594	(X)	72,880
32970 70	Extra-high alumina castable and gunning mixes . . . . .	10	9,603	8,706	(X)	12,553
32970 69	Other nonclay plastic refractories and ramming mixes . . . . .	13	31,777	28,810	(X)	15,494
32970 68	Other nonclay refractory castables and plastic refractories . . . . .	15	12,373	11,218	(X)	16,118
	Gunning mixes:					
32970 72	Basic nonclay gunning mixes, including chrome, chrome-magnesia, magnesia-chrome, magnesia, and dolomite and other nonclay gunning mixes . . . . .	17	268,365	243,305	(X)	103,054
32970 75	Ceramic refractory fibers, 1,500 <sup>0</sup> F and higher . . . . .	12	45,747	41,475	(X)	150,471

See footnotes at end of table.

Table 7. **Quantity and Value of Shipments of Refractories by Type: 1997 and 1996—Con.**

[Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity shipped (unit of measure)			Value of shipments
			Short tons	Metric tons	M bricks (1,000 9-inch equivalent)	
<b>1996—Con.</b>						
Clay and nonclay refractories—Con.						
Nonclay refractories—Con.						
	Other nonclay refractory materials sold in lump or ground form, including ground silica. ....	(X)	'398,310	'361,115	(X)	'134,875
32970 94	Domestic shipments for direct use by customers as a finished refractory and all exported material <sup>5</sup> .....	18	(D)	(D)	(X)	78,646
32970 96	All other domestic shipments of nonclay refractory materials sold in lump or ground form as a refractory raw material <sup>4</sup> .....	9	(D)	(D)	(X)	'56,229
32970 00	Nonclay refractories, n.s.k. <sup>6</sup> .....	(X)	(X)	(X)	(X)	26,571
	Dead-burned magnesia or magnesite .....	(X)	(D)	(D)	(X)	(D)
32950 23	Domestic shipments for direct use as finished refractory products and all exported material <sup>5</sup> .....	7	(D)	(D)	(X)	(D)
32950 25	All other domestic shipments predominantly for use as a refractory raw material .....	7	(D)	(D)	(X)	(D)
32740 71	Dead-burned dolomite .....	4	408,488	370,343	(X)	27,077

D Withheld to avoid disclosing data for individual companies. n.s.k. Not specified by kind. 'Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Includes high alumina pouring pit refractories (containing 50% alumina and over), sleeves, nozzles, runners, and ladle gate parts. Excludes data for mullite and extra-high alumina refractories. These products are included in nonclay refractories section.

<sup>2</sup>Includes products referred to as plastic firebrick and less plastic materials intended for ramming into place after addition of water (when shipped in dry form).

<sup>3</sup>Includes hydraulic setting castables designed for low thermal conductivity and having bulk densities as defined in ASTM classification C-401, not greater than 105 pounds/cubic foot.

<sup>4</sup>Includes shipments to refractory producers for reprocessing in manufacture of brick and other refractories.

<sup>5</sup>Includes shipments for direct use as finished refractory products by establishments classified in manufacturing industries and excludes shipments to refractory producers for reprocessing in manufacture of brick and other refractories. Includes all exports.

<sup>6</sup>Not specified by kind (n.s.k.) represents value of shipments for establishments that did not report detailed information and establishments, typically with less than five employees that were not included on MA32C mailing panel.

**Table 8. Shipments, Exports, Imports, and Apparent Consumption of Refractories by Type: 1997 and 1996**

[Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Unit of measure	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Percent exports to manufacturers' shipments	
			Quantity	Value	Quantity	Value at port <sup>2</sup>	Quantity	Value
<b>1997</b>								
32550 11,14,35	Clay and nonclay refractories <sup>3</sup> .....	.....(X).....	(X)	2,140,230	(X)	369,093	(X)	17.0
	Clay refractories .....	.....(X).....	(X)	910,543	(X)	81,185	(X)	9.0
	Brick and shapes .....	1,000 standard brick equivalent .	273,113	555,492	(NA)	68,040	(NA)	12.0
32550 55,61,65,70	Unshaped clay refractories and gunning mixes .....	Metric tons. ....	671,164	355,051	13,362	13,145	2.0	4.0
32970 13,15,19	Nonclay refractories .....	.....(X).....	(X)	1,229,687	(X)	287,908	(X)	23.0
	Nonclay magnesite and magnesite-chrome brick and shapes and chrome brick .....	1,000 standard brick equivalent .	36,968	199,832	(NA)	70,967	(NA)	36.0
32970 12,48,50, 55,58	All other brick and shapes .....	.....do .....	74,929	594,716	(NA)	100,890	(NA)	17.0
32970 61,63,65, 67,68,69,70,72,75	Unshaped nonclay refractories and gunning mixes .....	Metric tons. ....	520,536	435,139	160,190	116,051	31.0	27.0
			Imports for consumption <sup>1 4</sup>		Apparent consumption <sup>6</sup>		Percent imports to apparent consumption	
			Quantity	Value <sup>5</sup>	Quantity	Value	Quantity	Value
32550 11,14,35	Clay and nonclay refractories <sup>3</sup> .....	.....(X).....	(X)	273,824	(X)	2,044,961	(X)	13.4
	Clay refractories .....	.....(X).....	(X)	27,422	(X)	856,780	(X)	3.2
	Brick and shapes .....	1,000 standard brick equivalent .	(NA)	26,266	(NA)	513,718	(NA)	5.1
32550 55,61,65,70	Unshaped clay refractories and gunning mixes .....	Metric tons. ....	1,078	1,156	658,880	343,062	0.2	0.3
32970 13,15,19	Nonclay refractories .....	.....(X).....	(X)	246,402	(X)	1,188,181	(X)	20.7
	Nonclay magnesite and magnesite-chrome brick and shapes and chrome brick .....	1,000 standard brick equivalent .	(NA)	95,329	(NA)	224,194	(NA)	42.5
32970 12,48,50, 55,58	All other brick and shapes .....	.....do .....	(NA)	125,795	(NA)	619,621	(NA)	20.3
32970 61,63,65, 67,68,69,70,72,75	Unshaped nonclay refractories and gunning mixes .....	Metric tons. ....	40,981	25,278	401,327	344,366	10.2	7.3

See footnotes at end of table.

**Table 8. Shipments, Exports, Imports and Apparent Consumption of Refractories by Type: 1997 and 1996—Con.**

[Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Unit of measure	Manufacturers'		Exports of domestic merchandise <sup>1 2</sup>		Percent exports to manufacturers' shipments	
			Quantity	Value	Quantity	Value at port <sup>2</sup>	Quantity	Value
<b>1996</b>								
32550 11,14,35	Clay and nonclay refractories <sup>3</sup> .....	.....(X).....	(X)	2,119,791	(X)	381,057	(X)	18.0
	Clay refractories.....	.....(X).....	(X)	870,486	(X)	70,714	(X)	8.0
	Brick and shapes .....	1,000 standard brick equivalent .	284,409	532,865	(NA)	59,305	(NA)	11.0
32550 55,61,65,70	Unshaped clay refractories and gunning mixes .....	Metric tons.....	660,794	337,621	10,128	11,409	2.0	3.0
32970 13,15,19	Nonclay refractories.....	.....(X).....	(X)	1,249,305	(X)	310,343	(X)	25.0
	Nonclay magnesite and magnesite-chrome brick and shapes and chrome brick.....	1,000 standard brick equivalent .	38,389	209,832	(NA)	86,452	(NA)	41.0
	All other brick and shapes .....	.....do .....	86,041	597,780	(NA)	119,172	(NA)	20.0
32970 61,63,65, 67,68,69,70,72,75	Unshaped nonclay refractories and gunning mixes .....	Metric tons.....	520,915	441,693	149,362	104,719	29.0	24.0
			Imports for consumption <sup>1 4</sup>		Apparent consumption <sup>6</sup>		Percent imports to apparent consumption	
			Quantity	Value <sup>5</sup>	Quantity	Value	Quantity	Value
32550 11,14,35	Clay and nonclay refractories <sup>3</sup> .....	.....(X).....	(X)	234,859	(X)	1,973,593	(X)	11.9
	Clay refractories.....	.....(X).....	(X)	26,649	(X)	826,421	(X)	3.2
	Brick and shapes .....	1,000 standard brick equivalent .	(NA)	25,442	(NA)	499,002	(NA)	5.1
32550 55,61,65,70	Unshaped clay refractories and gunning mixes .....	Metric tons.....	1,061	1,207	651,727	327,419	0.2	0.4
32970 13,15,19	Nonclay refractories.....	.....(X).....	(X)	208,210	(X)	1,147,172	(X)	18.1
	Nonclay magnesite and magnesite-chrome brick and shapes and chrome brick.....	1,000 standard brick equivalent .	(NA)	86,806	(NA)	210,186	(NA)	41.3
	All other brick and shapes .....	.....do .....	(NA)	94,693	(NA)	573,301	(NA)	16.5
32970 61,63,65, 67,68,69,70,72,75	Unshaped nonclay refractories and gunning mixes .....	Metric tons.....	38,237	26,711	409,790	363,685	9.3	7.3

NA Not available. X Not applicable.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>"Clay and nonclay refractories" total shown here excludes product codes 32550 00, 32550 85, 32550 95, 32970 00, 32970 94, and 32970 96; therefore, they differ from totals shown in Tables 6 and 7.

<sup>4</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption and General Imports*.

<sup>5</sup>"Value at port" includes both import value and duty value.

<sup>6</sup>Apparent consumption is derived by subtracting exports from total of shipments plus imports (including duty).

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**HISTORICAL NOTE**

Data on refractories have been collected by the Census Bureau since 1947. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Evelyn Jordan, 301-457-4788.



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## CLAY CONSTRUCTION PRODUCTS (MQ32D)

### INTRODUCTION

The data in this section are from a survey of manufacturers of clay products, including brick, tile, pipe, and fittings. The panel for this survey consists of all known producers of clay construction products, approximately 220 establishments. This survey supplies a regional state break out of production, quantity of shipments, and value of shipments for brick (building or common and face), by quarter. The tile, pipe, and fittings products are available on an overall industry basis, by quarter. Related imports and exports are also shown.

### SUMMARY OF FINDINGS

Shipments of the principal clay product, brick (building or common), increased 8 percent to \$1,339 million in 1997, from \$1,235 million in 1996. The South Atlantic region accounted for approximately 34 percent of the total value of brick shipments in 1997. More specifically, North Carolina accounted for approximately 14 percent of the total value of brick shipments in 1997.

Shipments of facing tile decreased 5 percent to \$14.2 million in 1997, from \$14.9 million in 1996.

Shipments of clay floor and wall tile increased 12 percent to \$874 million in 1997, from \$779 million in 1996. Of this, shipments of glazed floor and wall tile increased 6 percent to \$591 million in 1997, from 556 million in 1996.

Shipments of vitrified sewer pipe and fittings decreased 2 percent to \$44 million in 1997, from \$45 million in 1996.

### EXPLANATION OF TERMS

**Building or common brick.** Any brick made primarily for building purposes and not especially treated for texture or color.

**Facing brick.** Brick made especially for facing purposes, often treated to produce surface texture, and made of selected clays or otherwise treated to produce desired color.

**Production and shipments.** Due to breakage and inventory adjustments, production (quantity) and shipments (quantity) may vary widely on a quarterly basis.

**Facing tile.** Tile designed for use in exterior or interior walls, partitions, or columns where the face of the tile is to be left exposed.

**Ceramic glazed brick.** Brick having a glaze of bright satin or glass finish obtained by spraying the clay body with a compound of metallic oxides, chemicals, and clays, and burning at high temperature, thus fusing the glaze to the body to make them inseparable.

**Structural clay tile.** A hollow masonry building unit composed of burned clay, shale, fireclay, or mixtures thereof, and having parallel air cells.

**Quarry tile.** Glazed or unglazed tile made by the process from natural clay or shale, usually having 6 square inches (39 square centimeters) or more of facial area.

**Vitrified.** This characteristic of a clay product results when the temperature in the kiln is sufficient to fuse all the grains and close all the pores of the clay, making the mass impervious.

**Table 9. Production and Shipments of Clay Construction Products: 1994 to 1997**

Product code	Product description	Production (quantity)	Shipments	
			Quantity	Value (million dollars)
32510 11	Brick (building or common and face) (million standard brick):			
	1997 .....	7,812.2	7,705.8	1,339.5
	1996 .....	7,426.4	7,619.3	1,235.1
	1995 .....	7,243.9	6,890.3	1,092.2
	1994 .....	7,200.6	7,238.0	1,102.3
32510 31	Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed (million brick equivalent):			
	1997 .....	26.8	26.5	14.2
	1996 .....	23.9	23.0	14.9
	1995 .....	25.8	24.1	16.5
	1994 .....	26.9	26.6	15.1
32510 61	Structural clay tile (except facing) (thousand short tons):			
	1997 .....	50.9	49.7	8.5
	1996 .....	49.2	51.0	8.3
	1995 .....	54.5	53.7	8.1
	1994 .....	(D)	(D)	(D)
32530 00	Clay floor and wall tile, including quarry tile (million sq ft):			
	1997 .....	626.7	635.9	874.2
	1996 .....	575.8	580.4	779.4
	1995 .....	580.8	568.1	728.0
	1994 .....	604.5	604.4	755.7
32591 00	Vitrified clay sewer pipe and fittings (short tons):			
	1997 .....	150.3	147.3	44.4
	1996 .....	<sup>r</sup> 143.1	<sup>r</sup> 159.0	<sup>r</sup> 45.0
	1995 .....	138.1	135.8	35.3
	1994 .....	159.1	134.9	33.3

D Withheld to avoid disclosing data for individual companies. <sup>r</sup>Revised by 5 percent or more from previously published data.

Note: Detail data may not add to totals because of independent rounding.

**Table 10. Production of Brick (Building or Common and Face) by Divisions and States: 1997 and 1996**

[Thousands of brick: 2-1/4 inch x 3-5/8 inch x 7-5/8 inch brick equivalent]

Division and state	1997					1996				
	Total	Fourth quarter	Third quarter	Second quarter	First quarter	Total	Fourth quarter	Third quarter	Second quarter	First quarter
<b>United States</b> .....	<b>7,812,209</b>	<b>1,950,787</b>	<b>2,046,346</b>	<b>2,032,434</b>	<b>1,782,642</b>	<b>7,426,402</b>	<b>1,919,101</b>	<b>2,002,124</b>	<b>1,933,331</b>	<b>1,571,846</b>
New England <sup>1</sup> .....	76,553	20,801	19,079	20,152	16,521	72,294	15,983	20,612	20,208	15,491
Middle Atlantic <sup>2</sup> .....	402,393	110,869	118,643	101,023	71,858	352,029	86,358	107,690	97,997	59,984
East North Central .....	700,447	173,678	179,152	184,994	162,623	668,305	173,202	184,631	173,184	137,288
Ohio .....	447,433	114,568	115,043	114,534	103,288	418,928	106,425	113,021	107,064	92,418
Other (Illinois, Indiana, Michigan, and Wisconsin) .....	253,014	59,110	64,109	70,460	59,335	249,377	66,777	71,610	66,120	44,870
West North Central .....	317,836	85,450	81,346	84,786	66,254	349,557	87,463	95,195	92,330	74,569
Kansas and Missouri .....	120,074	33,530	29,240	31,425	25,879	120,094	30,955	30,633	30,753	27,753
Other (Iowa, Minnesota, Nebraska, North Dakota, and South Dakota) .....	197,762	51,920	52,106	53,361	40,375	229,463	56,508	64,562	61,577	46,816
South Atlantic .....	2,952,652	721,725	782,906	778,636	669,385	2,712,904	705,371	725,369	718,978	563,186
Virginia .....	391,826	92,805	106,167	102,718	90,136	371,873	101,687	108,391	94,903	66,892
North Carolina .....	1,225,468	303,295	324,423	323,836	273,914	1,084,772	291,783	290,248	291,723	211,018
South Carolina .....	538,974	135,084	141,752	139,086	123,052	501,610	123,693	131,521	144,321	102,075
Other (Delaware, District of Columbia, Florida, Georgia, Maryland, and West Virginia) .....	796,384	190,541	210,564	212,996	182,283	754,649	188,208	195,209	188,031	183,201
East South Central .....	1,476,597	357,490	376,473	384,469	358,165	1,402,992	368,691	373,546	352,045	308,710
Alabama .....	708,316	174,156	178,627	181,279	174,254	686,583	169,930	180,719	176,379	159,555
Other (Kentucky, Mississippi, and Tennessee) .....	768,281	183,334	197,846	203,190	183,911	716,409	198,761	192,827	175,666	149,155
West South Central .....	1,352,598	343,284	344,086	338,751	326,477	1,344,870	345,077	350,303	338,864	310,626
Arkansas .....	241,929	59,938	61,005	62,393	58,593	237,677	59,405	61,231	60,484	56,557
Louisiana .....	67,704	20,065	20,404	10,645	16,590	75,572	19,145	21,112	20,300	15,015
Oklahoma .....	251,290	62,182	63,784	64,438	60,886	251,722	66,268	64,804	63,876	56,774
Texas .....	791,675	201,099	198,893	201,275	190,408	779,899	200,259	203,156	194,204	182,280
Mountain .....	295,600	77,430	80,230	76,029	61,911	315,415	84,468	85,956	83,631	61,360
Colorado .....	157,125	42,395	43,548	40,020	31,162	157,448	42,342	42,158	42,440	30,508
Other (Arizona, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) .....	138,475	35,035	36,682	36,009	30,749	157,967	42,126	43,798	41,191	30,852
Pacific <sup>3</sup> .....	237,533	60,060	64,431	63,594	49,448	208,036	52,488	58,822	56,094	40,632

See footnotes at end of Table 12.

**Table 11. Quantity of Shipments of Brick (Building or Common and Face) by Divisions and States: 1997 and 1996**

[Thousands of brick: 2-1/4 inch x 3-5/8 inch x 7-5/8 inch brick equivalent]

Division and state	1997					1996				
	Total	Fourth quarter	Third quarter	Second quarter	First quarter	Total	Fourth quarter	Third quarter	Second quarter	First quarter
<b>United States</b> .....	<b>7,705,850</b>	<b>1,844,548</b>	<b>2,131,833</b>	<b>2,139,183</b>	<b>1,590,286</b>	<b>7,619,279</b>	<b>1,845,548</b>	<b>2,157,469</b>	<b>2,145,630</b>	<b>1,470,632</b>
New England <sup>1</sup> .....	79,455	19,733	22,858	22,945	13,919	77,617	19,890	21,635	21,537	14,555
Middle Atlantic <sup>2</sup> .....	403,725	96,888	123,672	117,135	66,030	365,011	92,974	114,787	111,417	45,833
East North Central .....	710,434	174,190	200,938	206,504	128,802	676,251	166,277	214,795	189,730	105,449
Ohio .....	446,334	105,704	127,621	132,558	80,451	426,827	105,114	134,380	121,713	65,620
Other (Illinois, Indiana, Michigan, and Wisconsin) .....	264,100	68,486	73,317	73,946	48,351	249,424	61,163	80,415	68,017	39,829
West North Central .....	319,009	77,758	90,186	89,373	61,692	327,061	81,944	100,510	86,423	58,184
Kansas and Missouri .....	119,269	27,886	33,634	32,755	24,994	114,614	28,666	35,670	29,584	20,694
Other (Iowa, Minnesota, Nebraska, North Dakota, and South Dakota) .....	199,740	49,872	56,552	56,618	36,698	212,447	53,278	64,840	56,839	37,490
South Atlantic .....	2,950,471	700,982	798,004	818,288	633,197	2,832,849	688,673	770,605	809,304	564,267
Virginia .....	408,659	97,248	109,008	114,282	88,121	376,924	95,747	113,532	107,573	60,072
North Carolina .....	1,218,775	286,467	332,595	337,610	262,103	1,118,246	281,563	306,832	321,565	208,286
South Carolina .....	536,895	131,776	143,398	146,764	114,957	526,867	122,839	132,688	156,743	114,597
Other (Delaware, District of Columbia, Florida, Georgia, Maryland, and West Virginia) .....	786,142	185,491	213,003	219,632	168,016	810,812	188,524	217,553	223,423	181,312
East South Central .....	1,446,444	340,621	389,793	397,735	318,295	1,452,185	353,586	419,564	398,027	281,008
Alabama .....	687,607	162,575	183,016	186,081	155,935	726,900	172,528	204,627	200,998	148,747
Other (Kentucky, Mississippi, and Tennessee) .....	758,837	178,046	206,777	211,654	162,360	725,285	181,058	214,937	197,029	132,261
West South Central .....	1,280,886	312,275	363,608	343,138	261,865	1,362,589	314,755	363,707	382,578	301,549
Arkansas .....	228,588	56,379	63,713	62,215	46,281	236,471	58,122	67,585	63,028	47,736
Louisiana .....	74,692	18,782	21,866	19,537	14,507	75,265	18,249	20,064	20,408	16,544
Oklahoma .....	237,651	60,253	64,469	63,206	49,723	248,577	55,937	62,364	75,155	55,121
Texas .....	739,955	176,861	213,560	198,180	151,354	802,276	182,447	213,694	223,987	182,148
Mountain .....	282,868	67,625	78,650	78,313	58,280	311,371	76,065	90,417	86,186	58,703
Colorado .....	152,651	36,387	42,620	42,361	31,283	154,315	37,681	45,114	42,495	29,025
Other (Arizona, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) .....	130,217	31,238	36,030	35,952	26,997	157,056	38,384	45,303	43,691	29,678
Pacific <sup>3</sup> .....	232,558	54,476	64,124	65,752	48,206	214,345	51,384	61,449	60,428	41,084

See footnotes at end of Table 12.

**Table 12. Value of Shipments of Brick (Building or Common and Face) by Divisions and States: 1997 and 1996**

[Thousands of brick: 2-1/4 inch x 3-5/8 inch x 7-5/8 inch brick equivalent]

Division and state	1997					1996				
	Total	Fourth quarter	Third quarter	Second quarter	First quarter	Total	Fourth quarter	Third quarter	Second quarter	First quarter
<b>United States</b> .....	<b>1,339,455</b>	<b>315,873</b>	<b>'389,861</b>	<b>372,010</b>	<b>261,711</b>	<b>1,235,139</b>	<b>301,419</b>	<b>353,116</b>	<b>349,364</b>	<b>231,240</b>
New England <sup>1</sup> .....	18,407	4,547	'5,482	'5,244	'3,134	17,322	4,286	4,958	4,916	3,162
Middle Atlantic <sup>2</sup> .....	83,886	19,723	25,312	25,108	13,743	73,438	18,641	23,004	22,464	9,329
East North Central .....	131,566	32,113	37,858	38,486	23,109	121,445	29,831	38,838	33,901	18,875
Ohio .....	87,189	20,728	25,339	25,979	15,143	80,503	19,810	25,671	22,705	12,317
Other (Illinois, Indiana, Michigan, and Wisconsin) .....	44,377	11,385	12,519	12,507	7,966	40,942	10,021	13,167	11,196	6,558
West North Central .....	61,726	'15,893	'18,433	17,120	10,280	53,335	13,283	16,201	14,090	9,761
Kansas and Missouri .....	22,695	5,957	'7,007	6,275	3,456	18,089	4,399	5,531	4,964	3,195
Other (Iowa, Minnesota, Nebraska, North Dakota, and South Dakota) .....	39,031	9,936	11,426	10,845	6,824	35,246	8,884	10,670	9,126	6,566
South Atlantic .....	454,320	107,853	126,718	125,398	94,351	405,846	99,295	110,650	115,394	80,507
Virginia .....	55,328	13,212	15,196	15,457	11,463	49,565	12,630	15,035	14,204	7,696
North Carolina .....	190,784	'44,365	'54,511	'52,850	'39,058	156,572	39,203	42,982	45,719	28,668
South Carolina .....	91,784	22,578	24,592	24,884	19,730	86,065	20,709	22,108	24,531	18,717
Other (Delaware, District of Columbia, Florida, Georgia, Maryland, and West Virginia) .....	116,424	27,698	32,419	32,207	24,100	113,644	26,753	30,525	30,940	25,426
East South Central .....	201,838	46,802	53,574	53,915	47,547	211,215	52,876	62,540	59,061	36,738
Alabama .....	93,132	22,161	24,901	25,362	20,708	94,114	22,459	26,405	25,904	19,346
Other (Kentucky, Mississippi, and Tennessee) .....	108,706	'24,641	28,673	28,553	26,839	117,101	30,417	36,135	33,157	17,392
West South Central .....	258,085	'58,459	'83,395	'71,160	45,071	233,212	54,236	62,188	65,994	50,794
Arkansas .....	(D)	(D)	(D)	(D)	(D)	37,993	9,183	10,831	11,008	6,971
Louisiana .....	(D)	(D)	(D)	(D)	(D)	11,448	2,790	3,093	3,084	2,481
Oklahoma .....	45,023	10,536	'12,622	'12,747	9,118	45,303	10,395	11,635	13,080	10,193
Texas .....	150,622	31,786	'49,952	'42,513	26,371	138,468	31,868	36,629	38,822	31,149
Mountain .....	63,588	15,081	18,962	17,354	'12,191	63,788	15,614	18,708	17,713	11,753
Colorado .....	34,568	8,242	10,164	9,466	6,696	33,036	8,098	9,786	9,075	6,077
Other (Arizona, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) .....	29,020	6,839	8,798	7,888	5,495	30,752	7,516	8,922	8,638	5,676
Pacific <sup>3</sup> .....	66,039	15,402	20,127	18,225	12,285	55,538	13,357	16,029	15,831	10,321

D Withheld to avoid disclosing data for individual companies. ' Revised by 5 percent or more from previously published data.

<sup>1</sup>Represents a combined total for Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

<sup>2</sup>Represents a combined total for New Jersey, New York, and Pennsylvania.

<sup>3</sup>Represents a combined total for California, Oregon, and Washington. No production or shipments were reported for Alaska or Hawaii.

**Table 13. Production of Clay Construction Products: 1997 and 1996**

Product description	Total	Fourth quarter	Third quarter	Second quarter	First quarter
<b>1997</b>					
Brick (building or common and face) . . . . .	7,812,209	1,950,787	2,046,246	2,032,434	1,782,642
Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed . . . . .	26,830	'7,749	'7,773	'7,112	'4,196
Structural clay tile (except facing) . . . . .	50,917	12,157	13,628	13,306	11,826
Clay floor and wall tile, including quarry tile . . . . .	626,665	'135,912	149,585	'170,977	'170,191
Glazed floor and wall tile having a facial area greater than 6 and less than 59 square inches . . . . .	342,568	'68,343	86,132	'94,139	'93,954
Glazed floor and wall tile having a facial area 59 square inches or greater . . . . .	128,935	33,523	27,336	33,765	34,311
Glazed and unglazed ceramic mosaic tile having a facial area of less than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Unglazed tile, including unglazed quarry tile having a facial area greater than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Vitrified clay sewer pipe and fittings . . . . .	150,274	46,209	38,511	35,213	30,341
<b>1996</b>					
Brick (building or common and face) . . . . .	7,426,402	1,919,101	2,002,124	1,933,331	1,571,846
Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed . . . . .	23,920	6,006	6,450	7,503	3,961
Structural clay tile (except facing) . . . . .	49,220	11,310	13,466	14,695	9,749
Clay floor and wall tile, including quarry tile . . . . .	575,769	156,270	151,801	141,232	126,466
Glazed floor and wall tile having a facial area greater than 6 and less than 59 square inches . . . . .	319,191	88,162	85,327	77,075	68,627
Glazed floor and wall tile having a facial area 59 square inches or greater . . . . .	125,411	33,202	30,375	30,641	31,193
Glazed and unglazed ceramic mosaic tile having a facial area of less than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Unglazed tile, including unglazed quarry tile having a facial area greater than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Vitrified clay sewer pipe and fittings . . . . .	'143,064	'40,848	'40,983	'35,761	'25,472

See footnotes at end of Table 15.

Table 14. **Quantity of Shipments of Clay Construction Products: 1997 and 1996**

Product description	Total	Fourth quarter	Third quarter	Second quarter	First quarter
<b>1997</b>					
Brick (building or common and face) . . . . .	7,705,850	1,844,548	2,131,833	2,139,183	1,590,286
Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed . . . . .	26,515	'6,109	'7,541	'6,699	'6,166
Structural clay tile (except facing) . . . . .	49,719	12,213	13,296	12,505	11,705
Clay floor and wall tile, including quarry tile . . . . .	635,918	148,590	163,574	'163,958	'159,796
Glazed floor and wall tile having a facial area greater than 6 and less than 59 square inches . . . . .	330,089	77,071	87,147	'84,589	'81,282
Glazed floor and wall tile having a facial area 59 square inches or greater . . . . .	154,664	36,801	38,476	39,661	39,726
Glazed and unglazed ceramic mosaic tile having a facial area of less than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Unglazed tile, including unglazed quarry tile having a facial area greater than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Vitrified clay sewer pipe and fittings . . . . .	147,266	'40,621	'43,124	37,309	'26,212
<b>1996</b>					
Brick (building or common and face) . . . . .	7,619,279	1,845,548	2,157,469	2,145,630	1,470,632
Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed . . . . .	22,970	5,031	5,836	6,450	5,653
Structural clay tile (except facing) . . . . .	50,990	13,143	14,807	13,284	9,756
Clay floor and wall tile, including quarry tile . . . . .	580,392	156,820	151,488	145,401	126,683
Glazed floor and wall tile having a facial area greater than 6 and less than 59 square inches . . . . .	319,792	83,813	84,011	80,711	71,257
Glazed floor and wall tile having a facial area 59 square inches or greater . . . . .	132,510	39,053	33,023	31,954	28,480
Glazed and unglazed ceramic mosaic tile having a facial area of less than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Unglazed tile, including unglazed quarry tile having a facial area greater than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Vitrified clay sewer pipe and fittings . . . . .	'158,968	'38,071	'49,557	'43,438	'27,902

See footnotes at end of Table 15.

**Table 15. Value of Shipments of Clay Construction Products: 1997 and 1996**

Product description	Total	Fourth quarter	Third quarter	Second quarter	First quarter
<b>1997</b>					
Brick (building or common and face) . . . . .	1,339,455	315,873	†389,861	372,010	261,711
Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed . . . . .	14,165	†3,451	†4,104	†3,353	†3,257
Structural clay tile (except facing) . . . . .	8,545	2,100	2,320	2,137	1,988
Clay floor and wall tile, including quarry tile . . . . .	874,229	209,282	225,545	219,678	†219,724
Glazed floor and wall tile having a facial area greater than 6 and less than 59 square inches . . . . .	425,951	†100,863	111,870	†105,509	†107,709
Glazed floor and wall tile having a facial area 59 square inches or greater . . . . .	165,225	39,754	41,379	42,222	41,870
Glazed and unglazed ceramic mosaic tile having a facial area of less than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Unglazed tile, including unglazed quarry tile having a facial area greater than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Vitrified clay sewer pipe and fittings . . . . .	44,396	†11,752	†12,823	†11,601	†8,220
<b>1996</b>					
Brick (building or common and face) . . . . .	1,235,139	301,419	353,116	349,364	231,240
Facing tile (structural) and ceramic glazed brick, including unglazed and salt glazed . . . . .	14,895	2,720	4,593	4,408	3,174
Structural clay tile (except facing) . . . . .	8,320	2,138	2,477	2,148	1,557
Clay floor and wall tile, including quarry tile . . . . .	779,411	210,836	201,696	196,475	170,404
Glazed floor and wall tile having a facial area greater than 6 and less than 59 square inches . . . . .	417,885	110,059	108,793	105,933	93,100
Glazed floor and wall tile having a facial area 59 square inches or greater . . . . .	138,415	39,955	34,965	33,850	29,645
Glazed and unglazed ceramic mosaic tile having a facial area of less than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Unglazed tile, including unglazed quarry tile having a facial area greater than 6 square inches . . . . .	(D)	(D)	(D)	(D)	(D)
Vitrified clay sewer pipe and fittings . . . . .	†44,955	†9,918	†14,064	†13,107	†7,866

D Withheld to avoid disclosing data for individual companies. †Revised by 5 percent or more from previously published data.

Note: Units of measure for Tables 13 and 14 are: Brick and facing tile quantity in thousand brick; structural clay tile and vitrified clay sewer pipe and fittings, quantity in short tons; clay floor and wall tile, thousand square feet. Unit of measure for Table 15 is value in thousands of dollars.



**Table 16. Shipments, Exports, and Imports of Selected Clay Construction Products: 1997 and 1996**

[Value in thousands of dollars]

Product description	Unit of measure	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Percent exports to manufacturers' shipments <sup>1</sup>	
		Quantity	Value (f.o.b. plant)	Quantity	Value (at port)	Quantity	Value <sup>3</sup>
<b>1997</b>							
Brick (building or common and face) . . . . .	1,000 bricks .	7,705,850	1,339,455	46,518	9,351	0.6	0.7
Facing tile and structural clay tile . . . . .	. . . .do . . . .	(X)	22,710	(X)	7,160	(X)	31.5
Clay floor and wall tile . . . . .	1,000 sq meters . . . .	59,155	874,229	3,943	28,924	6.7	3.3
Vitrified clay sewer pipe and fittings . . . . .	Metric tons . .	133,514	44,396	1,210	2,484	0.9	5.6
<b>1996</b>							
Brick (building or common and face) . . . . .	1,000 bricks .	7,619,279	1,235,139	42,759	7,235	0.6	0.6
Facing tile and structural clay tile . . . . .	. . . .do . . . .	(X)	23,215	(X)	4,600	(X)	19.8
Clay floor and wall tile . . . . .	1,000 sq meters . . . .	53,990	779,411	(X)	23,894	(X)	3.1
Vitrified clay sewer pipe and fittings . . . . .	Metric tons . .	144,123	44,955	1,461	3,025	1.0	6.7
Product description	Unit of measure	Imports for consumption <sup>4</sup>		Apparent consumption <sup>6</sup>		Percent imports to apparent consumption	
		Quantity	Value <sup>5</sup>	Quantity	Value <sup>3</sup>	Quantity	Value
<b>1997</b>							
Brick (building or common and face) . . . . .	1,000 bricks .	20,267	5,346	7,679,599	1,335,450	0.3	0.4
Facing tile and structural clay tile . . . . .	. . . .do . . . .	(X)	823	(X)	16,373	(X)	5.0
Clay floor and wall tile . . . . .	1,000 sq meters . . . .	95,026	829,119	150,238	1,674,424	63.3	49.5
Vitrified clay sewer pipe and fittings . . . . .	Metric tons . .	806	475	133,110	42,387	0.6	1.1
<b>1996</b>							
Brick (building or common and face) . . . . .	1,000 bricks .	20,629	4,943	7,597,149	1,232,847	0.3	0.4
Facing tile and structural clay tile . . . . .	. . . .do . . . .	(X)	1,013	(X)	19,628	(X)	5.2
Clay floor and wall tile . . . . .	1,000 sq meters . . . .	82,131	734,089	(X)	1,489,606	(X)	49.3
Vitrified clay sewer pipe and fittings . . . . .	Metric tons . .	313	299	142,975	42,229	0.2	0.7

X Not applicable.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Value calculations are based on the estimated producers' value of exports.

<sup>4</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption*.

<sup>5</sup>Represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States.

<sup>6</sup>Apparent consumption is derived by subtracting exports from total of shipments plus imports.

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**HISTORICAL NOTE**

Data on clay products have been collected by the Census Bureau since 1947. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository

Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Evelyn Jordan, 301-457-4788.

## PLUMBING FIXTURES (MQ34E)

### INTRODUCTION

The data in this section are from a survey of all companies engaged in the manufacture of plumbing fixtures in the United States. The statistics were collected by mail on Census Bureau quarterly Form MQ34E, Plumbing Fixtures. The survey panel includes all known manufacturers of plumbing fixtures, approximately 179 companies.

### SUMMARY OF FINDINGS

Manufacturers' shipments of plumbing fixtures during 1997 were valued at \$3,323 million. This represents a 6-percent increase from the 1996 level of \$3,144 million.

1997 marked the beginning of greater detail shown for water closet bowls. Data are now collected reflecting handicapped accessible, and low consumption bowls. The

new categories have served to better define the industry. Shipments of low consumption water closet bowls (1.6 or less g.p.f.) increased from 6.8 million in 1996 to 7.5 million in 1997.

Bathtub shipments increased 1.2 percent from 4.4 million in 1996 to 4.5 million in 1997. Whirlpool bath shipments increased 1.5 percent from 482 thousand units in 1996 to 489 thousand units in 1997. Shipments of kitchen sinks increased 3.9 percent from 5.1 million in 1996 to 5.3 million in 1997.

### EXPLANATION OF TERMS

**Definitions of plumbing fixtures.** The products covered are classified by the standards set by the American National Standards Institute.

**Table 17. Shipments of Selected Types of Plumbing Fixtures: 1993 to 1997**

[Quantity in thousands of units]

Product description	1997	1996	1995	1994	1993
Lavatories . . . . .	7,460	7,458	7,129	6,982	6,958
Vitreous china and other nonmetals <sup>1</sup> . . . . .	5,786	5,686	5,494	5,402	5,447
Cast iron (enameled) <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)
Steel . . . . .	1,674	1,838	1,635	1,579	1,512
Water closet bowls . . . . .	7,521	8,623	8,829	9,685	8,845
Flush tanks . . . . .	7,110	7,163	6,652	7,559	7,434
Kitchen sinks <sup>2</sup> . . . . .	5,329	5,131	4,961	5,034	4,810
Cast iron (enameled) . . . . .	(NA)	(NA)	(NA)	(NA)	(NA)
Steel and other materials . . . . .	(NA)	(NA)	(NA)	(NA)	(NA)
Cast iron (enameled) and all other materials <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)
Steel . . . . .	4,276	4,166	4,086	4,056	3,918
Bathtubs <sup>3</sup> . . . . .	4,495	4,442	3,904	3,826	3,507
Cast iron (enameled) <sup>3</sup> . . . . .	(D)	(D)	(D)	(D)	(D)
Steel (enameled) . . . . .	894	977	880	928	864
Plastics and all other materials <sup>3</sup> . . . . .	(D)	(D)	(D)	(D)	(D)
Fiberglass, and cultured marble . . . . .	2,723	2,540	2,203	2,125	1,859
Whirlpool baths . . . . .	489	483	442	426	385

D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>"Lavatories, cast iron (enameled)" are included with "Lavatories, vitreous china, and other nonmetals" to avoid disclosing data for individual companies.

<sup>2</sup>"Kitchen sinks, cast iron (enameled), and all other materials" are included with "Kitchen sinks" to avoid disclosing data for individual companies.

<sup>3</sup>"Bathtubs, cast iron (enameled)" and "Bathtubs, plastics, and all other materials" are included with "Bathtubs" to avoid disclosing data for individual companies.

**Table 18. Value of Shipments of Plumbing Fixtures by Material: 1994 to 1997**

[Value in thousands of dollars]

Product description	1997	1996	1995	1994 <sup>1</sup>
<b>Total</b> .....	<b>'3,322,739</b>	<b>'3,144,297</b>	<b>2,953,621</b>	<b>2,912,992</b>
Metal .....	672,814	643,775	578,319	585,625
Cast iron (enameled) .....	261,333	270,529	239,962	247,277
Steel and other metal .....	411,481	373,246	338,357	338,348
Vitreous china .....	875,908	859,693	891,869	941,060
Fiberglass .....	1,267,084	1,069,722	996,465	928,463
Gel coat .....	569,864	507,479	458,510	428,964
Acrylic .....	'697,220	'637,243	537,955	499,499
Plastics .....	371,716	362,469	337,156	302,584
Cultured marble .....	179,039	167,363	168,326	137,617
Other .....	192,677	195,106	168,830	164,967
All other materials, nonmetal <sup>2</sup> .....	'135,217	'133,638	149,812	155,260

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Data for 1994 were revised.

<sup>2</sup>Includes plumbing fixtures, n.s.k. (not specified by kind).

**Table 19. Quantity of Shipments of Plumbing Fixtures: 1994 to 1997**

[Quantity in thousands of units]

Quarter and year	Lavatories	Water closet bowls	Flush tanks	Kitchen sinks	Bathtubs	Whirlpool baths
<b>1997</b>						
<b>Total</b> .....	<b>7,460</b>	<b>7,521</b>	<b>7,110</b>	<b>5,329</b>	<b>4,495</b>	<b>489</b>
First quarter .....	1,926	1,889	1,781	1,307	1,102	114
Second quarter .....	1,934	1,895	1,804	1,350	1,171	125
Third quarter .....	1,807	1,882	1,786	1,297	1,181	137
Fourth quarter .....	1,793	1,854	1,739	1,375	1,042	112
<b>1996</b>						
<b>Total</b> .....	<b>7,458</b>	<b>8,623</b>	<b>7,163</b>	<b>5,131</b>	<b>4,442</b>	<b>482</b>
First quarter .....	1,775	2,093	1,695	1,239	1,017	105
Second quarter .....	1,899	2,241	1,853	1,324	1,171	132
Third quarter .....	1,928	2,166	1,811	1,275	1,250	138
Fourth quarter .....	1,856	2,123	1,804	1,293	1,004	107
<b>1995</b>						
<b>Total</b> .....	<b>7,129</b>	<b>8,829</b>	<b>6,652</b>	<b>4,961</b>	<b>3,904</b>	<b>442</b>
First quarter .....	1,899	2,442	1,843	1,356	954	114
Second quarter .....	1,786	2,265	1,678	1,245	965	103
Third quarter .....	1,784	2,124	1,639	1,239	990	120
Fourth quarter .....	1,660	1,998	1,492	1,122	995	105
<b>1994</b>						
<b>Total</b> .....	<b>6,982</b>	<b>9,685</b>	<b>7,559</b>	<b>5,034</b>	<b>3,826</b>	<b>426</b>
First quarter .....	1,710	2,275	1,801	1,258	893	98
Second quarter .....	1,739	2,504	1,915	1,327	964	107
Third quarter .....	1,825	2,470	1,934	1,233	1,003	117
Fourth quarter .....	1,708	2,436	1,909	1,216	966	105

Note: Detail may not add to totals because of independent rounding.

**Table 20. Total Production and Shipments of Plumbing Fixtures: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments	
				Quantity	Value
<b>1997</b>					
	Plumbing fixtures .....	(NA)	(X)	(X)	3,322,739
	Drinking fountains <sup>1</sup> .....	(NA)	50,083	50,239	14,472
34310 15	Metal .....	5	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup> .....	3	(D)	(D)	(D)
19001 12	All other materials <sup>1</sup> .....	2	(D)	(D)	(D)
	Lavatories .....	(NA)	7,516,050	7,459,563	375,357
34310 17	Cast iron (enameled) <sup>2</sup> .....	4	(D)	(D)	(D)
34310 18	Steel (enameled) .....	6	1,677,309	1,644,886	26,426
34310 19	Steel (stainless) .....	7	29,249	28,602	6,001
32610 17	Vitreous china .....	11	3,235,209	3,249,276	157,374
30880 04	Cultured marble .....	80	1,918,928	1,894,695	132,065
30880 31	Other plastics <sup>2</sup> .....	8	655,462	642,104	53,491
19001 03	All other material <sup>2</sup> .....	3	(D)	(D)	(D)
	Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral <sup>3</sup> .....	(NA)	8,051,614	8,106,944	459,258
	Vitreous china 17 inches from floor to rim of bowl: Close coupled for use with flush tank:				
	Gravity and pressurized .....	10	2,316,271	2,307,710	107,229
32610 18, 22					
	One-piece:				
	Gravity and pressurized .....	1	(D)	(D)	(D)
32610 25, 26					
	Flushometer value:				
	Floor mounted .....	4	(D)	(D)	(D)
32610 28					
	Less than 17 inches from floor to rim of bowl: Close coupled for use with flush tank:				
	Gravity and pressurized .....	7	4,303,622	4,289,444	175,791
32610 32, 34					
	One-piece:				
	Gravity .....	5	362,132	376,274	(D)
32610 38					
	Pressurized .....	3	(D)	(D)	(D)
32610 42					
	Flushometer valve:				
	Wall mounted .....	5	(D)	270,316	17,361
32610 44					
	Floor mounted .....	5	193,904	207,417	14,225
32610 46					
	Blowout 3.5 g.p.f.:				
	Vitreous china <sup>3</sup> .....	5	(D)	(D)	(D)
32610 48					
	Any bowl style:				
	All materials other than vitreous china <sup>3</sup> .....	7	(D)	(D)	(D)
19001 17					
	Flush tanks (vitreous china) .....	10	6,853,894	7,109,538	252,217
32610 31					
	Urinals .....	(NA)	287,396	303,058	32,635
34310 38					
	Metal .....	7	4,070	4,057	2,080
32610 36					
	Vitreous china .....	9	283,326	299,001	30,555
	Kitchen sinks, not including bar inks <sup>4</sup> .....	(NA)	5,238,719	5,328,511	348,154
34310 41					
	Cast iron (enameled) <sup>4</sup> .....	3	(D)	(D)	117,813
34310 42					
	Steel (enameled) .....	7	325,454	392,265	12,931
34310 47					
	Steel (stainless) .....	7	3,852,790	3,883,647	186,847
19001 07					
	All other materials <sup>4</sup> .....	12	(D)	(D)	117,813
19001 08					
	Bar sinks (all materials) .....	24	359,146	361,353	21,396
	Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> .....	(NA)	822,956	819,033	62,967
34310 54					
	Metal .....	9	64,464	66,078	33,151
30880 33					
	Plastics .....	6	728,913	725,932	14,018
32610 54					
	Vitreous china .....	4	11,808	10,866	3,413
32722 84					
	Concrete and all other materials <sup>5</sup> .....	4	(D)	(D)	(D)
	Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> .....	(NA)	4,491,728	4,495,447	662,488
34310 61					
	Cast iron (enameled) <sup>6</sup> .....	2	(D)	(D)	(D)
34310 62					
	Steel (enameled) .....	5	882,457	893,725	60,415
30880 12					
	Fiberglass (FRP) gel coat .....	30	2,497,896	2,496,928	409,168
30880 13					
	Fiberglass (FRP) acrylic .....	29	207,149	205,584	56,576
30880 14					
	Cultured marble .....	56	20,430	20,241	11,162
30880 15					
	Other plastics (PVC, ABS) .....	11	470,730	466,192	31,729
19001 09					
	All other materials <sup>6</sup> .....	2	(D)	(D)	(D)
	Shower receptors, sold separately .....	(NA)	309,853	305,617	19,581
30886 55					
	Plastics .....	25	293,342	287,023	15,104
19001 10					
	All other materials .....	35	16,511	18,594	4,477

See footnotes at end of table.

Table 20. **Total Production and Shipments of Plumbing Fixtures: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments	
				Quantity	Value
<b>1997—Con.</b>					
Plumbing fixtures—Con.					
	Shower stalls, including receptor <sup>7</sup> . . . . .	(NA)	1,027,859	1,014,544	210,117
34310 74	Metal <sup>7</sup> . . . . .	2	(D)	(D)	(D)
30880 21	Fiberglass (FRP) gel coat . . . . .	26	674,374	665,200	128,364
30880 22	Fiberglass (FRP) acrylic . . . . .	15	104,099	100,531	39,306
30880 23	Other plastics . . . . .	13	111,025	110,895	8,901
19001 11	All other materials <sup>7</sup> . . . . .	22	(D)	(D)	(D)
	Wall surrounds, sold as separate units . . . . .	(NA)	1,085,976	1,136,488	70,666
30880 70	Showers (all materials) . . . . .	57	280,511	307,189	21,418
30880 71	Bathtubs (all materials) . . . . .	47	805,465	829,299	49,248
19222 08	Bidets (all materials) . . . . .	9	44,471	46,836	6,194
	Whirlpool baths, not spas or hot tubs (noninstitutional) <sup>8</sup> . . . . .	(NA)	498,349	488,516	329,291
34310 86	Cast iron (enameled) <sup>8</sup> . . . . .	2	(D)	(D)	(D)
30880 26	Fiberglass (FRP) gel coat . . . . .	22	40,603	41,060	27,725
30880 27	Fiberglass (FRP) acrylic . . . . .	36	403,973	391,420	262,904
30880 28	Cultured marble . . . . .	55	9,027	8,840	10,142
30886 29	Other plastics . . . . .	8	38,556	40,917	18,316
19001 12	All other materials <sup>8</sup> . . . . .	2	(D)	(D)	(D)
19001 13, 15	Hot tubs and spas (noninstitutional, all materials) . . . . .	29	156,049	155,895	401,102
	All other fixtures not described above . . . . .	(NA)	(X)	(X)	54,372
30882 20	Plastics . . . . .	7	(X)	(X)	441
19002 20	All other materials . . . . .	12	(X)	(X)	53,931
<b>1996</b>					
	Plumbing fixtures . . . . .	(NA)	(X)	(X)	3,144,297
	Drinking fountains <sup>1</sup> . . . . .	(NA)	44,411	44,363	12,606
34310 15	Metal <sup>1</sup> . . . . .	5	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup> . . . . .	4	(D)	(D)	(D)
19001 12	All other materials <sup>1</sup> . . . . .	2	(D)	(D)	(D)
	Lavatories . . . . .	(NA)	7,524,025	7,458,077	360,756
34310 17	Cast iron (enameled) <sup>2</sup> . . . . .	2	(D)	(D)	(D)
34310 18	Steel (enameled) . . . . .	3	1,812,965	1,716,000	27,960
34310 19	Steel (stainless) . . . . .	5	26,321	26,403	5,239
32610 17	Vitreous china . . . . .	8	3,323,753	3,335,870	156,291
30880 04	Cultured marble . . . . .	4	1,811,431	1,802,067	123,551
30880 31	Other plastics <sup>2</sup> . . . . .	6	549,598	577,737	47,715
19001 03	All other material <sup>2</sup> . . . . .	1	(D)	(D)	(D)
	Water closet bowls (vitreous china) . . . . .	(NA)	8,589,949	8,623,466	476,600
19002 02	1.6 or less g.p.f. low consumption (any material) . . . . .	8	6,707,529	6,789,057	363,471
32610 21	Flushometer . . . . .	7	487,912	511,655	37,825
32610 24	One piece . . . . .	6	37,294	41,250	8,682
32610 27	Close couple (for use with flush tank) <sup>3</sup> . . . . .	11	1,357,214	1,281,504	66,622
19001 04	All other materials <sup>3</sup> . . . . .	5	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china) . . . . .	8	6,921,301	7,163,397	241,844
	Urinals . . . . .	(NA)	262,644	274,909	29,227
34310 38	Metal . . . . .	5	5,844	4,845	2,506
32610 36	Vitreous china . . . . .	8	256,800	270,064	26,721
	Kitchen sinks, not including bar sinks <sup>4</sup> . . . . .	(NA)	5,154,306	5,130,849	314,174
34310 41	Cast iron (enameled) <sup>4</sup> . . . . .	2	(D)	(D)	(D)
34310 42	Steel (enameled) . . . . .	4	454,373	423,399	12,369
34310 47	Steel (stainless) . . . . .	4	3,711,647	3,702,353	174,548
19001 07	All other materials <sup>4</sup> . . . . .	8	(D)	(D)	(D)
19001 08	Bar sinks (all materials) . . . . .	20	359,146	361,353	21,396
	Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> . . . . .	(NA)	654,770	657,340	50,825
34310 54	Metal . . . . .	5	55,631	55,962	23,567
30880 33	Plastics <sup>5</sup> . . . . .	3	(D)	(D)	(D)
32610 54	Vitreous china . . . . .	4	9,028	8,817	2,750
32722 84	Concrete and all other materials . . . . .	4	10,952	15,027	10,559

See footnotes at end of table.

Table 20. **Total Production and Shipments of Plumbing Fixtures: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments	
				Quantity	Value
<b>1996—Con.</b>					
Plumbing fixtures—Con.					
Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> .....					
		(NA)	4,375,433	4,442,183	655,411
34310 61	Cast iron (enameled) <sup>5</sup> .....	2	(D)	(D)	(D)
34310 62	Steel (enameled).....	3	976,770	953,159	67,174
30880 12	Fiberglass (FRP) gel coat.....	31	2,344,821	2,346,890	409,984
30880 13	Fiberglass (FRP) acrylic.....	12	176,171	269,532	47,899
30880 14	Cultured marble.....	51	18,936	18,965	10,298
30880 15	Other plastics (PVC, ABS) <sup>6</sup> .....	7	(D)	(D)	(D)
19001 09	All other materials <sup>6</sup> .....	2	(D)	(D)	(D)
Shower receptors, sold separately.....					
30886 55	Plastics.....	(NA)	312,949	309,767	17,593
19001 10	All other materials.....	20	298,287	290,909	13,319
		28	14,662	18,858	4,274
Shower stalls, including receptor.....					
		(NA)	922,657	920,501	178,118
34310 74	Metal <sup>7</sup> .....	3	128,635	129,765	29,049
30880 21	Fiberglass (FRP) gel coat.....	25	564,399	564,305	105,582
30880 22	Fiberglass (FRP) acrylic.....	9	99,942	95,722	35,242
30880 23	Other plastics.....	5	129,681	130,709	8,245
19001 11	All other materials <sup>7</sup> .....	19	(D)	(D)	(D)
Wall surrounds, sold as separate units.....					
30880 70	Showers (all materials).....	(NA)	1,361,565	1,350,118	77,717
30880 71	Bathtubs (all materials).....	44	364,978	373,643	25,482
		44	996,587	976,475	52,235
19222 08	Bidets (all materials).....	9	38,172	42,459	5,913
Whirlpool baths, not spas or hot tubs (noninstitutional).....					
		(NA)	483,271	483,363	318,799
34310 86	Cast iron (enameled) <sup>8</sup> .....	2	5,843	6,064	10,328
30880 26	Fiberglass (FRP) gel coat.....	22	42,562	42,697	27,049
30880 27	Fiberglass (FRP) acrylic.....	33	385,227	386,186	251,853
30880 28	Cultured marble.....	52	7,916	7,848	9,333
30886 29	Other plastics.....	6	41,723	40,568	20,236
19001 12	All other materials <sup>8</sup> .....	3	(D)	(D)	(D)
19001 13, 15	Hot tubs and spas (noninstitutional, all materials).....	28	130,968	132,389	338,593
All other fixtures not described above.....					
30882 20	Plastics.....	(NA)	(X)	(X)	44,725
19002 20	All other materials.....	5	(X)	(X)	471
		7	(X)	(X)	44,254

D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plywood. NA Not available. X Not applicable.

<sup>1</sup>“Drinking fountains, metal,” “Drinking fountains, vitreous china,” and “Drinking fountains, all other materials” are included with “Drinking fountains” to avoid disclosing data for individual companies.

<sup>2</sup>“Lavatories, cast iron (enameled)” and “Lavatories, all other materials” are included with “Lavatories, other plastics” to avoid disclosing data for individual companies.

<sup>3</sup>For 1997, “Blowout 3.5 g.p.f.” and “Any bowl style,” are included with “Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral” to avoid disclosing data for individual companies. For 1996, “Water closet bowls, close couple” are included with “Water closet bowls, all other materials” to avoid disclosing data for individual companies.

<sup>4</sup>For 1997, quantity produced and shipments for “Kitchen sinks, cast iron (enameled)” and “Kitchen sinks, all other materials” are included with “Kitchen sinks, not including bar sinks” to avoid disclosing data for individual companies. For 1996, quantity produced, shipments and value for “Kitchen sinks, cast iron (enameled)” and “Kitchen sinks, all other materials” are included with “Kitchen sinks, not including bar sinks” to avoid disclosing data for individual companies.

<sup>5</sup>For 1997, “Wash sinks, concrete and all other material” are included with “Wash sinks, total” to avoid disclosing data for individual companies. For 1996 “Wash sinks, plastics” are included with “Wash sinks, total” to avoid disclosing data for individual companies.

<sup>6</sup>For 1997, “Bathtubs, cast iron (enameled),” and “Bathtubs, all other materials” are included with “Bathtubs, total” to avoid disclosing data for individual companies. For 1996, “Bathtubs, cast iron (enameled),” “Bathtubs, other plastics (PVC, ABS),” and “Bathtubs, all other materials” are included with “Bathtubs, total” to avoid disclosing data for individual companies.

<sup>7</sup>For 1997, “Shower stalls, metal” and “Shower stalls, all other materials,” are included with “Shower stalls, total” to avoid disclosing data for individual companies. For 1996 “Shower stalls, all other materials” are included with “Shower stalls, metal” to avoid disclosing data for individual companies.

<sup>8</sup>For 1997, “Whirlpool baths, cast iron (enameled)” and “Whirlpool baths, all other materials” are included with “Whirlpool baths, total” to avoid disclosing data for individual companies. For 1996, “Whirlpool baths, all other materials” are included with “Whirlpool baths, cast iron (enameled)” to avoid disclosing data for individual companies.

**Table 21. Production, Shipments, and Stocks of Plumbing Fixtures: 1997**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FIRST QUARTER</b>						
	Plumbing fixtures.....	(NA)	(X)	(X)	719,530	(X)
	Drinking fountains <sup>1</sup> .....	(NA)	9,991	9,785	2,839	901
34310 15	Metal <sup>1</sup> .....	5	(D)	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup> .....	3	(D)	(D)	(D)	(D)
19001 02	All other materials <sup>1</sup> .....	2	(D)	(D)	(D)	(D)
	Lavatories.....	(NA)	<sup>r</sup> 1,914,508	1,925,672	<sup>r</sup> 96,612	543,765
34310 17	Cast iron (enameled) <sup>2</sup> .....	4	(D)	(D)	(D)	(D)
34310 18	Steel (enameled).....	6	417,464	<sup>r</sup> 437,411	<sup>r</sup> 7,196	92,657
34310 19	Steel (stainless).....	7	<sup>r</sup> 7,412	<sup>r</sup> 7,230	<sup>r</sup> 1,547	(D)
32610 17	Vitreous china.....	11	<sup>a</sup> 848,967	<sup>a</sup> 850,313	41,545	<sup>a</sup> 332,780
30880 04	Cultured marble.....	80	<sup>b</sup> 470,500	<sup>b</sup> 470,035	<sup>b</sup> 32,944	<sup>b</sup> 66,370
30880 31	Other plastics <sup>2</sup> .....	8	<sup>b</sup> 170,164	<sup>b</sup> 160,683	<sup>b</sup> 13,379	(D)
19001 03	All other materials <sup>2</sup> .....	3	(D)	(D)	(D)	(D)
	Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral <sup>3</sup> .....	(NA)	<sup>r</sup> 2,049,531	<sup>r</sup> 2,050,804	<sup>r</sup> 116,617	<sup>r</sup> 585,215
	Vitreous china:					
	17 inches from floor to rim of bowl:					
	Close coupled for use with flush tank:					
32610 18, 22	Gravity and pressurized.....	10	<sup>r</sup> 615,462	<sup>r</sup> 639,870	<sup>r</sup> 29,204	<sup>r</sup> 207,853
	One-piece:					
32610 25, 26	Gravity and pressurized.....	1	(D)	(D)	(D)	(D)
	Flushometer value:					
32610 28	Floor mounted.....	4	(D)	(D)	(D)	(D)
	Less than 17 inches from floor to rim of bowl:					
	Close coupled for use with flush tank:					
32610 32, 34	Gravity and pressurized.....	7	<sup>r</sup> 1,060,250	<sup>r</sup> 1,026,706	<sup>r</sup> 43,718	<sup>r</sup> 234,607
	One-piece:					
32610 38	Gravity.....	5	<sup>r</sup> 86,676	<sup>r</sup> 88,635	(D)	(D)
32610 42	Pressurized.....	3	(D)	(D)	(D)	(D)
	Flushometer valve:					
32610 44	Wall mounted.....	5	(D)	71,087	4,495	15,223
32610 46	Floor mounted.....	5	38,944	47,133	3,191	10,913
	Blowout 3.5 g.p.f.:					
32610 48	Vitreous china <sup>3</sup> .....	5	(D)	(D)	(D)	(D)
	Any bowl style:					
19001 17	All materials other than vitreous china <sup>3</sup> .....	7	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china).....	10	<sup>a</sup> 1,664,321	<sup>a</sup> 1,780,904	<sup>a</sup> 65,683	<sup>a</sup> 418,680
	Urinals.....	(NA)	74,000	<sup>r</sup> 74,406	<sup>r</sup> 8,132	24,362
34310 38	Metal.....	7	<sup>a</sup> 1,488	<sup>b</sup> 1,138	<sup>b</sup> 660	(D)
32610 36	Vitreous china.....	9	72,512	<sup>r</sup> 73,268	<sup>r</sup> 7,472	(D)
	Kitchen sinks, not including bar sinks <sup>4</sup> .....	(NA)	1,296,297	1,306,686	83,122	174,170
34310 41	Cast iron (enameled) <sup>4</sup> .....	3	(D)	(D)	<sup>r</sup> 28,930	(D)
34310 42	Steel (enameled).....	7	<sup>b</sup> 77,765	<sup>b</sup> 104,031	<sup>b</sup> 3,492	19,834
34310 47	Steel (stainless).....	7	<sup>a</sup> 956,636	<sup>b</sup> 960,206	44,962	<sup>b</sup> 85,918
19001 07	All other materials <sup>4</sup> .....	12	(D)	(D)	<sup>b</sup> 5,739	(D)
19001 08	Bar sinks (all materials).....	24	93,841	92,638	<sup>r</sup> 5,831	<sup>r</sup> 15,046
	Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> .....	(NA)	<sup>r</sup> 206,507	<sup>r</sup> 205,571	<sup>r</sup> 25,187	25,296
34310 54	Metal.....	9	<sup>b</sup> 16,228	<sup>a</sup> 17,658	<sup>b</sup> 17,832	<sup>b</sup> 5,013
30880 33	Plastics <sup>5</sup> .....	6	<sup>b</sup> 182,228	<sup>b</sup> 181,483	<sup>b</sup> 3,505	(D)
32610 54	Vitreous china <sup>5</sup> .....	4	(D)	(D)	(D)	(D)
32722 84	Concrete and all other materials <sup>5</sup> .....	4	(D)	(D)	(D)	(D)
	Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> .....	(NA)	1,139,095	1,102,213	158,228	142,151
34310 61	Cast iron (enameled) <sup>6</sup> .....	2	(D)	(D)	(D)	(D)
34310 62	Steel (enameled).....	5	<sup>b</sup> 219,659	<sup>b</sup> 230,569	<sup>b</sup> 16,368	(D)
30880 12	Fiberglass (FRP) gel coat.....	30	<sup>a</sup> 578,567	<sup>a</sup> 570,020	<sup>a</sup> 92,905	<sup>a</sup> 63,200
30880 13	Fiberglass (FRP) acrylic.....	29	<sup>a</sup> 50,087	<sup>a</sup> 50,875	<sup>a</sup> 14,026	9,360
30880 14	Cultured marble.....	56	<sup>b</sup> 3,111	<sup>b</sup> 3,571	<sup>b</sup> 1,919	(D)
30880 15	Other plastics (PVC, ABS).....	11	<sup>b</sup> 178,779	<sup>b</sup> 142,861	<sup>b</sup> 9,722	(D)
19001 09	All other materials <sup>6</sup> .....	2	(D)	(D)	(D)	(D)

See footnotes at end of table.



Table 21. **Production, Shipments, and Stocks of Plumbing Fixtures: 1997—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FIRST QUARTER—Con.</b>						
Plumbing fixtures—Con.						
30886 55	Shower receptors, sold separately . . . . .	(NA)	<sup>r</sup> 74,784	<sup>r</sup> 77,880	4,688	17,561
19001 10	Plastics . . . . .	25	<sup>b</sup> <sup>r</sup> 71,357	<sup>b</sup> <sup>r</sup> 74,170	<sup>b</sup> <sup>r</sup> 3,792	(D)
	All other materials . . . . .	35	<sup>r</sup> 3,427	<sup>a</sup> <sup>r</sup> 3,710	<sup>a</sup> <sup>r</sup> 896	(D)
Shower stalls, including receptor <sup>7</sup> . . . . .						
34310 74	Metal <sup>7</sup> . . . . .	(NA)	<sup>r</sup> 255,790	<sup>r</sup> 252,844	<sup>r</sup> 51,266	<sup>r</sup> 25,742
30880 21	Fiberglass (FRP) gel coat . . . . .	2	(D)	(D)	(D)	(D)
30880 22	Fiberglass (FRP) acrylic . . . . .	26	<sup>a</sup> <sup>r</sup> 165,741	<sup>a</sup> <sup>r</sup> 162,863	<sup>a</sup> <sup>r</sup> 30,849	<sup>b</sup> <sup>r</sup> 16,464
30880 23	Other plastics . . . . .	15	<sup>a</sup> <sup>r</sup> 25,160	<sup>a</sup> <sup>r</sup> 24,322	<sup>a</sup> <sup>r</sup> 9,611	<sup>r</sup> 2,998
19001 11	All other materials <sup>7</sup> . . . . .	13	<sup>b</sup> <sup>r</sup> 30,229	<sup>b</sup> <sup>r</sup> 31,110	<sup>b</sup> <sup>r</sup> 2,328	(D)
		22	(D)	(D)	(D)	(D)
Wall surrounds, sold as separate units . . . . .						
30880 70	Showers (all materials) . . . . .	(NA)	<sup>r</sup> 324,624	<sup>r</sup> 345,746	<sup>r</sup> 20,813	<sup>r</sup> 29,561
30880 71	Bathtubs (all materials) . . . . .	57	<sup>b</sup> <sup>r</sup> 84,836	<sup>b</sup> <sup>r</sup> 83,618	<sup>b</sup> <sup>r</sup> 6,052	(D)
		47	<sup>b</sup> <sup>r</sup> 239,787	<sup>b</sup> <sup>r</sup> 262,127	<sup>b</sup> <sup>r</sup> 14,760	(D)
19222 08	Bidets (all materials) . . . . .	9	<sup>r</sup> 10,859	12,063	1,602	<sup>r</sup> 8,553
Whirlpool baths, not spas or hot tubs (noninstitutional) <sup>8</sup> . . . . .						
34310 86	Cast iron (enameled) <sup>8</sup> . . . . .	(NA)	114,383	114,393	77,802	27,564
30880 26	Fiberglass (FRP) gel coat . . . . .	2	(D)	(D)	(D)	(D)
30880 27	Fiberglass (FRP) acrylic . . . . .	22	<sup>b</sup> <sup>r</sup> 8,994	<sup>b</sup> <sup>r</sup> 9,009	<sup>b</sup> <sup>r</sup> 6,140	<sup>b</sup> <sup>r</sup> 2,233
30880 28	Cultured marble . . . . .	36	<sup>a</sup> <sup>r</sup> 91,920	<sup>a</sup> <sup>r</sup> 89,820	<sup>a</sup> <sup>r</sup> 61,542	<sup>b</sup> <sup>r</sup> 21,313
30886 29	Other plastics . . . . .	55	<sup>b</sup> <sup>r</sup> 2,064	<sup>b</sup> <sup>r</sup> 2,043	<sup>b</sup> <sup>r</sup> 2,342	<sup>b</sup> <sup>r</sup> 2,580
19001 12	All other materials <sup>8</sup> . . . . .	8	<sup>a</sup> <sup>r</sup> 9,673	<sup>a</sup> <sup>r</sup> 11,789	<sup>r</sup> 5,044	(D)
		2	(D)	(D)	(D)	(D)
19001 13, 15	Hot tubs and spas (noninstitutional, all materials) . . . . .	29	<sup>b</sup> <sup>r</sup> 34,333	<sup>b</sup> <sup>r</sup> 28,804	<sup>b</sup> <sup>r</sup> 75,741	7,991
All other fixtures not described above . . . . .						
30882 20	Plastics . . . . .	(NA)	(X)	(X)	11,731	(X)
19002 20	All other materials . . . . .	7	(X)	(X)	<sup>b</sup> <sup>r</sup> 112	(X)
		12	(X)	(X)	<sup>b</sup> <sup>r</sup> 11,620	(X)
<b>SECOND QUARTER</b>						
Plumbing fixtures . . . . .						
34310 15	Drinking fountains <sup>1</sup> . . . . .	(NA)	(X)	(X)	861,666	(X)
32610 12	Metal <sup>1</sup> . . . . .	(NA)	13,624	13,770	3,794	745
19001 02	Vitreous china <sup>1</sup> . . . . .	5	(D)	(D)	(D)	(D)
	All other materials <sup>1</sup> . . . . .	3	(D)	(D)	(D)	(D)
		2	(D)	(D)	(D)	(D)
Lavatories . . . . .						
34310 17	Cast iron (enameled) <sup>2</sup> . . . . .	(NA)	<sup>r</sup> 1,909,728	1,934,146	<sup>r</sup> 99,208	547,258
34310 18	Steel (enameled) . . . . .	4	(D)	(D)	(D)	(D)
34310 19	Steel (stainless) . . . . .	6	432,412	411,801	6,706	113,268
32610 17	Vitreous china . . . . .	7	<sup>r</sup> 6,683	<sup>r</sup> 7,002	<sup>r</sup> 1,435	<sup>r</sup> 675
30880 04	Cultured marble . . . . .	11	<sup>a</sup> <sup>r</sup> 828,182	<sup>a</sup> <sup>r</sup> 865,966	<sup>r</sup> 42,555	<sup>a</sup> <sup>r</sup> 311,642
30880 31	Other plastics <sup>2</sup> . . . . .	80	<sup>b</sup> <sup>r</sup> 466,027	<sup>b</sup> <sup>r</sup> 482,393	<sup>b</sup> <sup>r</sup> 34,500	<sup>b</sup> <sup>r</sup> 62,430
19001 03	All other materials <sup>2</sup> . . . . .	8	<sup>b</sup> <sup>r</sup> 176,531	<sup>b</sup> <sup>r</sup> 166,984	<sup>b</sup> <sup>r</sup> 14,013	<sup>r</sup> 59,243
		3	(D)	(D)	(D)	(D)
Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral <sup>3</sup> . . . . .						
Vitreous china:						
17 inches from floor to rim of bowl:						
Close coupled for use with flush tank:						
32610 18, 22	Gravity and pressurized . . . . .	10	<sup>r</sup> 619,067	<sup>r</sup> 604,528	<sup>r</sup> 28,107	<sup>r</sup> 215,918
One-piece:						
32610 25, 26	Gravity and pressurized . . . . .	1	(D)	(D)	(D)	(D)
Flushometer valve:						
32610 28	Floor mounted . . . . .	4	(D)	(D)	(D)	(D)
Less than 17 inches from floor to rim of bowl:						
Close coupled for use with flush tank:						
32610 32, 34	Gravity and pressurized . . . . .	7	<sup>r</sup> 1,104,519	<sup>r</sup> 1,066,951	<sup>r</sup> 44,382	<sup>r</sup> 276,789
One-piece:						
32610 38	Gravity . . . . .	5	91,397	91,762	(D)	(D)
32610 42	Pressurized . . . . .	3	(D)	(D)	(D)	(D)
Flushometer valve:						
32610 44	Wall mounted . . . . .	5	(D)	<sup>r</sup> 63,720	<sup>r</sup> 4,150	<sup>r</sup> 12,348
32610 46	Floor mounted . . . . .	5	<sup>r</sup> 49,419	<sup>r</sup> 51,214	<sup>r</sup> 3,623	<sup>r</sup> 9,093

See footnotes at end of table.

**Table 21. Production, Shipments, and Stocks of Plumbing Fixtures: 1997—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>SECOND QUARTER—Con.</b>						
Plumbing fixtures—Con.						
Blowout 3.5 g.p.f.:						
32610 48	Vitreous china <sup>3</sup> .....	5	(D)	(D)	(D)	(D)
Any bowl style:						
19001 17	All materials other than vitreous china <sup>3</sup> .....	7	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china).....	10	<sup>a</sup> 1,769,536	<sup>a</sup> 1,803,577	<sup>a</sup> 64,407	<sup>a</sup> 379,775
Urinals.....		(NA)	72,322	80,689	8,625	20,200
34310 38	Metal.....	7	<sup>a</sup> 1,027	<sup>b</sup> 1,021	<sup>b</sup> 544	(D)
32610 36	Vitreous china.....	9	71,295	79,668	8,080	(D)
Kitchen sinks, not including bar sinks <sup>4</sup> .....		(NA)	1,346,980	1,350,156	88,859	194,345
34310 41	Cast iron (enameled) <sup>4</sup> .....	3	(D)	(D)	29,573	(D)
34310 42	Steel (enameled).....	7	<sup>b</sup> 78,143	<sup>b</sup> 91,965	<sup>b</sup> 2,933	17,292
34310 47	Steel (stainless).....	7	<sup>a</sup> 981,099	<sup>b</sup> 993,633	48,128	<sup>b</sup> 86,576
19001 07	All other materials <sup>4</sup> .....	12	(D)	(D)	<sup>b</sup> 8,225	(D)
19001 08	Bar sinks (all materials).....	24	97,107	96,909	<sup>r</sup> 5,844	<sup>r</sup> 14,404
Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> .....						
		(NA)	<sup>r</sup> 208,093	<sup>r</sup> 206,800	<sup>r</sup> 13,201	25,423
34310 54	Metal.....	9	<sup>b</sup> 17,372	<sup>a</sup> 17,537	<sup>b</sup> 5,547	<sup>b</sup> 4,803
30880 33	Plastics.....	6	<sup>b</sup> 182,228	<sup>b</sup> 181,483	<sup>b</sup> 3,505	(D)
32610 54	Vitreous china.....	4	(D)	(D)	(D)	<sup>r</sup> 2,723
32722 84	Concrete and all other materials <sup>5</sup> .....	4	(D)	(D)	(D)	(D)
Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> .....						
		(NA)	<sup>r</sup> 1,153,208	<sup>r</sup> 1,170,702	<sup>r</sup> 171,965	<sup>r</sup> 157,256
34310 61	Cast iron (enameled) <sup>6</sup> .....	2	(D)	(D)	(D)	(D)
34310 62	Steel (enameled).....	5	<sup>b</sup> 229,129	<sup>b</sup> 223,643	<sup>b</sup> 14,867	23,877
30880 12	Fiberglass (FRP) gel coat.....	30	<sup>a</sup> 667,080	<sup>a</sup> 670,952	<sup>a</sup> 108,284	<sup>a</sup> 57,691
30880 13	Fiberglass (FRP) acrylic.....	29	<sup>a</sup> 53,477	<sup>a</sup> 53,525	<sup>a</sup> 14,790	8,678
30880 14	Cultured marble.....	56	<sup>b</sup> 4,895	<sup>b</sup> 4,851	<sup>b</sup> 2,705	(D)
30880 15	Other plastics (PVC, ABS).....	11	<sup>b</sup> 81,437	<sup>b</sup> 115,219	<sup>b</sup> 7,838	(D)
19001 09	All other materials <sup>6</sup> .....	2	(D)	(D)	(D)	(D)
Shower receptors, sold separately.....						
		(NA)	<sup>r</sup> 79,305	76,714	4,746	17,561
30886 55	Plastics.....	25	<sup>b</sup> 75,574	<sup>b</sup> 73,139	<sup>b</sup> 3,881	(D)
19001 10	All other materials.....	35	<sup>r</sup> 3,731	<sup>a</sup> 3,576	<sup>a</sup> 865	(D)
Shower stalls, including receptor.....						
		(NA)	<sup>r</sup> 258,441	<sup>r</sup> 256,452	52,946	24,911
34310 74	Metal <sup>7</sup> .....	2	(D)	(D)	(D)	(D)
30880 21	Fiberglass (FRP) gel coat.....	26	<sup>a</sup> 170,386	<sup>a</sup> 169,114	<sup>a</sup> 32,436	<sup>b</sup> 15,747
30880 22	Fiberglass (FRP) acrylic.....	15	<sup>a</sup> 26,483	<sup>a</sup> 25,496	<sup>a</sup> 9,976	<sup>r</sup> 2,983
30880 23	Other plastics.....	13	<sup>b</sup> 27,076	<sup>b</sup> 27,456	<sup>b</sup> 2,271	(D)
19001 11	All other materials <sup>7</sup> .....	22	(D)	(D)	(D)	(D)
Wall surrounds, sold as separate units.....						
		(NA)	<sup>r</sup> 268,445	<sup>r</sup> 274,346	17,387	<sup>r</sup> 33,899
30880 70	Showers (all materials).....	57	<sup>b</sup> 71,172	<sup>b</sup> 77,887	<sup>b</sup> 5,358	(D)
30880 71	Bathtubs (all materials).....	47	<sup>b</sup> 197,273	<sup>b</sup> 196,459	<sup>b</sup> 12,028	(D)
19222 08	Bidets (all materials).....	9	<sup>r</sup> 10,566	11,541	1,554	<sup>r</sup> 7,614
Whirlpool baths, not spas or hot tubs (noninstitutional).....						
		(NA)	130,268	125,036	82,751	28,868
34310 86	Cast iron (enameled) <sup>8</sup> .....	2	(D)	(D)	(D)	(D)
30880 26	Fiberglass (FRP) gel coat.....	22	<sup>b</sup> 10,629	<sup>b</sup> 10,546	<sup>b</sup> 6,945	<sup>b</sup> 2,062
30880 27	Fiberglass (FRP) acrylic.....	36	<sup>a</sup> 105,250	<sup>a</sup> 99,895	<sup>a</sup> 66,123	<sup>b</sup> 23,451
30880 28	Cultured marble.....	55	<sup>b</sup> 2,022	<sup>b</sup> 2,043	<sup>b</sup> 2,348	<sup>b</sup> 2,528
30886 29	Other plastics.....	8	<sup>a</sup> 10,558	<sup>a</sup> 10,960	<sup>r</sup> 4,748	(D)
19001 12	All other materials <sup>8</sup> .....	2	(D)	(D)	(D)	(D)
19001 13, 15	Hot tubs and spas (noninstitutional, all materials).....	29	<sup>b</sup> 43,721	<sup>b</sup> 45,372	<sup>b</sup> 115,434	<sup>r</sup> 7,829
All other fixtures not described above.....						
		(NA)	(X)	(X)	<sup>r</sup> 14,248	(X)
30882 20	Plastics.....	7	(X)	(X)	<sup>b</sup> 113	(X)
19002 20	All other materials.....	12	(X)	(X)	<sup>b</sup> 14,136	(X)

See footnotes at end of table.

**Table 21. Production, Shipments, and Stocks of Plumbing Fixtures: 1997—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>THIRD QUARTER</b>						
	Plumbing fixtures . . . . .	(NA)	(X)	(X)	867,340	(X)
	Drinking fountains . . . . .	(NA)	15,470	15,573	4,478	594
34310 15	Metal <sup>1</sup> . . . . .	5	(D)	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup> . . . . .	3	(D)	(D)	(D)	(D)
19001 02	All other materials <sup>1</sup> . . . . .	2	(D)	(D)	(D)	(D)
	Lavatories . . . . .	(NA)	1,838,879	1,807,174	88,145	579,234
34310 17	Cast iron (enameled) <sup>2</sup> . . . . .	4	(D)	(D)	(D)	(D)
34310 18	Steel (enameled) . . . . .	6	431,691	403,254	6,328	142,099
34310 19	Steel (stainless) . . . . .	7	7,700	7,034	1,430	1,276
32610 17	Vitreous china . . . . .	11	<sup>a</sup> 765,530	<sup>a</sup> 755,778	35,577	<sup>a</sup> 325,560
30880 04	Cultured marble . . . . .	80	<sup>b</sup> 491,370	<sup>b</sup> 479,112	<sup>b</sup> 31,167	<sup>b</sup> 65,397
30880 31	Other plastics <sup>2</sup> . . . . .	8	<sup>b</sup> 142,589	<sup>b</sup> 161,997	<sup>b</sup> 13,643	<sup>b</sup> 44,902
19001 03	All other materials <sup>2</sup> . . . . .	3	(D)	(D)	(D)	(D)
	Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral <sup>3</sup> . . . . .	(NA)	1,995,805	2,017,486	114,065	625,232
	Vitreous china:					
	17 inches from floor to rim of bowl:					
	Close coupled for use with flush tank:					
	Gravity and pressurized . . . . .	10	542,185	534,152	25,763	222,351
32610 18, 22						
	One-piece:					
	Gravity and pressurized . . . . .	1	(D)	(D)	(D)	(D)
32610 25, 26						
	Flushometer valve:					
	Floor mounted . . . . .	4	(D)	(D)	(D)	(D)
32610 28						
	Less than 17 inches from floor to rim of bowl:					
	Close coupled for use with flush tank:					
	Gravity and pressurized . . . . .	7	1,110,734	1,111,335	44,610	280,236
32610 32, 34						
	One-piece:					
	Gravity . . . . .	5	100,534	97,459	(D)	(D)
32610 38						
32610 42	Pressurized . . . . .	3	(D)	(D)	(D)	(D)
	Flushometer valve:					
	Wall mounted . . . . .	5	(D)	69,684	4,486	11,502
32610 44						
32610 46	Floor mounted . . . . .	5	51,608	53,981	3,699	6,676
	Blowout 3.5 g.p.f.:					
	Vitreous china <sup>3</sup> . . . . .	5	(D)	(D)	(D)	(D)
32610 48						
	Any bowl style:					
	All materials other than vitreous china <sup>3</sup> . . . . .	7	(D)	(D)	(D)	(D)
19001 17						
32610 31	Flush tanks (vitreous china) . . . . .	10	<sup>a</sup> 1,732,804	<sup>a</sup> 1,785,973	<sup>a</sup> 62,326	<sup>a</sup> 329,642
	Urinals . . . . .	(NA)	70,058	72,745	7,968	22,279
34310 38	Metal . . . . .	7	<sup>a</sup> 1,033	<sup>b</sup> 1,020	<sup>b</sup> 569	(D)
32610 36	Vitreous china . . . . .	9	69,025	71,725	7,399	(D)
	Kitchen sinks, not including bar sinks <sup>4</sup> . . . . .	(NA)	1,267,117	1,296,517	84,793	163,174
34310 41	Cast iron (enameled) <sup>4</sup> . . . . .	3	(D)	(D)	29,342	(D)
34310 42	Steel (enameled) . . . . .	7	<sup>b</sup> 90,570	<sup>b</sup> 92,569	<sup>b</sup> 2,852	23,228
34310 47	Steel (stainless) . . . . .	7	<sup>a</sup> 943,356	<sup>b</sup> 936,724	45,299	<sup>b</sup> 87,023
19001 07	All other materials <sup>4</sup> . . . . .	12	(D)	(D)	<sup>b</sup> 7,300	(D)
19001 08						
	Bar sinks (all materials) . . . . .	24	101,286	103,202	6,168	11,874
	Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> . . . . .	(NA)	203,755	203,047	12,140	24,624
34310 54	Metal . . . . .	9	<sup>b</sup> 14,912	<sup>a</sup> 15,022	<sup>b</sup> 4,688	<sup>b</sup> 4,347
30880 33	Plastics . . . . .	6	<sup>b</sup> 182,228	<sup>b</sup> 181,483	<sup>b</sup> 3,505	(D)
32610 54	Vitreous china . . . . .	4	(D)	(D)	(D)	2,685
32722 84	Concrete and all other materials <sup>5</sup> . . . . .	4	(D)	(D)	(D)	(D)
	Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> . . . . .	(NA)	1,149,636	1,181,012	175,426	146,304
34310 61	Cast iron (enameled) <sup>6</sup> . . . . .	2	(D)	(D)	(D)	(D)
34310 62	Steel (enameled) . . . . .	5	<sup>b</sup> 238,341	<sup>b</sup> 235,448	<sup>b</sup> 15,431	(D)
30880 12	Fiberglass (FRP) gel coat . . . . .	30	<sup>a</sup> 666,359	<sup>a</sup> 666,877	<sup>a</sup> 110,598	<sup>a</sup> 59,503
30880 13	Fiberglass (FRP) acrylic . . . . .	29	<sup>a</sup> 57,109	<sup>a</sup> 54,682	<sup>a</sup> 14,925	9,419

See footnotes at end of table.

**Table 21. Production, Shipments, and Stocks of Plumbing Fixtures: 1997—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>THIRD QUARTER—Con.</b>						
Plumbing fixtures—Con.						
Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> —Con.						
30880 14	Cultured marble	56	<sup>b</sup> 6,337	<sup>b</sup> 6,286	<sup>b</sup> 3,491	(D)
30880 15	Other plastics (PVC, ABS)	11	<sup>b</sup> 96,542	<sup>b</sup> 113,637	<sup>b</sup> 7,736	(D)
19001 09	All other materials <sup>6</sup>	2	(D)	(D)	(D)	(D)
Shower receptors, sold separately						
30886 55	Plastics	(NA)	<sup>r</sup> 88,648	<sup>r</sup> 84,779	5,505	17,561
19001 10	All other materials	25	<sup>b</sup> 84,221	<sup>b</sup> 79,258	<sup>b</sup> 4,179	(D)
		35	<sup>r</sup> 4,426	<sup>a</sup> 5,521	<sup>a</sup> 1,326	(D)
Shower stalls, including receptor <sup>7</sup>						
34310 74	Metal <sup>7</sup>	(NA)	<sup>r</sup> 271,415	<sup>r</sup> 268,992	<sup>r</sup> 56,581	<sup>r</sup> 26,208
30880 21	Fiberglass (FRP) gel coat	2	(D)	(D)	(D)	(D)
30880 22	Fiberglass (FRP) acrylic	26	<sup>a</sup> 179,764	<sup>a</sup> 178,905	<sup>a</sup> 35,176	<sup>b</sup> 16,446
30880 23	Other plastics	15	<sup>a</sup> 28,589	<sup>a</sup> 27,434	<sup>a</sup> 10,750	<sup>r</sup> 3,100
19001 11	All other materials <sup>7</sup>	13	<sup>b</sup> 28,568	<sup>b</sup> 28,269	<sup>b</sup> 2,394	(D)
		22	(D)	(D)	(D)	(D)
Wall surrounds, sold as separate units						
30880 70	Showers (all materials)	(NA)	<sup>r</sup> 272,586	<sup>r</sup> 269,229	<sup>r</sup> 16,598	<sup>r</sup> 33,999
30880 71	Bathtubs (all materials)	57	<sup>b</sup> 74,780	<sup>b</sup> 75,807	<sup>b</sup> 5,192	(D)
		47	<sup>b</sup> 197,806	<sup>b</sup> 193,422	<sup>b</sup> 11,406	(D)
19222 08	Bidets (all materials)	9	<sup>r</sup> 11,345	12,101	1,591	<sup>r</sup> 7,086
Whirlpool baths, not spas or hot tubs (noninstitutional) <sup>8</sup>						
34310 86	Cast iron (enameled) <sup>8</sup>	(NA)	140,288	136,953	94,557	29,725
30880 26	Fiberglass (FRP) gel coat	2	(D)	(D)	(D)	(D)
30880 27	Fiberglass (FRP) acrylic	22	<sup>b</sup> 11,798	<sup>b</sup> 11,713	<sup>b</sup> 7,974	<sup>b</sup> 2,048
30880 28	Cultured marble	36	<sup>a</sup> 113,048	<sup>a</sup> 112,019	<sup>a</sup> 77,567	<sup>b</sup> 24,360
30886 29	Other plastics	55	<sup>b</sup> 2,112	<sup>b</sup> 1,994	<sup>b</sup> 2,286	<sup>b</sup> 2,176
19001 12	All other materials <sup>8</sup>	8	<sup>a</sup> 12,081	<sup>a</sup> 9,818	<sup>r</sup> 4,342	(D)
		2	(D)	(D)	(D)	(D)
19001 13, 15	Hot tubs and spas (noninstitutional, all materials)	29	<sup>b</sup> 43,177	<sup>b</sup> 47,393	<sup>b</sup> 121,293	<sup>r</sup> 5,844
All other fixtures not described above						
30882 20	Plastics	(NA)	(X)	(X)	<sup>r</sup> 15,707	(X)
19002 20	All other materials	7	(X)	(X)	<sup>b</sup> 109	(X)
		12	(X)	(X)	<sup>b</sup> 15,599	(X)
<b>FOURTH QUARTER</b>						
Plumbing fixtures						
Drinking fountains <sup>1</sup>						
34310 15	Metal <sup>1</sup>	(NA)	(X)	(X)	787,839	(X)
32610 12	Vitreous china <sup>1</sup>	(NA)	10,998	11,111	3,361	497
19001 02	All other materials <sup>1</sup>	5	(D)	(D)	(D)	(D)
		3	(D)	(D)	(D)	(D)
		2	(D)	(D)	(D)	(D)
Lavatories						
34310 17	Cast iron (enameled) <sup>2</sup>	(NA)	1,852,935	1,792,570	91,392	587,614
34310 18	Steel (enameled)	4	(D)	(D)	(D)	(D)
34310 19	Steel (stainless) <sup>2</sup>	6	395,742	392,420	6,196	145,857
32610 17	Vitreous china	7	7,454	7,336	1,589	(D)
30880 04	Cultured marble	11	<sup>a</sup> 792,530	<sup>a</sup> 777,219	37,698	<sup>a</sup> 337,649
30880 31	Other plastics <sup>2</sup>	80	<sup>b</sup> 491,031	<sup>b</sup> 463,155	<sup>b</sup> 33,453	<sup>b</sup> 57,840
19001 03	All other materials <sup>2</sup>	8	<sup>b</sup> 166,178	<sup>b</sup> 152,440	<sup>b</sup> 12,456	(D)
		3	(D)	(D)	(D)	(D)
Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral <sup>3</sup>						
Vitreous china:						
17 inches from floor to rim of bowl:						
Close coupled for use with flush tank:						
32610 18, 22	Gravity and pressurized	10	<sup>r</sup> 539,558	<sup>r</sup> 529,160	<sup>r</sup> 24,156	<sup>r</sup> 226,298
One-piece:						
32610 25, 26	Gravity and pressurized	1	(D)	(D)	(D)	(D)
Flushometer valve:						
32610 28	Floor mounted	4	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 21. Production, Shipments, and Stocks of Plumbing Fixtures: 1997—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FOURTH QUARTER—Con.</b>						
Plumbing fixtures—Con.						
Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral <sup>3</sup> —Con.						
Vitreous china:						
Less than 17 inches from floor to rim of bowl:						
Close coupled for use with flush tank:						
32610 32, 34	Gravity and pressurized.....	7	<sup>r</sup> 1,028,120	<sup>r</sup> 1,084,453	<sup>r</sup> 43,083	<sup>r</sup> 317,355
One-piece:						
32610 38	Gravity.....	5	<sup>r</sup> 83,525	98,420	(D)	(D)
32610 42	Pressurized.....	3	(D)	(D)	(D)	(D)
Flushometer valve:						
32610 44	Wall mounted.....	5	(D)	<sup>r</sup> 65,826	<sup>r</sup> 4,229	<sup>r</sup> 13,198
32610 46	Floor mounted.....	5	<sup>r</sup> 53,932	<sup>r</sup> 55,091	<sup>r</sup> 3,712	<sup>r</sup> 5,480
Blowout 3.5 g.p.f.:						
32610 48	Vitreous china <sup>3</sup> .....	5	(D)	(D)	(D)	(D)
Any bowl style:						
19001 17	All materials other than vitreous china <sup>3</sup> .....	7	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china).....	10	<sup>a</sup> 1,687,233	<sup>a</sup> 1,739,084	<sup>a</sup> 59,801	<sup>a</sup> 274,276
Urinals.....						
34310 38	Metal.....	(NA)	71,016	<sup>r</sup> 75,218	<sup>r</sup> 7,910	20,099
32610 36	Vitreous china.....	9	<sup>a</sup> 523	<sup>b</sup> 877	<sup>b</sup> 307	(D)
Kitchen sinks, not including bar sinks <sup>4</sup> .....						
34310 41	Cast iron (enameled) <sup>4</sup> .....	(NA)	1,328,325	1,375,151	91,380	<sup>r</sup> 159,141
34310 42	Steel (enameled).....	3	(D)	(D)	29,968	(D)
34310 47	Steel (stainless).....	7	<sup>b</sup> 78,976	<sup>b</sup> 103,700	<sup>b</sup> 3,654	16,353
19001 07	All other materials <sup>4</sup> .....	7	<sup>a</sup> 971,699	<sup>b</sup> 993,085	48,458	<sup>b</sup> 90,336
19001 08	Bar sinks (all materials).....	12	(D)	(D)	<sup>b</sup> 9,300	(D)
Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> .....						
34310 54	Metal.....	(NA)	<sup>r</sup> 204,602	<sup>r</sup> 203,614	<sup>r</sup> 12,439	24,797
30880 33	Plastics.....	9	<sup>b</sup> 15,953	<sup>a</sup> 15,861	<sup>b</sup> 5,084	<sup>b</sup> 4,471
32610 54	Vitreous china.....	6	<sup>b</sup> 182,228	<sup>b</sup> 181,483	<sup>b</sup> 3,505	(D)
32722 84	Concrete and all other materials <sup>5</sup> .....	4	(D)	(D)	(D)	<sup>r</sup> 2,724
Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> .....						
34310 61	Cast iron (enameled) <sup>6</sup> .....	(NA)	<sup>r</sup> 1,049,790	<sup>r</sup> 1,041,520	156,870	<sup>r</sup> 143,550
34310 62	Steel (enameled).....	2	(D)	(D)	(D)	(D)
30880 12	Fiberglass (FRP) gel coat.....	5	<sup>b</sup> 195,328	<sup>b</sup> 204,065	<sup>b</sup> 13,749	(D)
30880 13	Fiberglass (FRP) acrylic.....	30	<sup>a</sup> 585,891	<sup>a</sup> 589,079	<sup>a</sup> 97,381	<sup>a</sup> 57,667
30880 14	Cultured marble.....	29	<sup>a</sup> 46,476	<sup>a</sup> 46,502	<sup>a</sup> 12,835	9,542
30880 15	Other plastics (PVC, ABS).....	56	<sup>b</sup> 6,087	<sup>b</sup> 5,534	<sup>b</sup> 3,047	(D)
19001 09	All other materials <sup>6</sup> .....	11	<sup>b</sup> 113,972	<sup>b</sup> 94,474	<sup>b</sup> 6,433	(D)
Shower receptors, sold separately.....						
30886 55	Plastics.....	2	(NA)	<sup>r</sup> 66,244	4,642	17,561
19001 10	All other materials.....	25	<sup>b</sup> 62,190	<sup>b</sup> 60,456	<sup>b</sup> 3,252	(D)
Shower stalls, including receptor <sup>7</sup> .....						
34310 74	Metal <sup>7</sup> .....	35	<sup>r</sup> 242,213	<sup>r</sup> 236,256	<sup>r</sup> 49,325	<sup>r</sup> 26,747
30880 21	Fiberglass (FRP) gel coat.....	2	(D)	(D)	(D)	(D)
30880 22	Fiberglass (FRP) acrylic.....	26	<sup>a</sup> 158,483	<sup>a</sup> 154,317	<sup>a</sup> 29,903	<sup>b</sup> 17,608
30880 23	Other plastics.....	15	<sup>a</sup> 23,867	<sup>a</sup> 23,278	<sup>a</sup> 8,968	<sup>r</sup> 2,816
19001 11	All other materials <sup>7</sup> .....	13	<sup>b</sup> 25,153	<sup>b</sup> 24,061	<sup>b</sup> 1,908	(D)
Wall surrounds, sold as separate units.....						
30880 70	Showers (all materials).....	22	(NA)	<sup>r</sup> 220,321	<sup>r</sup> 247,167	31,376
30880 71	Bathtubs (all materials).....	57	<sup>b</sup> 49,722	<sup>b</sup> 69,877	<sup>b</sup> 4,815	(D)
19222 08	Bidets (all materials).....	47	<sup>b</sup> 170,599	<sup>b</sup> 177,291	<sup>b</sup> 11,053	(D)
Whirlpool baths, not spas or hot tubs (noninstitutional) <sup>8</sup> .....						
34310 86	Cast iron (enameled) <sup>8</sup> .....	9	<sup>r</sup> 11,700	11,130	1,447	<sup>r</sup> 7,641
30880 26	Fiberglass (FRP) gel coat.....	22	(NA)	113,410	74,180	31,400
			(D)	(D)	(D)	(D)
			<sup>b</sup> 9,182	<sup>b</sup> 9,792	<sup>b</sup> 6,665	<sup>b</sup> 1,830

See footnotes at end of table.

Table 21. **Production, Shipments, and Stocks of Plumbing Fixtures: 1997—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FOURTH QUARTER—Con.</b>						
Plumbing fixtures—Con.						
Whirlpool baths, not spas or hot tubs (noninstitutional)—Con.						
30880 27	Fiberglass (FRP) acrylic.....	36	<sup>a</sup> 93,755	<sup>a</sup> 89,686	<sup>a</sup> 57,672	<sup>b</sup> 26,543
30880 28	Cultured marble.....	55	<sup>b</sup> 2,829	<sup>b</sup> 2,759	<sup>b</sup> 3,166	<sup>b</sup> 1,991
30886 29	Other plastics.....	8	<sup>a</sup> 6,245	<sup>a</sup> 8,349	<sup>r</sup> 4,182	(D)
19001 12	All other materials <sup>8</sup> .....	2	(D)	(D)	(D)	(D)
19001 13, 15	Hot tubs and spas (noninstitutional, all materials).....	29	<sup>b</sup> 34,818	<sup>b</sup> 34,325	<sup>b</sup> 88,634	<sup>r</sup> 6,285
All other fixtures not described above.....						
30882 20	Plastics.....	(NA)	(X)	(X)	<sup>r</sup> 12,685	(X)
19002 20	All other materials.....	12	(X)	(X)	<sup>b</sup> <sup>r</sup> 12,577	(X)

D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plywood. NA Not available. <sup>r</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>“Drinking fountains, metal,” “Drinking fountains, vitreous china,” and “Drinking fountains, all other materials” are included with “Drinking fountains” to avoid disclosing data for individual companies.

<sup>2</sup>“Lavatories, cast iron (enameled),” and “Lavatories, all other materials,” are included with “Lavatories, other plastics” to avoid disclosing data for individual companies.

<sup>3</sup>“Blowout 3.5 g.p.f.” and “Any bowl style” are included with “Water closet bowls, 1.6 g.p.f., excluding flush tank unless integral” to avoid disclosing data for individual companies.

<sup>4</sup>Quantity produced, shipments, and stocks at end of quarter for “Kitchen sinks, cast iron (enameled)” and “Kitchen sinks, all other materials” are included with “Kitchen sinks, not including bar sinks” to avoid disclosing data for individual companies.

<sup>5</sup>“Wash sinks, concrete and all other materials” are included with “Wash sinks, total” to avoid disclosing data for individual companies.

<sup>6</sup>“Bathtubs, cast iron (enameled),” and “Bathtubs, all other materials” are included with “Bathtubs, total” to avoid disclosing data for individual companies.

<sup>7</sup>“Shower stalls metal” and “Shower stalls, all other materials” are included with “Shower stalls, total” to avoid disclosing data for individual companies.

<sup>8</sup>“Whirlpool baths, cast iron (enameled)” and “Whirlpool baths, all other materials” are included with “Whirlpool baths, total” to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>25 to 50 percent of this item is estimated. <sup>b</sup>Over 50 percent of this item is estimated.

**Table 22. Production, Shipments, and Stocks of Plumbing Fixtures: 1996**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FIRST QUARTER</b>						
	Plumbing fixtures.....	(NA)	(X)	(X)	719,530	(X)
	Drinking fountains <sup>1</sup> .....	(NA)	9,420	9,491	2,551	624
34310 15	Metal <sup>1</sup> .....	5	(D)	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup> .....	4	(D)	(D)	(D)	(D)
19001 02	All other materials <sup>1</sup> .....	2	(D)	(D)	(D)	(D)
	Lavatories.....	(NA)	1,901,145	1,775,093	86,583	577,172
34310 17	Cast iron (enameled) <sup>2</sup> .....	2	(D)	(D)	(D)	(D)
34310 18	Steel (enameled).....	3	431,708	385,937	6,148	57,881
34310 19	Steel (stainless).....	5	6,600	6,342	1,277	(D)
32610 17	Vitreous china.....	8	876,532	815,514	37,268	402,447
30880 04	Cultured marble.....	4	441,583	439,057	30,908	52,427
30880 31	Other plastics <sup>2</sup> .....	6	144,721	128,242	10,981	64,417
19001 03	All other materials <sup>2</sup> .....	1	(D)	(D)	(D)	(D)
	Water closet bowls (vitreous china).....	(NA)	2,147,879	2,093,086	116,141	737,201
19002 02	1.6 or less g.p.f. low consumption (any material).....	8	1,669,113	1,636,009	87,784	592,204
32610 21	Flushometer.....	7	127,289	130,644	9,583	52,020
32610 24	One piece.....	6	7,485	11,396	2,380	7,980
32610 27	Close couple (for use with flush tank) <sup>3</sup> .....	11	343,993	315,037	16,394	84,997
19001 04	All other materials <sup>3</sup> .....	5	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china).....	8	1,627,608	1,695,255	58,005	494,904
	Urinals.....	(NA)	64,385	64,541	7,075	26,929
34310 38	Metal.....	5	2,221	1,654	855	(D)
32610 36	Vitreous china.....	8	62,164	62,887	6,220	(D)
	Kitchen sinks, not including bar sinks <sup>4</sup> .....	(NA)	1,268,055	1,238,580	73,890	164,461
34310 41	Cast iron (enameled) <sup>4</sup> .....	2	(D)	(D)	(D)	(D)
34310 42	Steel (enameled).....	4	114,683	98,543	2,668	30,242
34310 47	Steel (stainless) <sup>4</sup> .....	4	908,637	898,568	41,021	(D)
19001 07	All other materials <sup>4</sup> .....	8	(D)	(D)	(D)	(D)
19001 08	Bar sinks (all materials).....	20	87,869	86,422	5,048	10,913
	Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup> .....	(NA)	173,238	163,320	12,745	10,636
34310 54	Metal <sup>5</sup> .....	5	13,046	14,034	5,890	(D)
30880 33	Plastics <sup>5</sup> .....	3	(D)	(D)	(D)	(D)
32610 54	Vitreous china.....	4	2,729	2,534	788	1,661
32722 84	Concrete and all other materials <sup>5</sup> .....	4	(D)	(D)	(D)	(D)
	Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup> .....	(NA)	1,074,124	1,017,253	143,035	134,425
34310 61	Cast iron (enameled) <sup>6</sup> .....	2	(D)	(D)	(D)	(D)
34310 62	Steel (enameled).....	3	261,279	224,353	16,169	26,783
30880 12	Fiberglass (FRP) gel coat.....	31	540,798	538,765	84,686	40,073
30880 13	Fiberglass (FRP) acrylic.....	12	33,934	33,621	9,851	4,627
30880 14	Cultured marble <sup>6</sup> .....	51	<sup>a</sup> 4,384	<sup>a</sup> 4,225	2,302	(D)
30880 15	Other plastics (PVC, ABS) <sup>6</sup> .....	7	(D)	(D)	(D)	(D)
19001 09	All other materials <sup>6</sup> .....	2	(D)	(D)	(D)	(D)
	Shower receptors, sold separately.....	(NA)	75,614	71,379	3,981	6,890
30886 55	Plastics.....	20	<sup>f</sup> 72,192	<sup>f</sup> 67,459	<sup>f</sup> 3,093	<sup>b</sup> 6,570
19001 10	All other materials.....	28	<sup>a</sup> 3,422	<sup>a</sup> 3,920	887	321
	Shower stalls, including receptor.....	(NA)	226,342	227,284	44,026	13,231
34310 74	Metal <sup>7</sup> .....	1	35,003	37,934	8,363	3,467
30880 21	Fiberglass (FRP) gel coat.....	25	135,032	134,237	25,022	7,064
30880 22	Fiberglass (FRP) acrylic.....	9	<sup>f</sup> 23,496	<sup>f</sup> 22,567	<sup>f</sup> 8,600	<sup>a</sup> 2,700
30880 23	Other plastics <sup>7</sup> .....	5	<sup>a</sup> 32,811	<sup>a</sup> 32,547	2,041	(D)
19001 11	All other materials <sup>7</sup> .....	19	(D)	(D)	(D)	(D)
	Wall surrounds, sold as separate units.....	(NA)	323,342	331,602	18,583	20,782
30880 70	Showers (all materials).....	44	96,603	101,993	6,890	2,657
30880 71	Bathtubs (all materials).....	44	<sup>f</sup> 226,739	<sup>f</sup> 229,610	11,694	<sup>a</sup> 18,126
19222 08	Bidets (all materials).....	9	10,584	10,730	1,458	10,451

See footnotes at end of table.

**Table 22. Production, Shipments, and Stocks of Plumbing Fixtures: 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FIRST QUARTER—Con.</b>						
Plumbing fixtures—Con.						
Whirlpool baths, not spas or hot tubs (noninstitutional)						
		(NA)	105,420	105,823	70,633	22,097
34310 86	Cast iron (enameled) <sup>8</sup>	2	1,684	1,828	2,999	540
30880 26	Fiberglass (FRP) gel coat	22	8,650	9,178	6,069	1,120
30880 27	Fiberglass (FRP) acrylic	33	84,864	83,877	54,487	19,025
30880 28	Cultured marble <sup>9</sup>	52	2,247	2,280	2,713	1,412
30886 29	Other plastics <sup>9</sup>	6	7,975	8,660	4,365	(D)
19001 12	All other materials <sup>8</sup>	3	(D)	(D)	(D)	(D)
19001 13	Hot tubs (noninstitutional, all materials) <sup>10</sup>	1	(D)	(D)	(D)	(D)
19001 15	Spas (noninstitutional, all materials) <sup>10</sup>	28	29,215	26,269	66,775	6,330
All other fixtures not described above						
		(NA)	(X)	(X)	9,002	(X)
30882 20	Plastics	5	(X)	(X)	(D)	(X)
19002 20	All other materials	7	(X)	(X)	(D)	(X)
<b>SECOND QUARTER</b>						
Plumbing fixtures						
		(NA)	(X)	(X)	813,825	(X)
Drinking fountains <sup>1</sup>						
		(NA)	12,132	11,989	3,289	744
34310 15	Metal <sup>1</sup>	5	(D)	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup>	4	(D)	(D)	(D)	(D)
19001 02	All other materials <sup>1</sup>	2	(D)	(D)	(D)	(D)
Lavatories						
		(NA)	1,895,479	1,899,477	91,892	538,335
34310 17	Cast iron (enameled) <sup>2</sup>	2	(D)	(D)	(D)	(D)
34310 18	Steel (enameled)	3	453,373	448,464	7,263	64,493
34310 19	Steel (stainless)	5	6,640	6,755	1,349	(D)
32610 17	Vitreous china	8	835,690	829,902	39,190	372,191
30880 04	Cultured marble	4	458,542	463,555	32,046	51,958
30880 31	Other plastics <sup>2</sup>	6	141,234	150,801	12,045	49,693
19001 03	All other materials <sup>2</sup>	1	(D)	(D)	(D)	(D)
Water closet bowls (vitreous china)						
		(NA)	2,276,220	2,241,234	123,380	769,966
19002 02	1.6 or less g.p.f. low consumption (any material)	8	1,778,176	1,766,846	94,276	633,443
32610 21	Flushometer	7	120,510	136,052	9,619	36,929
32610 24	One piece	6	9,708	10,390	2,237	7,665
32610 27	Close couple (for use with flush tank) <sup>3</sup>	11	367,826	327,947	17,248	91,929
19001 04	All other materials <sup>3</sup>	5	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china)	8	1,778,886	1,853,519	62,012	448,100
Urinals						
		(NA)	62,585	71,717	7,551	19,473
34310 38	Metal	5	1,267	1,165	605	(D)
32610 36	Vitreous china	8	61,318	70,552	6,946	(D)
Kitchen sinks, not including bar sinks <sup>4</sup>						
		(NA)	1,315,185	1,324,329	79,844	120,100
34310 41	Cast iron (enameled) <sup>4</sup>	2	(D)	(D)	(D)	(D)
34310 42	Steel (enameled)	4	124,334	122,058	3,488	15,327
34310 47	Steel (stainless) <sup>4</sup>	4	950,202	953,715	44,781	(D)
19001 07	All other materials <sup>4</sup>	8	(D)	(D)	(D)	(D)
19001 08	Bar sinks (all materials)	20	87,324	88,687	5,307	9,664
Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup>						
		(NA)	160,822	163,089	12,285	12,120
34310 54	Metal <sup>5</sup>	5	13,719	13,038	5,619	(D)
30880 33	Plastics <sup>5</sup>	3	(D)	(D)	(D)	(D)
32610 54	Vitreous china	4	2,775	2,350	710	2,086
32722 84	Concrete and all other materials <sup>5</sup>	4	(D)	(D)	(D)	(D)
Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>6</sup>						
		(NA)	1,165,551	1,171,132	164,316	109,296
34310 61	Cast iron (enameled) <sup>6</sup>	2	(D)	(D)	(D)	(D)
34310 62	Steel (enameled)	3	247,101	252,698	17,824	19,324
30880 12	Fiberglass (FRP) gel coat	31	644,138	641,087	102,473	42,786
30880 13	Fiberglass (FRP) acrylic	12	40,977	39,411	11,050	5,947
30880 14	Cultured marble <sup>6</sup>	51	<sup>a</sup> 4,473	<sup>a</sup> 4,582	2,485	(D)
30880 15	Other plastics (PVC, ABS) <sup>6</sup>	7	(D)	(D)	(D)	(D)
19001 09	All other materials <sup>6</sup>	2	(D)	(D)	(D)	(D)

See footnotes at end of table.



**Table 22. Production, Shipments, and Stocks of Plumbing Fixtures: 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>SECOND QUARTER—Con.</b>						
Plumbing fixtures—Con.						
30886 55	Shower receptors, sold separately . . . . .	(NA)	93,959	95,658	5,031	4,495
19001 10	Plastics . . . . .	20	<sup>1</sup> 90,677	<sup>1</sup> 91,991	<sup>1</sup> 4,199	<sup>b</sup> 4,147
	All other materials . . . . .	28	<sup>a</sup> 3,282	<sup>a</sup> 3,667	832	348
	Shower stalls, including receptor . . . . .	(NA)	234,373	234,033	45,419	9,977
34310 74	Metal <sup>7</sup> . . . . .	1	31,204	30,619	6,903	2,630
30880 21	Fiberglass (FRP) gel coat . . . . .	25	145,195	146,069	27,263	4,711
30880 22	Fiberglass (FRP) acrylic . . . . .	9	25,472	24,637	9,192	<sup>a</sup> 2,339
30880 23	Other plastics <sup>7</sup> . . . . .	5	<sup>a</sup> 32,503	<sup>a</sup> 32,707	2,061	(D)
19001 11	All other materials <sup>7</sup> . . . . .	19	(D)	(D)	(D)	(D)
	Wall surrounds, sold as separate units . . . . .	(NA)	349,942	360,651	20,034	23,411
30880 70	Showers (all materials) . . . . .	44	101,393	100,421	6,837	3,985
30880 71	Bathtubs (all materials) . . . . .	44	<sup>a</sup> 248,550	<sup>a</sup> 260,230	13,197	<sup>a</sup> 19,427
19222 08	Bidets (all materials) . . . . .	9	9,166	10,107	1,479	10,252
	Whirlpool baths, not spas or hot tubs (noninstitutional) . . . . .	(NA)	129,998	131,761	84,841	20,438
34310 86	Cast iron (enameled) <sup>8</sup> . . . . .	2	1,639	1,431	2,479	748
30880 26	Fiberglass (FRP) gel coat . . . . .	22	12,260	12,529	7,898	1,014
30880 27	Fiberglass (FRP) acrylic . . . . .	33	102,888	105,879	67,529	16,991
30880 28	Cultured marble <sup>9</sup> . . . . .	52	1,522	1,455	1,716	1,685
30886 29	Other plastics <sup>9</sup> . . . . .	6	11,688	10,467	5,218	(D)
19001 12	All other materials <sup>8</sup> . . . . .	3	(D)	(D)	(D)	(D)
19001 13	Hot tubs (noninstitutional, all materials) <sup>10</sup> . . . . .	1	(D)	(D)	(D)	(D)
19001 15	Spas (noninstitutional, all materials) <sup>10</sup> . . . . .	28	37,631	38,353	96,357	5,790
	All other fixtures not described above . . . . .	(NA)	(X)	(X)	10,788	(X)
30882 20	Plastics . . . . .	5	(X)	(X)	(D)	(X)
19002 20	All other materials . . . . .	7	(X)	(X)	(D)	(X)
<b>THIRD QUARTER</b>						
	Plumbing fixtures . . . . .	(NA)	(X)	(X)	823,839	(X)
	Drinking fountains <sup>1</sup> . . . . .	(NA)	13,610	13,730	3,948	598
34310 15	Metal <sup>1</sup> . . . . .	5	(D)	(D)	(D)	(D)
32610 12	Vitreous china <sup>1</sup> . . . . .	4	(D)	(D)	(D)	(D)
19001 02	All other materials <sup>1</sup> . . . . .	2	(D)	(D)	(D)	(D)
	Lavatories . . . . .	(NA)	1,917,177	1,927,413	91,675	497,849
34310 17	Cast iron (enameled) <sup>2</sup> . . . . .	2	(D)	(D)	(D)	(D)
34310 18	Steel (enameled) . . . . .	3	475,628	469,131	7,797	74,138
34310 19	Steel (stainless) . . . . .	5	6,943	6,931	1,348	(D)
32610 17	Vitreous china . . . . .	8	822,786	838,784	40,275	340,851
30880 04	Cultured marble . . . . .	4	475,373	456,343	29,481	54,665
30880 31	Other plastics <sup>2</sup> . . . . .	6	136,447	156,224	12,774	28,195
19001 03	All other materials <sup>2</sup> . . . . .	1	(D)	(D)	(D)	(D)
	Water closet bowls (vitreous china) . . . . .	(NA)	2,165,650	2,166,415	118,794	780,151
19002 02	1.6 or less g.p.f. low consumption (any material) . . . . .	8	1,680,820	1,681,909	89,612	658,831
32610 21	Flushometer . . . . .	7	119,225	133,965	9,902	22,742
32610 24	One piece . . . . .	6	9,390	9,041	1,845	8,366
32610 27	Close couple (for use with flush tank) <sup>3</sup> . . . . .	11	356,215	341,500	17,435	90,212
19001 04	All other materials <sup>3</sup> . . . . .	5	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china) . . . . .	8	1,775,965	1,810,915	61,187	432,623
	Urinals . . . . .	(NA)	70,659	74,994	7,708	16,448
34310 38	Metal . . . . .	5	1,233	1,262	652	(D)
32610 36	Vitreous china . . . . .	8	69,426	73,732	7,056	(D)
	Kitchen sinks, not including bar sinks <sup>4</sup> . . . . .	(NA)	1,278,278	1,275,064	79,429	100,486
34310 41	Cast iron (enameled) <sup>4</sup> . . . . .	2	(D)	(D)	(D)	(D)
34310 42	Steel (enameled) . . . . .	4	110,274	99,164	2,831	22,686
34310 47	Steel (stainless) <sup>4</sup> . . . . .	4	923,107	926,538	44,390	(D)
19001 07	All other materials <sup>4</sup> . . . . .	8	(D)	(D)	(D)	(D)
19001 08	Bar sinks (all materials) . . . . .	20	93,480	93,918	5,640	9,426

See footnotes at end of table.

**Table 22. Production, Shipments, and Stocks of Plumbing Fixtures: 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>THIRD QUARTER—Con.</b>						
Plumbing fixtures—Con.						
Wash sinks and service sinks, mop sinks, sink and laundry tray combinations, and laundry trays <sup>5</sup>						
34310 54	Metal <sup>5</sup>	(NA)	159,841	164,270	12,777	11,121
30880 33	Plastics <sup>5</sup>	5	13,735	15,016	6,191	(D)
32610 54	Vitreous china	3	(D)	(D)	(D)	(D)
32722 84	Concrete and all other materials <sup>5</sup>	4	1,778	2,023	641	1,841
		4	(D)	(D)	(D)	(D)
Bathtubs, including wall surrounds when sold as combined units, not including whirlpool baths <sup>5</sup>						
34310 61	Cast iron (enameled) <sup>6</sup>	(NA)	1,133,926	1,249,579	164,576	83,825
34310 62	Steel (enameled)	2	(D)	(D)	(D)	(D)
30880 12	Fiberglass (FRP) gel coat	3	245,514	247,169	17,471	22,579
30880 13	Fiberglass (FRP) acrylic	31	604,639	611,501	97,407	37,458
30880 14	Cultured marble <sup>6</sup>	12	55,757	152,048	14,848	7,263
30880 15	Other plastics (PVC, ABS) <sup>6</sup>	51	<sup>a</sup> 4,513	<sup>a</sup> 4,792	2,619	(D)
19001 09	All other materials <sup>6</sup>	7	(D)	(D)	(D)	(D)
		2	(D)	(D)	(D)	(D)
Shower receptors, sold separately						
30886 55	Plastics	(NA)	70,863	67,355	4,097	4,477
19001 10	All other materials	20	<sup>f</sup> 66,870	<sup>f</sup> 61,800	<sup>f</sup> 2,837	<sup>b</sup> 4,294
		28	<sup>a</sup> 3,993	<sup>a</sup> 5,555	1,260	183
Shower stalls, including receptor						
34310 74	Metal <sup>7</sup>	(NA)	238,458	239,182	46,400	7,530
30880 21	Fiberglass (FRP) gel coat	1	31,223	30,590	6,879	1,442
30880 22	Fiberglass (FRP) acrylic	25	147,230	148,457	27,778	3,491
30880 23	Other plastics <sup>7</sup>	9	<sup>g</sup> 27,294	<sup>g</sup> 25,886	<sup>g</sup> 9,556	<sup>a</sup> 2,597
19001 11	All other materials <sup>7</sup>	5	<sup>a</sup> 32,712	<sup>a</sup> 34,249	2,187	(D)
		19	(D)	(D)	(D)	(D)
Wall surrounds, sold as separate units						
30880 70	Showers (all materials)	(NA)	363,240	354,258	21,085	19,191
30880 71	Bathtubs (all materials)	44	88,079	91,371	6,256	3,601
19222 08	Bidets (all materials)	44	<sup>f</sup> 275,162	<sup>f</sup> 262,887	<sup>f</sup> 14,829	<sup>a</sup> 15,590
		9	9,012	10,590	1,476	9,499
Whirlpool baths, not spas or hot tubs (noninstitutional)						
34310 86	Cast iron (enameled) <sup>8</sup>	(NA)	140,551	138,347	91,216	20,538
30880 26	Fiberglass (FRP) gel coat	2	1,258	1,371	2,392	635
30880 27	Fiberglass (FRP) acrylic	22	11,804	11,303	6,981	1,169
30880 28	Cultured marble <sup>9</sup>	33	113,692	112,426	73,896	17,279
30886 29	Other plastics <sup>9</sup>	52	1,954	1,965	2,340	1,455
19001 12	All other materials <sup>9</sup>	6	11,842	11,282	5,606	(D)
		3	(D)	(D)	(D)	(D)
19001 13	Hot tubs (noninstitutional, all materials) <sup>10</sup>	1	(D)	(D)	(D)	(D)
19001 15	Spas (noninstitutional, all materials) <sup>10</sup>	28	38,548	40,319	101,030	4,605
All other fixtures not described above						
30882 20	Plastics	(NA)	(X)	(X)	12,801	(X)
19002 20	All other materials	5	(X)	(X)	(D)	(X)
		7	(X)	(X)	(D)	(X)
<b>FOURTH QUARTER</b>						
Plumbing fixtures						
		(NA)	(X)	(X)	787,103	(X)
Drinking fountains <sup>1</sup>						
34310 15	Metal <sup>1</sup>	(NA)	9,249	9,153	2,818	684
32610 12	Vitreous china <sup>1</sup>	5	(D)	(D)	(D)	(D)
19001 02	All other materials <sup>1</sup>	4	(D)	(D)	(D)	(D)
		2	(D)	(D)	(D)	(D)
Lavatories						
34310 17	Cast iron (enameled) <sup>2</sup>	(NA)	1,810,223	1,856,095	90,606	460,125
34310 18	Steel (enameled)	2	(D)	(D)	(D)	(D)
34310 19	Steel (stainless)	3	452,256	412,468	6,751	111,854
32610 17	Vitreous china	5	6,095	6,375	1,266	(D)
30880 04	Cultured marble	8	788,744	851,671	39,558	274,548
30880 31	Other plastics <sup>2</sup>	4	435,933	443,111	31,116	54,018
19001 03	All other materials <sup>2</sup>	6	127,196	142,470	11,915	19,705
		1	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 22. Production, Shipments, and Stocks of Plumbing Fixtures: 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Quantity produced	Shipments		Stocks, end of quarter
				Quantity	Value	
<b>FOURTH QUARTER—Con.</b>						
Plumbing fixtures—Con.						
19002 02	Water closet bowls (vitreous china) . . . . .	(NA)	2,000,200	2,122,731	118,285	696,040
	1.6 or less g.p.f. low consumption					
	(any material) . . . . .	8	1,579,420	1,704,293	91,799	572,991
32610 21	Flushometer . . . . .	7	120,888	110,995	8,721	32,757
32610 24	One piece . . . . .	6	10,712	10,424	2,220	9,601
32610 27	Close couple (for use with flush tank) <sup>3</sup> . . . . .	11	289,180	297,020	15,545	80,692
19001 04	All other materials <sup>3</sup> . . . . .	5	(D)	(D)	(D)	(D)
32610 31	Flush tanks (vitreous china) . . . . .	8	1,738,841	1,803,709	60,639	378,179
	Urinals . . . . .	(NA)	65,015	63,657	6,893	18,142
34310 38	Metal . . . . .	5	1,123	764	394	(D)
32610 36	Vitreous china . . . . .	8	63,892	62,893	6,499	(D)
	Kitchen sinks, not including bar sinks <sup>4</sup> . . . . .	(NA)	1,292,788	1,292,876	81,011	88,499
34310 41	Cast iron (enameled) <sup>4</sup> . . . . .	2	(D)	(D)	(D)	(D)
34310 42	Steel (enameled) . . . . .	4	105,082	103,635	3,381	29,160
34310 47	Steel (stainless) <sup>4</sup> . . . . .	4	929,701	923,532	44,356	(D)
19001 07	All other materials <sup>4</sup> . . . . .	8	(D)	(D)	(D)	(D)
19001 08	Bar sinks (all materials) . . . . .	20	90,473	92,326	5,402	7,452
	Wash sinks and service sinks, mop sinks,					
	sink and laundry tray combinations, and					
	laundry trays <sup>5</sup> . . . . .	(NA)	160,868	166,661	13,019	12,549
34310 54	Metal <sup>5</sup> . . . . .	5	15,130	13,874	5,867	(D)
30880 33	Plastics <sup>5</sup> . . . . .	3	(D)	(D)	(D)	(D)
32610 54	Vitreous china . . . . .	4	1,746	1,910	611	1,677
32722 84	Concrete and all other materials <sup>5</sup> . . . . .	4	(D)	(D)	(D)	(D)
	Bathtubs, including wall surrounds when sold					
	as combined units, not including whirlpool					
	baths <sup>6</sup> . . . . .	(NA)	1,001,831	1,004,218	183,484	81,795
34310 61	Cast iron (enameled) <sup>6</sup> . . . . .	2	(D)	(D)	(D)	(D)
34310 62	Steel (enameled) . . . . .	3	222,876	228,939	15,709	20,477
30880 12	Fiberglass (FRP) gel coat . . . . .	31	644,138	555,537	125,418	38,580
30880 13	Fiberglass (FRP) acrylic . . . . .	12	45,503	44,453	12,151	7,936
30880 14	Cultured marble <sup>6</sup> . . . . .	51	<sup>a</sup> 5,566	<sup>a</sup> 5,366	2,892	(D)
30880 15	Other plastics (PVC, ABS) <sup>6</sup> . . . . .	7	(D)	(D)	(D)	(D)
19001 09	All other materials <sup>6</sup> . . . . .	2	(D)	(D)	(D)	(D)
	Shower receptors, sold separately . . . . .	(NA)	72,513	75,376	4,485	4,150
30886 55	Plastics . . . . .	20	<sup>f</sup> 68,548	<sup>f</sup> 69,660	<sup>f</sup> 3,190	4,070
19001 10	All other materials . . . . .	28	<sup>a</sup> 3,965	<sup>a</sup> 5,716	1,295	80
	Shower stalls, including receptor . . . . .	(NA)	223,484	220,002	42,273	7,671
34310 74	Metal <sup>7</sup> . . . . .	1	31,206	30,621	6,903	1,281
30880 21	Fiberglass (FRP) gel coat . . . . .	25	136,942	135,542	25,519	3,567
30880 22	Fiberglass (FRP) acrylic . . . . .	9	<sup>f</sup> 23,681	<sup>f</sup> 22,633	<sup>f</sup> 7,894	2,525
30880 23	Other plastics <sup>7</sup> . . . . .	5	<sup>a</sup> 31,656	<sup>a</sup> 31,206	1,956	(D)
19001 11	All other materials <sup>7</sup> . . . . .	19	(D)	(D)	(D)	(D)
	Wall surrounds, sold as separate units . . . . .	(NA)	325,040	303,606	18,014	21,171
30880 70	Showers (all materials) . . . . .	44	78,904	79,857	5,499	4,016
30880 71	Bathtubs (all materials) . . . . .	44	<sup>f</sup> 246,136	<sup>f</sup> 223,748	<sup>f</sup> 12,516	17,155
19222 08	Bidets (all materials) . . . . .	9	9,410	11,031	1,500	8,716
	Whirlpool baths, not spas or hot tubs					
	(noninstitutional) . . . . .	(NA)	107,303	107,432	72,110	19,340
34310 86	Cast iron (enameled) <sup>8</sup> . . . . .	2	1,262	1,434	2,458	610
30880 26	Fiberglass (FRP) gel coat . . . . .	22	9,848	9,686	6,101	1,222
30880 27	Fiberglass (FRP) acrylic . . . . .	33	83,782	84,004	55,941	16,319
30880 28	Cultured marble <sup>9</sup> . . . . .	52	2,193	2,149	2,564	1,189
30886 29	Other plastics <sup>9</sup> . . . . .	6	10,217	10,159	5,047	(D)
19001 12	All other materials <sup>8</sup> . . . . .	3	(D)	(D)	(D)	(D)
19001 13	Hot tubs (noninstitutional, all materials) <sup>10</sup> . . . . .	1	(D)	(D)	(D)	(D)
19001 15	Spas (noninstitutional, all materials) <sup>10</sup> . . . . .	28	25,575	27,449	74,432	3,786
	All other fixtures not described above . . . . .	(NA)	(X)	(X)	12,134	(X)
30882 20	Plastics . . . . .	5	(X)	(X)	(D)	(X)
19002 20	All other materials . . . . .	7	(X)	(X)	(D)	(X)

See footnotes at end of table.

Table 22. **Production, Shipments, and Stocks of Plumbing Fixtures: 1996**—Con.

D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plywood. NA Not available. †Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>“Drinking fountains, metal,” “Drinking fountains, vitreous china,” and “Drinking fountains, all other materials” are included with “Drinking fountains” to avoid disclosing data for individual companies.

<sup>2</sup>“Lavatories, cast iron (enameled),” and “Lavatories, all other materials,” are included with “Lavatories, other plastics” to avoid disclosing data for individual companies.

<sup>3</sup>“Water closet bowls, all other materials” are included with “Water closet bowls, close couple” to avoid disclosing data for individual companies.

<sup>4</sup>“Kitchen sinks, cast iron (enameled)” and “Kitchen sinks, all other materials” are included with “Kitchen sinks, total” to avoid disclosing data for individual companies. Stocks, end of quarter, for “Kitchen sinks, steel (stainless)” also are included with “Kitchen sinks, total” to avoid disclosing data for individual companies.

<sup>5</sup>“Wash sinks, plastics,” and “Wash sinks, concrete and all other materials” are included with “Wash sinks total” to avoid disclosing data for individual companies. Stocks, end of quarter for “Wash sink, metal,” is included with “Wash sink, total” to avoid disclosing data for individual companies.

<sup>6</sup>“Bathtubs, cast iron (enameled),” “Bathtubs, other plastics,” and “Bathtubs, all other materials” are included with “Bathtubs, total” to avoid disclosing data for individual companies. Stocks, end of quarter for “Bathtubs, cultured marble,” are included with “Bathtub, total” to avoid disclosing data for individual companies.

<sup>7</sup>“Shower stalls, all other materials” are included with “Shower stalls, metal” to avoid disclosing data for individual companies. Stocks, end of quarter, for “Shower stalls, other plastics” are included with “Shower stalls, metal” to avoid disclosing data for individual companies.

<sup>8</sup>“Whirlpool baths, all other materials” are included with “Whirlpool baths, cast iron (enameled)” to avoid disclosing data for individual companies.

<sup>9</sup>Stocks, end of quarter, for “Whirlpool baths, other plastics” are included with “Whirlpool baths, cultured marble” to avoid disclosing data for individual companies.

<sup>10</sup>“Hot tubs” are included with “Spas” to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>25 to 50 percent of this item is estimated. <sup>b</sup>Over 50 percent of this item is estimated.

Table 23. **Shipments, Exports, Imports, and Apparent Consumption of Plumbing Fixtures: 1995 to 1997**

[Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments (value, f.o.b. plant)	Exports of domestic merchandise <sup>1 2</sup> (value at port)	Value of imports for consumption <sup>1 3 4</sup>	Apparent consumption <sup>5</sup>
<b>1997</b>					
	Plumbing fixtures .....	3,088,825	189,747	264,666	3,163,744
32610 pt.	Vitreous.....	876,820	68,421	50,547	858,946
34310 pt.	Metal.....	672,814	78,406	138,207	732,615
30880 pt.	Plastics and fiberglass.....	1,539,191	42,920	75,912	1,572,183
<b>1996</b>					
	Plumbing fixtures .....	2,935,659	132,158	261,695	3,065,196
32610 pt.	Vitreous.....	859,693	58,465	64,771	865,999
34310 pt.	Metal.....	643,775	35,836	128,434	736,373
30880 pt.	Plastics and fiberglass.....	1,432,191	37,857	68,490	1,462,824
<b>1995</b>					
	Plumbing fixtures .....	2,803,809	153,505	248,887	2,899,191
32610 pt.	Vitreous.....	891,869	61,146	71,215	901,938
34310 pt.	Metal.....	578,319	52,544	117,918	643,693
30880 pt.	Plastics and fiberglass.....	1,333,621	39,815	59,754	1,353,560

pt. Part.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>4</sup>This dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry into the United States plus U.S. import duties.

<sup>5</sup>Apparent consumption is derived by subtracting exports from total of manufacturers' shipments plus imports.

## HISTORICAL NOTE

Data on plumbing fixtures have been collected by the Census Bureau since 1946. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche. For further information, contact the Census Bureau, Customer Services, 301-457-4100.

## FUNDING

This survey is funded by the Plumbing Manufacturers' Institute and by the International Cast Polymers Association.

## CONTACT FOR DATA USERS

For additional information about these data, contact J. Stanis Batton, 301-457-4750.

# Chapter 4.

## Chemicals and Related Products

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### GENERAL INFORMATION

This section contains data for chemicals and related products. Included in this section is information regarding inorganic chemicals and fertilizer materials, industrial gases, paint and allied products, and pharmaceutical preparations. The inorganic chemicals and fertilizer materials group covers inorganic chemicals and fertilizer materials including chlorine, sodium hydroxide, titanium dioxide, inorganic acids, inorganic aluminum compounds, sodium and potassium compounds, ammonia, urea,

phosphoric and sulfuric acid, and superphosphates and phosphatic fertilizer materials. The industrial gases group covers oxygen, helium, carbon dioxide, argon, nitrogen, and all other industrial gases. The paint and allied products group covers special-purpose coatings, architectural coatings, and original equipment manufactures (OEM) coatings. Finally, the pharmaceutical preparations group covers all pharmaceutical preparations for human and veterinary use, including antacids, cold remedies, dermatological preparations, insulin preparations, laxatives, and vitamin preparations.

### INORGANIC CHEMICALS (MA28A) AND FERTILIZER MATERIALS AND RELATED PRODUCTS (MA28B)

#### INTRODUCTION

The inorganic chemicals and fertilizer materials included in this report cover inorganic chemicals and fertilizer materials manufactured in the United States. They are collected in surveys MQ28A and MA28A, Inorganic Chemicals, and in surveys MQ28B and MA28B, Fertilizer Materials. In the manufacturing of these products, a chemical reaction must take place, physically altering the chemical makeup of the inorganic chemical or fertilizer material. If a chemical is mined, with no further transformation of that chemical, that chemical and the establishment mining that chemical are considered out of scope of manufacturing. Also, if a company is just mixing two different fertilizer materials together, with no chemical reaction occurring, they are considered in scope of manufacturing, but out of scope of inorganic chemicals and fertilizer materials.

The unit of measure (basis) for most of the quantities of inorganic chemicals and fertilizer materials contained in this report is 100 percent of the chemical compound. For example, if a company manufactures 100 tons of 100 percent HCl (hydrochloric acid), that company would report 100 tons of production. However, if the company manufactured 100 tons of a diluted HCl, about 75 percent HCl concentrate, that company would report 75 tons as their production. This is the amount of 100 percent HCl produced in the 75 percent solution.

The Current Industrial Reports (CIRs) on inorganic chemicals and fertilizer materials are annually compared with the Census Bureau's annual survey of manufactures (ASM). The ASM collects information on product shipments, as well as numerous other statistics, including

number of employees, wages, plant worker, hours, inventories, cost of materials, and resales. The value of product shipments is reconciled between the two reports in the time period after the CIR annual report is released, but before the ASM is released. Any revisions to the CIR surveys are then carried the following year.

The comparison of the CIR surveys on inorganic chemicals and fertilizer materials with the ASM product classes for 1997 and 1996 follows (value is in millions of dollars):

The value of shipments for the five-digit product classes for inorganic chemicals and fertilizer materials are generally within 2 percent. The product classes that differ by more than 2 percent are most likely a result of ASM sampling differences. The CIR reports are complete coverage (universe) surveys for the product classes covered; whereas, the ASM is a sample survey that uses a weighting factor to account for companies not sampled.

#### SUMMARY OF FINDINGS

The value of shipments of alkalis and chlorine (SIC 2812) amounted to \$3,070.0 million in 1997, a 4-percent decrease from the 1996 level of \$3,211.6 million. Value of shipments of chlorine (SIC 28121) increased 30 percent to \$1,234.1 million in 1997, from \$948.0 million in 1996. Value of shipments of sodium hydroxide (SIC 28123) decreased 23 percent to \$1,440.0 million in 1997, from \$1,859.6 million in 1996. Value of shipments of other alkalis (SIC 28125) decreased 2 percent to \$386.8 million in 1997 from \$394.4 million in 1996.

Titanium dioxide (SIC 28161) production increased 9 percent from 1,352.0 thousand short tons in 1996 to

1,477.2 thousand short tons in 1997. The unit price decreased 2 percent to \$1,681.80 per short ton in 1997, from \$1,712.18 per short ton in 1996.

Shipments of inorganic chemicals, n.e.c. (SIC 2819), remained virtually unchanged from the 1996 total of \$14,526.2 million to \$14,512.3 million in 1997. Leading the industry in shipments were potassium and sodium compounds (SIC 28197), which increased 2 percent, from \$2,036.1 million in 1996 to \$2,067.9 million in 1997; and other inorganic chemicals, n.e.c. (SIC 28199), with \$7,569.1 million in shipments in 1997, virtually unchanged from 1996 shipments of \$7,571.6 million.

United States production of sulfuric acid (SIC 28193) totaled 48,018.0 thousand short tons (100 percent H<sub>2</sub>SO<sub>4</sub>) in 1997, approximately 1 percent above the figure of 47,770.3 thousand short tons for 1996. Value of

shipments (including interplant transfers) amounted to \$528.3 million in 1997, compared with the value of \$578.1 million for 1996.

Value of shipments of synthetic ammonia, nitric acid, and ammonium compounds (SIC 28731) decreased 9 percent to \$3,494.0 million in 1997, from the 1996 level of \$3,818.8 million. Shipments of urea (SIC 28732) increased 15 percent to \$772.3 million in 1997, and shipments of phosphoric acid increased 14.5 percent to \$1,405.1 million.

Production of superphosphate and other phosphatic fertilizer materials (100 percent P<sub>2</sub>O<sub>5</sub>) (SIC 28742) decreased 1 percent to 10,431.4 thousand short tons for 1997. The value of shipments amounted to \$3,674.9 million in 1997, compared with the value of \$3,927.6 million in 1996.

**Table 1. Summary of Production and Shipments of Inorganic Chemicals and Fertilizer Materials: 1993 to 1997**

[Quantity in thousands of short tons. Value in millions of dollars]

Product code	Product description	Year	Total production (quantity)	Total shipments, including interplant transfers	
				Quantity	Value
2812—	Alkalies and chlorine <sup>1</sup> .....	1997 .....	(X)	(X)	3,070.0
		1996 .....	(X)	(X)	3,211.6
		1995 .....	(X)	(X)	3,168.5
		1994 .....	(X)	(X)	2,275.1
		1993 .....	(X)	(X)	2,278.2
28121—	Chlorine (100 percent Cl) .....	1997 .....	(X)	(X)	1,234.1
		1996 .....	(X)	(X)	948.0
		1995 .....	(X)	(X)	800.1
		1994 .....	(X)	(X)	840.9
		1993 .....	(X)	(X)	546.1
28123—	Sodium hydroxide (caustic soda) .....	1997 .....	(X)	(X)	1,440.0
		1996 .....	(X)	(X)	1,859.6
		1995 .....	(X)	(X)	1,971.3
		1994 .....	(X)	(X)	1,051.2
		1993 .....	(X)	(X)	1,369.9
28125—	Other alkalies .....	1997 .....	(X)	(X)	386.8
		1996 .....	(X)	(X)	394.4
		1995 .....	(X)	(X)	387.6
		1994 .....	(X)	(X)	376.2
		1993 .....	(X)	(X)	355.4
28120 00	Alkalies and chlorine, n.s.k. <sup>1</sup> .....	1997 .....	(X)	(X)	9.2
		1996 .....	(X)	(X)	9.6
		1995 .....	(X)	(X)	9.5
		1994 .....	(X)	(X)	6.9
		1993 .....	(X)	(X)	6.8
2816—	Inorganic color pigments .....	1997 .....	(X)	(X)	2,658.6
		1996 .....	(X)	(X)	2,486.7
		1995 .....	(X)	(X)	2,284.2
		1994 .....	(X)	(X)	2,470.9
		1993 .....	(X)	(X)	2,390.8
28161 00	Titanium dioxide (composite and pure) (commodity weight) .....	1997 .....	1,477.2	1,486.0	2,499.2
		1996 .....	1,352.0	1,362.4	2,332.7
		1995 .....	1,382.3	1,362.5	2,132.9
		1994 .....	1,379.9	1,397.9	2,318.1
		1993 .....	1,279.3	1,274.8	2,253.1

See footnotes at end of table.

Table 1. **Summary of Production and Shipments of Inorganic Chemicals and Fertilizer Materials: 1993 to 1997**—Con.

[Quantity in thousands of short tons. Value in millions of dollars]

Product code	Product description	Year	Total production (quantity)	Total shipments, including interplant transfers	
				Quantity	Value
2819—	Inorganic chemicals, n.e.c. <sup>1</sup>	1997	(X)	(X)	14,512.3
		1996	(X)	(X)	14,526.2
		1995	(X)	(X)	14,178.7
		1994	(X)	(X)	12,675.6
		1993	(X)	(X)	11,860.3
28193—	Sulfuric acid, gross (new and fortified)	1997	48,018.0	12,960.9	528.3
		1996	47,770.3	13,014.8	571.7
		1995	47,519.3	12,677.7	539.8
		1994	44,861.9	11,767.2	461.9
		1993	39,838.5	11,362.0	515.9
28194—	Inorganic acids (except nitric, phosphoric, and sulfuric)	1997	(X)	(X)	615.4
		1996	(X)	(X)	636.8
		1995	(X)	(X)	580.8
		1994	(X)	(X)	557.6
		1993	(X)	(X)	505.6
28195 00	Aluminum oxide (except natural alumina)	1997	5,072.1	5,066.3	1,035.5
		1996	4,734.1	4,816.9	1,022.7
		1995	4,764.0	4,871.9	1,035.7
		1994	4,469.9	4,484.0	812.9
		1993	4,953.7	4,898.4	920.4
28196—	Aluminum compounds	1997	(X)	(X)	725.1
		1996	(X)	(X)	745.4
		1995	(X)	(X)	678.6
		1994	(X)	(X)	602.4
		1993	(X)	(X)	573.9
28197—	Potassium and sodium compounds (except bleaches, alkalies, and alums)	1997	(X)	(X)	2,067.9
		1996	(X)	(X)	2,036.1
		1995	(X)	(X)	1,988.6
		1994	(X)	(X)	1,872.1
		1993	(X)	(X)	1,884.3
28198 00	Chemical catalytic preparations	1997	(X)	(X)	1,731.0
		1996	(X)	(X)	1,703.5
		1995	(X)	(X)	1,625.4
		1994	(X)	(X)	1,424.0
		1993	(X)	(X)	1,380.3
28199—	Other inorganic chemicals, n.e.c.	1997	(X)	(X)	7,569.1
		1996	(X)	(X)	7,571.6
		1995	(X)	(X)	7,499.3
		1994	(X)	(X)	6,733.7
		1993	(X)	(X)	5,883.2
28190 00	Industrial inorganic chemicals, n.s.k. <sup>1</sup>	1997	(X)	(X)	240.0
		1996	(X)	(X)	238.4
		1995	(X)	(X)	231.0
		1994	(X)	(X)	196.8
		1993	(X)	(X)	219.6
28422 00	Household bleaching compounds	1997	235.3	234.1	920.2
		1996	304.2	314.9	891.1
		1995	307.2	319.8	922.5
		1994	312.9	306.7	954.8
		1993	262.6	270.2	914.8
28731 31	Ammonia, synthetic anhydrous <sup>2</sup>	1997	17,890.7	8,588.6	1,577.9
		1996	17,922.8	9,919.1	1,689.7
		1995	17,402.2	9,722.8	1,661.6
		1994	17,869.1	10,525.3	1,540.8
		1993	17,195.2	10,435.5	1,174.3
28731 44	Ammonium nitrate, original melt liquor <sup>3</sup>	1997	8,604.4	(X)	(X)
		1996	8,497.8	(X)	(X)
		1995	8,489.1	(X)	(X)
		1994	8,567.6	(X)	(X)
		1993	8,280.9	(X)	(X)
28731 57	Ammonium sulfate <sup>2</sup>	1997	2,710.7	2,544.0	180.6
		1996	2,662.0	2,543.5	213.6
		1995	2,646.7	2,551.7	195.3
		1994	2,584.1	2,484.9	168.8
		1993	2,432.4	2,416.9	150.4

See footnotes at end of table.



Table 1. **Summary of Production and Shipments of Inorganic Chemicals and Fertilizer Materials: 1993 to 1997—Con.**

[Quantity in thousands of short tons. Value in millions of dollars]

Product code	Product description	Year	Total production (quantity)	Total shipments, including interplant transfers	
				Quantity	Value
28732 —	Urea (100 percent) .....	1997 .....	8,189.9	5,342.0	772.3
		1996 .....	8,548.3	5,781.4	911.9
		1995 .....	8,116.7	5,242.8	848.3
		1994 .....	8,360.3	5,456.9	726.1
		1993 .....	8,329.6	5,254.8	629.6
28731 11	Nitric acid (100 percent) .....	1997 .....	9,432.7	1,804.5	216.2
		1996 .....	9,204.8	1,460.9	196.9
		1995 .....	8,839.0	1,291.1	168.2
		1994 .....	8,713.7	931.8	116.5
		1993 .....	8,253.9	678.0	88.5
28741 —	Phosphoric acid (100 percent P <sub>2</sub> O <sub>5</sub> ) .....	1997 .....	13,158.7	4,587.5	1,405.1
		1996 .....	13,210.0	4,401.8	1,226.8
		1995 .....	13,133.8	4,409.3	1,219.5
		1994 .....	12,792.0	4,227.7	1,103.1
		1993 .....	11,515.1	3,687.5	969.3
28193 —	Sulfuric acid, gross (100 percent) .....	1997 .....	48,018.0	12,961.7	528.3
		1996 .....	47,770.3	13,014.8	578.1
		1995 .....	47,519.3	12,677.7	539.3
		1994 .....	44,861.9	11,767.2	461.9
		1993 .....	39,838.5	11,362.0	515.9
28742 —	Superphosphates and other fertilizer materials (100 percent P <sub>2</sub> O <sub>5</sub> ) .....	1997 .....	10,431.4	10,429.0	3,675.0
		1996 .....	10,547.2	10,500.9	3,927.6
		1995 .....	10,364.2	10,231.0	3,594.3
		1994 .....	10,041.6	9,966.9	2,920.7
		1993 .....	8,800.9	8,813.8	2,057.3

n.e.c. Not elsewhere classified. n.s.k. Not specified by kind. †Revised by 5 percent or more from previously published data.  
X Not applicable.

<sup>1</sup>Totals include values for industrial inorganic chemicals not specified by kind (n.s.k.). N.s.k. represents value of shipments for establishments that did not provide detailed information by type of product. These establishments, typically with less than 10 employees, are not included on the mailing panel. N.s.k. value has been estimated based on the rate of change for reporting establishments applied to previous year's data.

<sup>2</sup>Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

<sup>3</sup>Represents total amount of original melt liquor produced for all purposes.

**Table 2a. Production and Shipments of Selected Inorganic Chemicals: 1997 and 1996**

[Quantity in short tons (unless otherwise noted). Value in thousands of dollars]

Product code	Product description	1997			1996		
		Total production (quantity)	Total shipments, including interplant transfers		Total production (quantity)	Total shipments, including interplant transfers	
			Quantity	Value		Quantity	Value
2812—	Alkalies and chlorine <sup>1</sup> . . . . .	(X)	(X)	3,070,017	(X)	(X)	3,211,629
28121 —	Chlorine (100 percent Cl) . . . . .	(X)	(X)	1,234,084	(X)	(X)	947,966
28121 11	Gas <sup>2</sup> . . . . .	12,922,235	517,683	73,758	12,460,241	514,061	60,002
28121 15	Liquid . . . . .	10,427,140	6,522,345	1,160,326	10,008,127	6,212,162	887,964
28123 —	Sodium hydroxide (caustic soda) . . . . .	(X)	(X)	1,439,986	(X)	(X)	1,859,648
28123 50	Sodium hydroxide, total liquid (all processes) (100 percent NaOH) <sup>3</sup> . . . . .	11,971,869	(X)	(X)	11,562,556	(X)	(X)
28123 61	Liquid, 68 to 74 percent <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28123 65	Liquid, all other <sup>4</sup> . . . . .	11,894,839	(D)	(D)	11,508,817	(D)	(D)
28123 67	Dry (all forms) <sup>5</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28125 —	Other alkalies . . . . .	(X)	(X)	386,774	(X)	(X)	394,418
	Potassium hydroxide (caustic potash) (88 to 92 percent KOH):						
28125 21	Liquid . . . . .	532,754	(D)	(D)	499,915	(D)	(D)
28125 23	Solid . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28125 30	Finished sodium bicarbonate . . . . .	522,028	565,827	173,321	501,951	533,306	189,562
28125 40	Potassium carbonate . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28125 90	Sodium carbonate (soda ash):						
14745 11	Natural and synthetic <sup>6</sup> . . . . .	11,838	(NA)	(NA)	10,942	(NA)	(NA)
28125 90	Alkalies, n.e.c., including soda ash, sal soda, and modified sodas; excluding alkaline detergents . . . . .	(X)	(X)	27,996	(X)	(X)	23,843
28120 00	Alkalies and chlorine, n.s.k. <sup>1</sup> . . . . .	(X)	(X)	9,173	(X)	(X)	9,597
2816—	Inorganic color pigments . . . . .	(X)	(X)	2,658,583	(X)	(X)	2,486,663
28161 00	Titanium dioxide (composite and pure) commodity weight) . . . . .	1,477,247	1,486,017	2,499,188	1,351,960	1,362,397	2,332,673
28163 13	Chrome green (C.P.) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28163 15	Chrome yellow and orange (C.P.) . . . . .	(D)	<sup>a</sup> 6,433	<sup>a</sup> 19,201	5,939	(D)	(D)
28163 17	Molybdate chrome orange (C.P.) . . . . .	880	(D)	(D)	833	(D)	(D)
28163 18	Zinc yellow (zinc chromate) (C.P.) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28163 19	Other chrome colors (C.P.) . . . . .	33,231	31,246	99,196	33,694	32,106	94,382
2819—	Inorganic chemicals, n.e.c. <sup>7</sup> . . . . .	(X)	(X)	14,512,280	(X)	(X)	14,526,208
28193 00	Sulfuric acid, gross (new and fortified) <sup>8</sup> . . . . .	48,018,049	12,960,945	528,345	47,770,349	13,014,773	571,745
28194 —	Inorganic acids (except nitric, phosphoric, and sulfuric) . . . . .	(X)	(X)	615,397	(X)	(X)	636,794
	Boric (boracic) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
	Hydrochloric acid, including anhydrous (100 percent HCl) <sup>9</sup> . . . . .	4,411,168	1,644,260	131,528	4,115,838	1,699,883	126,210
28194 41	From salt and acid <sup>10</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28194 45	From chlorine and hydrogen . . . . .	398,982	282,619	41,166	365,069	274,118	32,497
28194 47	Byproduct and other <sup>10</sup> . . . . .	4,012,186	1,361,641	90,362	3,750,769	1,425,765	93,713
28194 51	Hydrocyanic, including anhydrous (100 percent HCN) . . . . .	574,976	153,265	112,403	526,995	149,808	98,932
	Hydrofluoric (100 percent HF):						
	Produced and withdrawn from system:						
28194 61	Anhydrous . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28194 65	Technical . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28194 67	Mixed (sulfuric and nitric) (commodity weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28194 98	Other inorganic acids, n.e.c., including chlorosulfonic and perchloric . . . . .	(X)	(X)	154,854	(X)	(X)	144,212
28195 00	Aluminum oxide (except natural alumina) . . . . .	5,072,140	5,066,302	1,035,502	4,734,078	4,816,874	1,022,669
28196 —	Aluminum compounds . . . . .	(X)	(X)	725,137	(X)	(X)	745,376
	Chloride:						
28196 13	Liquid and crystal (100 percent AlCl <sub>3</sub> ) . . . . .	33,629	(D)	(D)	31,464	(D)	(D)
28196 17	Anhydrous (100 percent AlCl <sub>3</sub> ) . . . . .	28,111	28,297	29,477	31,557	31,575	30,744
28196 25	Hydroxide, trihydrate (100 percent Al <sub>2</sub> O <sub>3</sub> ·3H <sub>2</sub> O) . . . . .	1,032,445	1,111,324	249,921	1,010,416	1,055,138	254,981
28196 27	Fluoride technical . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
	Sulfate:						
28196 51	Commercial (17 percent Al <sub>2</sub> O <sub>3</sub> ), including municipalities . . . . .	1,161,136	1,100,237	111,386	1,196,673	1,146,994	117,810
28196 55	Iron-free (17 percent Al <sub>2</sub> O <sub>3</sub> ) . . . . .	122,281	124,104	13,498	132,957	132,905	15,648
28196 73	Aluminates (sodium aluminate, potassium aluminate, etc. (100 percent by weight) . . . . .	321,129	320,330	43,925	283,284	282,669	43,931
28196 79	Other inorganic aluminum compounds (e.g., light aluminum hydroxide, and cryolite) . . . . .	(X)	(X)	(D)	(X)	(X)	(D)

See footnotes at end of table.

Table 2a. **Production and Shipments of Selected Inorganic Chemicals: 1997 and 1996—Con.**

[Quantity in short tons (unless otherwise noted). Value in thousands of dollars]

Product code	Product description	1997			1996		
		Total production (quantity)	Total shipments, including interplant transfers		Total production (quantity)	Total shipments, including interplant transfers	
			Quantity	Value		Quantity	Value
28197 —	Inorganic chemicals, n.e.c.—Con.						
	Potassium and sodium compounds (except bleaches, alkalis, and alums) . . . . .	(X)	(X)	2,067,879	(X)	(X)	2,036,141
	Potassium compounds, n.e.c.:						
28197 13	Iodide (100 percent KI) . . . . .	1,056	1,099	14,868	893	1,128	13,881
28197 16	Sulfate (100 percent K <sub>2</sub> SO <sub>4</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 18	Pyrophosphate (tetrapotassium pyrophosphate) (100 percent K <sub>4</sub> P <sub>2</sub> O <sub>7</sub> ) . . . . .	29,148	26,120	28,201	28,101	23,480	29,140
28197 23	Potassium phosphates (100 percent by weight) . . . . .	23,418	22,025	21,409	14,495	14,338	19,942
28197 24	Potassium silicates (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 17	Other potassium salts and compounds, n.e.c., including potassium chlorate, nitrate, and perchlorate . . . . .	(X)	(X)	96,021	(X)	(X)	90,175
28197 21	Sodium (metal) (100 percent Na) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
	Sodium compounds, n.e.c.:						
28197 28	Sodium bromides (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 27	Chlorate (100 percent NaClO <sub>3</sub> ) . . . . .	625,883	614,269	211,813	662,361	641,205	219,788
28197 29	Hydrosulfide (sodium sulfhydrate) (100 percent NaSH) . . . . .	112,375	114,148	32,242	<sup>1</sup> 113,628	<sup>1</sup> 111,308	<sup>1</sup> 31,932
28197 30	Hydrosulfite (100 percent Na <sub>2</sub> S <sub>2</sub> O <sub>4</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
	Phosphate:						
28197 32	Monobasic (100 percent NaH <sub>2</sub> S <sub>2</sub> PO <sub>4</sub> ) <sup>11</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 33	Dibasic (100 percent Na <sub>2</sub> HPO <sub>4</sub> ) <sup>11</sup> . . . . .	18,130	17,839	19,932	21,127	20,736	27,222
28197 34	Tribasic (100 percent Na <sub>3</sub> PO <sub>4</sub> ) . . . . .	(D)	17,689	10,586	19,733	19,976	15,332
28197 35	Tetrabasic (pyro) (100 percent Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> ) . . . . .	(D)	(D)	(D)	(D)	13,323	12,970
28197 36	Meta (100 percent NaPO <sub>3</sub> ) . . . . .	41,051	41,196	35,061	45,946	37,764	39,509
28197 37	Acid pyro . . . . .	34,175	34,003	33,048	33,121	32,124	31,060
28197 38	Tripoly (100 percent Na <sub>5</sub> P <sub>3</sub> O <sub>10</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 39	Other sodium phosphates . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
	Silicates:						
28197 41	Soluble silicate glass (water glass, solid, and liquid) (anhydrous) <sup>12</sup> . . . . .	1,213,753	(D)	(D)	1,104,820	681,879	148,075
28197 42	Metasilicate pentahydrate (100 percent Na <sub>2</sub> SiO <sub>3</sub> ) . . . . .	40,371	39,330	11,288	42,522	41,988	10,716
28197 44	Metasilicate anhydrous (100 percent Na <sub>2</sub> SiO <sub>3</sub> ) . . . . .	42,855	41,244	16,166	43,992	43,128	15,891
28197 51	Silicofluoride (100 percent Na <sub>2</sub> SiF <sub>6</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
	Sulfate:						
28197 61	High purity (100 percent Na <sub>2</sub> SO <sub>4</sub> ) . . . . .	(D)	484,278	<sup>a</sup> 37,905	(D)	507,231	35,198
28197 66	Lower purity (100 percent Na <sub>2</sub> SO <sub>4</sub> ) and Glauber's salt (100 percent Na <sub>2</sub> SO <sub>4</sub> ·10H <sub>2</sub> O) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 84	Sulfite (100 percent Na <sub>2</sub> SO <sub>3</sub> ) . . . . .	123,135	159,999	33,916	120,279	123,023	26,407
28197 85	Thiosulfate (hypo) (100 percent Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ·5H <sub>2</sub> O) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 87	Other sodium compounds, n.e.c., including sodium bisulfate, bifluoride, borate, fluoride, and other silicates; excluding bleaches . . . . .	(X)	(X)	764,219	(X)	(X)	743,877
28198 00	Chemical catalytic preparations . . . . .	(X)	(X)	1,731,008	(X)	(X)	1,703,505
28199 —	Other inorganic chemicals, n.e.c. . . . .	(X)	(X)	7,569,061	(X)	(X)	7,571,609
28199 01	Reagent and high purity grades of inorganic chemicals refined from purchased technical grades . . . . .	(X)	(X)	46,735	(X)	(X)	75,394
28199 02	Antimony compounds, excluding pigment grades . . . . .	(X)	(X)	95,780	(X)	(X)	<sup>1</sup> 118,812
	Barium compounds:						
28199 04	Carbonate (precipitated) (100 percent BaCO <sub>3</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 05	Sulfate (100 percent BaSO <sub>4</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 06	Other barium compounds, including barium chloride, nitrate, peroxide, and sulfide; excluding pigment grades . . . . .	(X)	(X)	29,584	(X)	(X)	28,525
28199 09	Bismuth compounds, excluding bismuth carbonate <sup>13</sup> . . . . .	(X)	(X)	(D)	(X)	(X)	11,185
28199 10	Bromine (isolated) (100 percent Br) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 11	Cadmium compounds . . . . .	(X)	(X)	14,087	(X)	(X)	13,190
	Calcium compounds:						
28199 12	Carbide (commercial) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 13	Carbonate (precipitated) (100 percent CaCO <sub>3</sub> ) . . . . .	1,727,839	1,722,971	248,133	1,550,611	1,550,380	222,538
28199 14	Chloride (100 percent CaCl <sub>2</sub> ) . . . . .	991,814	841,234	87,766	884,913	908,029	105,213
	Phosphates:						
28199 18	Monobasic (100 percent CaH <sub>4</sub> (PO <sub>4</sub> ) <sub>2</sub> ) (21 percent P) . . . . .	840,594	825,183	207,111	780,334	779,452	186,714
28199 19	Dibasic (100 percent CaHPO <sub>4</sub> ) (18.5 percent P) . . . . .	645,884	645,586	199,637	695,379	688,510	205,468
	Tribasic (100 percent Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ) (18 percent P):						
28742 71	Animal feed grades . . . . .	522,088	515,109	122,457	514,902	513,040	114,768
28199 22	Other grades . . . . .	(D)	29,149	29,504	30,800	31,678	28,743
28199 23	Other inorganic calcium compounds . . . . .	(X)	(X)	66,546	(X)	(X)	57,403
	Carbon activated:						
28199 25	Granular carbons (dry weight) . . . . .	99,504	97,798	211,812	94,664	93,325	187,444
28199 27	Pulverized carbons (dry weight) . . . . .	73,658	67,139	68,422	75,565	69,571	66,412

See footnotes at end of table.

Table 2a. **Production and Shipments of Selected Inorganic Chemicals: 1997 and 1996—Con.**

[Quantity in short tons (unless otherwise noted). Value in thousands of dollars]

Product code	Product description	1997			1996		
		Total production (quantity)	Total shipments, including interplant transfers		Total production (quantity)	Total shipments, including interplant transfers	
			Quantity	Value		Quantity	Value
	Inorganic chemicals, n.e.c.—Con.						
	Other inorganic chemicals, n.e.c.—Con.						
	Chromium compounds:						
28199 33	Sodium bichromate and chromate (hydrous) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 34	Other chromium compounds, including potassium bichromate and excluding chrome colors . . . . .	(X)	(X)	95,758	(X)	(X)	103,560
	Copper compounds:						
28199 35	Cuprous oxide (100 percent Cu <sub>2</sub> O) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 37	Other copper compounds, including copper cyanide and copper sulfate . . . . .	(X)	(X)	82,360	(X)	(X)	81,894
28199 38	Gold compounds . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
28199 39	Hydrogen peroxide (100 percent by weight) <sup>14</sup> . . . . .	368,704	358,384	277,200	343,218	341,570	297,560
28199 40	Iodine, crude or resublimed (100 percent I) (quantity in pounds) . . . . .	3,037,009	3,063,838	20,869	(D)	(D)	(D)
	Iron compounds:						
28199 42	Ferric chloride (100 percent FeCl <sub>3</sub> ) . . . . .	211,770	210,538	39,481	220,589	235,896	36,069
28199 43	Iron oxides and hydroxides (100 percent by weight), excluding iron oxide pigments . . . . .	46,138	(D)	(D)	39,442	35,236	19,786
28199 44	Other iron compounds, including ferrous sulfate . . . . .	(X)	(X)	59,919	(X)	(X)	62,897
28199 45	Lithium compounds . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
	Magnesium compounds:						
28199 48	Chloride (100 percent MgCl <sub>2</sub> ) . . . . .	786,761	354,018	11,911	649,848	312,337	<sup>†</sup> 13,036
28199 49	Sulfate (100 percent MgSO <sub>4</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 50	Other magnesium compounds, including magnesium and epsom salts . . . . .	(X)	(X)	80,406	(X)	(X)	76,167
	Manganese compounds:						
28199 51	Dioxide (100 percent MnO <sub>2</sub> ) . . . . .	72,131	69,386	105,998	68,595	70,942	103,414
28199 52	Other manganese compounds, including potassium, and other permanganates, battery grade, and manganese sulfate . . . . .	(X)	(X)	65,374	(X)	(X)	64,211
	Mercury and compounds:						
28199 53	Mercury, redistilled (quantity in pounds) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 54	Other mercury compounds, including mercuric oxide; excluding mercuric fulminate and medicinal grades. . . . .	(X)	(X)	(D)	(X)	(X)	(D)
	Molybdenum compounds:						
28199 5A	Oxides (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 5B	Molybdates (ammonium molybdate, sodium molybdates, etc.) (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 5C	Other molybdenum compounds . . . . .	(X)	(X)	29,786	(X)	(X)	(D)
	Nickel compounds:						
28199 56	Oxides and hydroxides (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 57	Chloride (100 percent NiCl <sub>2</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 55	Sulfate (100 percent NiSO <sub>4</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 59	Other nickel compounds . . . . .	(X)	(X)	56,029	(X)	(X)	<sup>†</sup> 51,620
	Phosphorus and compounds:						
28199 58	Phosphorus, elemental (technical) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 60	Oxychloride (100 percent POCl <sub>3</sub> ) . . . . .	37,756	(D)	(D)	36,687	(D)	(D)
28199 61	Pentasulfide (100 percent P <sub>2</sub> S <sub>5</sub> ) . . . . .	58,538	48,747	46,394	65,677	49,814	49,663
28199 63	Trichloride (chloride) (100 percent PCl <sub>3</sub> ) . . . . .	259,886	59,169	38,009	205,431	54,508	39,114
28199 64	Other phosphorus compounds, including phosphorus pentoxide . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
28199 65	Rare earth compounds . . . . .	(X)	(X)	84,468	(X)	(X)	88,658
	Silicon compounds:						
28199 66	Silicon tetrachloride (100 percent SiCl <sub>4</sub> ) . . . . .	48,580	(D)	(D)	(D)	(D)	(D)
28199 67	Silica gel . . . . .	(X)	(X)	46,865	(X)	(X)	51,682
28199 68	Other silicon compounds . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
28199 73	Silver compounds . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
	Strontium compounds:						
28199 71	Carbonate (100 percent SO <sub>2</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 72	Other strontium compounds . . . . .	(X)	(X)	5,940	(X)	(X)	5,886
	Sulfur and sulfur compounds:						
28199 74	Sulfur, recovered elemental (thousand metric tons) <sup>15</sup> . . . . .	10,500	10,400	365,000	11,400	13,000	494,000
28199 75	Sulfur dioxide (produced for sale) (100 percent SO <sub>2</sub> ) . . . . .	167,453	<sup>a</sup> 158,233	<sup>a</sup> 29,220	207,697	210,113	36,002
28199 78	Other sulfur compounds, including sulfur chloride . . . . .	(X)	(X)	126,145	(X)	(X)	<sup>†</sup> 100,021
28199 83	Tin compounds . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
	Tungsten compounds:						
28199 84	Tungstates (ammonium tungstate, sodium tungstate, etc.) (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 85	All other tungsten compounds . . . . .	(X)	(X)	(D)	(X)	(X)	(D)

See footnotes at end of table.

Table 2a. **Production and Shipments of Selected Inorganic Chemicals: 1997 and 1996—Con.**

[Quantity in short tons (unless otherwise noted). Value in thousands of dollars]

Product code	Product description	1997			1996		
		Total production (quantity)	Total shipments, including interplant transfers		Total production (quantity)	Total shipments, including interplant transfers	
			Quantity	Value		Quantity	Value
	Inorganic chemicals, n.e.c.—Con.						
	Other inorganic chemicals, n.e.c.—Con.						
	Zinc compounds:						
28199 87	Sulfate (100 percent ZnSO <sub>4</sub> H <sub>2</sub> O) . . . . .	47,799	42,273	23,602	50,196	48,249	24,744
28199 86	Oxide and peroxide (100 percent by weight) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 88	Chloride (100 percent ZnCl <sub>2</sub> ) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 89	Other zinc compounds, excluding pigment grades . . . . .	(X)	(X)	26,773	(X)	(X)	32,379
28199 90	Platinum, radium, tantalum, and thallium . . . . .	(X)	(X)	(D)	(X)	(X)	(D)
28199 98	All other inorganic chemicals, including nuclear fuels titanium tetrachloride, and other titanium compounds . . . . .	(X)	(X)	2,234,877	(X)	(X)	2,269,808
28190 00	Industrial inorganic chemicals, n.s.k. <sup>1</sup> . . . . .	(X)	(X)	239,951	(X)	(X)	238,369
	Chlorine and other inorganic bleaching compounds . . . . .	655,518	656,808	1,208,578	727,219	732,931	1,158,604
28422 —	Household . . . . .	235,291	234,125	920,163	304,160	314,912	891,079
28422 43	Liquid (sodium hypochlorite, etc.) (less than 7 percent available chlorine or equivalent oxidizing value) (100 percent Cl equivalent) . . . . .	171,143	166,701	736,178	<sup>a</sup> 245,341	<sup>a</sup> 252,232	683,470
28422 53	Dry (calcium hypochlorite, etc.) (less than 50 percent available chlorine or equivalent oxidizing value) (100 percent Cl equivalent) . . . . .	64,148	67,424	183,985	<sup>f</sup> 58,819	<sup>f</sup> 62,680	<sup>f</sup> 207,609
28199 00	Industrial . . . . .	420,227	422,683	288,415	<sup>f</sup> 423,059	<sup>f</sup> 418,019	<sup>f</sup> 267,525
28199 30	Liquid (sodium hypochlorite, etc.) (7 percent or more available chlorine or equivalent oxidizing value) (100 percent Cl equivalent) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 15	Dry (calcium hypochlorite, etc.) (50 percent or more available chlorine or equivalent oxidizing value) (100 percent Cl equivalent) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. n.s.k. Not specified by kind. <sup>f</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Totals include values for industrial inorganic chemicals not specified by kind (n.s.k). N.s.k. represents value of shipments for establishments that did not provide detailed information by type of product. These establishments, typically with less than 10 employees, are not included on mailing panel. N.s.k. value has been estimated based on rate of change for reporting establishments applied to previous year's data.

<sup>2</sup>Includes quantities liquefied for use, storage, or shipments.

<sup>3</sup>Includes quantities later evaporated to dry caustic soda and reported as such.

<sup>4</sup>Includes some liquid shipped as interplant transfers to other establishments for further processing to dry forms. Product code 28123 61, "Sodium hydroxide liquid, 68 to 74 percent," is combined with product code 28123 65, "Sodium hydroxide liquid, all other," to avoid disclosing data for individual companies.

<sup>5</sup>Includes unspecified amounts produced from liquid caustic received from other establishments.

<sup>6</sup>Source: U.S. Geological Survey. Quantity in thousand short tons.

<sup>7</sup>Includes value of inorganic chemicals shipped by establishments classified in both "manufacturing" and "nonmanufacturing" industries.

<sup>8</sup>Detail data for sulfuric acid are found in Table 2b.

<sup>9</sup>Includes anhydrous hydrochloric acid production. Quantity of shipments is 184,499 short tons in 1997 and 150,046 short tons in 1996; value of shipments of \$49,291 in 1997 and \$36,080 in 1996. Quantity of production is withheld to avoid disclosing data for individual companies.

<sup>10</sup>Product code 28194 41, "Hydrochloric acid produced from salt and acid" is combined with product code 28194 47, "Hydrochloric acid byproduct and other" to avoid disclosing data for individual companies.

<sup>11</sup>Represents quantities produced only for sale or interplant transfer.

<sup>12</sup>Quantity produced excludes quantities consumed in manufacture of meta-, ortho-, and sequisilicates. Shipments data include unspecified amounts shipped to other plants for use in manufacturing meta-, ortho-, and sequisilicates.

<sup>13</sup>Product code 28199 09 excludes bismuth carbonate, which is classified as a medicinal chemical and is out of scope of this survey.

<sup>14</sup>Production includes unspecified amounts of hydrogen peroxide produced but not withdrawn from system.

<sup>15</sup>Source: U.S. Geological Survey. Quantity in thousand short tons; value in thousand dollars. Includes data for Puerto Rico and the Virgin Islands. Shipped quantity and value include "Frasch sulfur" data to conform with proprietary data requirements.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>20 percent or more of this item is estimated.

**Table 2b. Production and Shipments of Fertilizer Materials: 1997 and 1996**

[Quantity in thousands of short tons. Value in millions of dollars]

Product code	Chemical and basis	1997			1996		
		Total production (quantity)	Total shipments, including interplant transfers		Total production (quantity)	Total shipments, including interplant transfers	
			Quantity	Value		Quantity	Value
28193 —	Sulfuric acid, gross (new and fortified)	48,018.0	12,961.7	528.3	47,770.3	13,014.8	578.1
	By feedstock:						
28193 32	Elemental sulfur	39,046.5	7,637.4	353.2	38,413.0	7,274.7	373.6
28193 34	Smelting metallic sulfide ore	3,847.1	3,378.9	51.0	3,900.7	3,416.9	57.0
28193 36	Decomposition of alkylation and other spent acid	4,774.5	1,700.9	109.7	5,038.2	2,091.5	135.3
28193 38	Other	350.0	244.6	14.5	418.414	231.6	12.2
	By grade:						
28193 11	Oleum under 40 percent	1,296.6	806.7	44.2	1,304.3	888.3	60.6
28193 21	Oleum 40 percent and more	206.9	205.0	11.2	226.5	256.5	14.4
28193 31	Other than oleum <sup>1</sup>	46,514.6	11,950.1	472.9	46,239.5	11,870.0	496.8
28731 —	Synthetic ammonia, nitric acid, and ammonium compounds	(X)	(X)	3,494.0	(X)	(X)	3,818.8
28731 11	Nitric acid (100 percent HNO <sub>3</sub> ) <sup>2</sup>	9,432.7	1,804.5	216.2	9,204.8	1,460.9	196.9
28731 31	Ammonia, synthetic anhydrous (100 percent NH <sub>3</sub> ) <sup>3</sup>	17,890.7	8,588.6	1,577.9	17,922.8	9,919.1	1,689.7
28731 30	Fertilizer use	15,348.7	6,816.7	1,285.0	15,617.2	8,286.9	1,371.5
28731 32	Other uses	2,542.1	1,771.9	293.0	2,305.5	1,632.3	318.2
	Ammonium nitrate:						
28731 44	Original melt liquor (100 percent NH <sub>4</sub> NO <sub>3</sub> ) <sup>4</sup>	8,604.4	4,416.2	630.0	8,497.8	4,322.7	653.9
	Consumed in the manufacture of:						
	Other nitrogen solutions (100 percent NH <sub>4</sub> NO <sub>3</sub> )	245.3	(X)	(X)	279.2	(X)	(X)
28731 46	Ammonium nitrate-urea solutions	3,770.3	(X)	(X)	3,786.1	(X)	(X)
28731 47	High density prill and granular	2,550.5	2,467.2	335.2	2,503.1	2,448.8	363.1
28731 48	Low density prill and grained	1,653.3	1,619.1	250.4	1,556.2	1,539.5	246.1
28731 49	All other (liquor sales, etc.)	385.0	330.0	44.4	373.2	334.3	44.7
28731 57	Ammonium sulfate, synthetic and byproduct other than coke oven byproduct (100 percent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ) <sup>5</sup>	2,710.7	2,544.0	180.6	2,662.0	2,543.5	213.6
28731 56	Synthetic	(D)	(D)	(D)	(D)	(D)	(D)
28731 58	Byproduct, other than coke oven	(D)	(D)	(D)	(D)	(D)	(D)
28731 55	Nitrogen solutions (100 percent N), including mixtures containing urea	3,627.0	3,197.7	815.6	3,649.8	3,665.7	1,006.1
28731 66	Ammonium nitrate/urea solutions	3,495.6	3,067.1	787.9	3,529.3	3,547.2	983.0
28731 68	All other compounds and solutions (e.g. CAN17, AN20, AAN and others) and solutions containing free ammonia, including data for solutions containing two or more products such as (a) ammonia, ammonium-nitrate; (b) ammonia, urea; (c) ammonia, ammonium-nitrate, urea	131.4	130.6	27.7	120.5	118.5	23.1
28731 69	Other ammonium compounds, including ammonium chloride, gray and white	(X)	(X)	73.7	(X)	(X)	58.7
28732 —	Urea original melt liquor (100 percent)	8,189.9	5,342.0	772.3	8,548.3	5,781.4	911.9
	Consumed in the manufacture of:						
28732 17	Urea-ammonium nitrate solutions	2,776.5	(X)	(X)	2,761.2	(X)	(X)
28732 19	Prills	2,455.1	2,412.5	348.7	2,736.4	2,746.3	397.7
28732 20	Granular	2,696.3	2,665.1	390.0	2,765.1	2,750.4	479.5
28732 23	All other (liquor sales, melamine, feedstock, other)	262.0	264.4	33.6	285.7	284.7	34.7
28741 —	Phosphoric acid (100 percent P <sub>2</sub> O <sub>5</sub> )	13,158.7	4,587.5	1,405.1	13,210.0	4,401.8	1,226.8
28741 81	Thermal	299.1	169.2	117.9	306.5	156.7	124.0
28741 85	Wet	12,859.6	4,418.3	1,287.2	12,903.5	4,245.1	1,102.8
	By use:						
28741 86	Fertilizer	11,979.7	(D)	(D)	11,877.6	(D)	(D)
28741 87	Feed and other	880.0	(D)	(D)	1,026.0	(D)	(D)
	By grade:						
28741 88	Ortho (less than 65 percent P <sub>2</sub> O <sub>5</sub> )	11,411.1	3,251.2	897.1	11,479.6	3,026.9	776.8
28741 89	Super (65 percent or more P <sub>2</sub> O <sub>5</sub> )	1,448.5	1,167.1	390.1	1,423.9	1,218.3	326.1
28742 —	Superphosphates and other phosphatic fertilizer materials:						
	Gross weight <sup>5</sup>	21,107.6	20,429.0	(X)	20,843.8	20,451.2	(X)
28742 15, 41	Phosphoric oxide content (100 percent P <sub>2</sub> O <sub>5</sub> )	10,431.4	10,429.0	3,674.9	10,547.2	10,500.9	3,927.6
	Normal, enriched, and concentrated superphosphates:						
	Gross weight	1,619.6	1,428.5	(X)	1,841.3	1,604.5	(X)
28742 51	Phosphoric oxide content (100 percent P <sub>2</sub> O <sub>5</sub> )	728.0	675.9	201.6	822.8	763.2	307.9
	Monoammonium phosphates:						
	Gross weight	3,416.3	3,434.7	(X)	3,333.0	3,915.1	(X)
28742 52	Phosphoric oxide content (100 percent P <sub>2</sub> O <sub>5</sub> )	1,910.6	1,912.1	667.3	1,797.6	1,773.7	660.6
	Diammonium phosphates:						
	Gross weight	15,539.1	15,005.3	(X)	15,033.3	14,293.6	(X)
28742 55, 61	Phosphoric oxide content (100 percent P <sub>2</sub> O <sub>5</sub> )	7,531.7	7,564.3	2,704.6	7,590.2	7,617.2	2,853.4
	Other ammonium phosphates and other phosphatic fertilizer materials:						
	Gross weight	532.6	560.4	(X)	636.2	638.1	(X)
	Phosphoric oxide content (100 percent P <sub>2</sub> O <sub>5</sub> )	261.1	276.6	101.4	336.5	346.7	105.7

D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Data for "Other than oleum" includes chamber process acid.

<sup>2</sup>Includes unspecified amounts of nitric acid produced but not withdrawn from system.

<sup>3</sup>Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

<sup>4</sup>Represents total amount of original solution produced, including amounts used for fertilizer, explosives, and other uses and amounts consumed in manufacturing other products such as "Nitrogen solutions" (product code 28731 55).

<sup>5</sup>Value for gross weight and (100 percent P<sub>2</sub>O<sub>5</sub>) are same value for each 28742 product code.

**Table 3. Quantities of Selected Inorganic Acids and Fertilizer Materials Produced and Consumed in Same Plant: 1997 and 1996**

[Thousands of short tons]

Product code	Product description	Basis	Consumed in producing plants	
			1997	1996
28194 41	Hydrochloric acid, including anhydrous	100 percent HCl	2,949.0	2,585.5
28194 45	From salt and acid <sup>1</sup>	do	(D)	(D)
28194 47	From chlorine and hydrogen	do	87.9	82.8
28194 47	Byproduct and other <sup>1</sup>	do	2,861.2	2,502.8
28194 51	Hydrocyanic acid, including anhydrous	100 percent HCN	426.7	392.0
28194 61, 65	Hydrofluoric acid: Anhydrous and technical	100 percent HF	(D)	(D)
28194 67	Mixed acids (sulfuric and nitric)	Commodity weight	(D)	(D)
28193 —	Sulfuric acid, gross (new and fortified)	100 percent H <sub>2</sub> SO <sub>4</sub>	34,945.1	34,948.6
28731 11	Nitric acid	100 percent HNO <sub>3</sub>	8,399.0	7,961.4
28731 31	Ammonia (synthetic) anhydrous <sup>2</sup>	100 percent NH <sub>3</sub>	8,049.2	7,769.3
28731 45	Ammonium nitrate: Other nitogen solutions <sup>3</sup>	100 percent NH <sub>4</sub> NO <sub>3</sub>	245.3	279.2
28731 46	Urea-ammonium nitrate solutions	do	3,776.1	3,786.1
28731 47	High density prill and grained	do	(D)	(D)
28731 48	Low density prill and granular	do	(D)	(D)
28731 49	All other (liquor sales, etc.)	do	48.2	71.9
28731 57	Ammonium sulfate <sup>2</sup>	100 percent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	70.3	65.3
28731 17	Urea: Urea-ammonium nitrate solutions <sup>3</sup>	100 percent urea	2,776.5	2,761.2
28731 19	Prills	do	(D)	(D)
28731 20	Granular	do	(D)	53.5
28731 23	All other (liquor sales, melamine, feedstock, other)	do	(D)	(D)
28741 81	Phosphoric acid: Thermal	100 percent P <sub>2</sub> O <sub>5</sub>	8,555.7	8,855.1
28741 85	Wet	do	(D)	(D)
28742 —	Superphosphates and other fertilizer materials	do	47.2	37.8

D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Product code 28194 41, "Hydrochloric acid from salt and acid" is combined with product code 28194 47, "Hydrochloric acid byproduct and other" to avoid disclosing data for individual companies.

<sup>2</sup>Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

<sup>3</sup>Excludes amount converted to solid nitrate.

**Table 4. Summary of Selected Fertilizer Materials/Interplant Transfers: 1997 and 1996**

[Quantity in thousands of short tons. Value in millions of dollars]

Product code	Product description	Basis	1997		1996	
			Quantity	Value	Quantity	Value
28193 —	Sulfuric acid, gross (new and fortified)	100 percent H <sub>2</sub> SO <sub>4</sub>	2,102.2	41.3	2,102.2	42.5
28193 11	Oleum under 40 percent	do	(D)	(D)	(D)	(D)
28193 21	Oleum 40 percent or more	do	(D)	(D)	(D)	(D)
28193 31	Other than oleum <sup>1</sup>	do	(D)	(D)	(D)	(D)
28731 31	Ammonia, synthetic anhydrous <sup>2</sup>	100 percent NH <sub>3</sub>	903.8	137.9	928.5	158.9
28731 30	Fertilizer use	do	(D)	(D)	(D)	(D)
28731 32	Other uses	do	(D)	(D)	(D)	(D)
28731 57	Ammonium sulfate <sup>2</sup>	100 percent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	(D)	(D)	(D)	(D)
28731 11	Nitric acid	100 percent HNO <sub>3</sub>	(D)	(D)	(D)	(D)
28732 —	Urea	100 percent urea	(D)	(D)	(D)	(D)
28741 —	Phosphoric acid	100 percent P <sub>2</sub> O <sub>5</sub>	1,998.7	485.9	1,877.9	418.5
28742 —	Superphosphates and other phosphatic fertilizer materials	do	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Data for "Other than oleum" include chamber process acid.

<sup>2</sup>Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

**Table 5. Sodium Sulfate, Production and Number of Establishments by Process: 1997 and 1996**

[Net tons of 100 percent Na<sub>2</sub>SO<sub>4</sub>]

Process	Number of establishments <sup>1</sup>		Production	
	1997	1996	1997	1996
<b>Total</b> .....	<b>13</b>	<b>14</b>	<b>669,465</b>	<b>663,588</b>
Natural.....	2	2	(D)	(D)
Viscose rayon .....	2	3	(D)	(D)
Sodium dichromate.....	1	1	(D)	(D)
Phenol, boric acid, formic acid, and other .....	8	8	157,961	157,484

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Processes used to manufacture sodium sulfate are specified in the SRI, Directory of Chemical Producers, 1996.

Note: Net tons includes Glauber's salt converted to 100 percent Na<sub>2</sub>SO<sub>4</sub>.

**Table 6. Production of Specified Inorganic Chemicals by States: 1997 and 1996**

[Short tons]

Geographic area	Hydrochloric acid (100 percent HCl) (2819441, 445, and 447)		Aluminum sulfate commercial (17 percent Al <sub>2</sub> O <sub>3</sub> ) (2819651)		Chlorine gas (2812111)		Sodium hydroxide (all processes) (2812350)	
	1997	1996	1997	1996	1997	1996	1997	1996
<b>United States</b> .....	<b>4,411,168</b>	<b>4,115,838</b>	<b>1,161,136</b>	<b>1,196,673</b>	<b>12,922,235</b>	<b>12,460,241</b>	<b>11,971,869</b>	<b>11,562,556</b>
Alabama .....	(D)	(D)	(D)	(D)	670,703	(D)	(D)	(D)
Arkansas.....	(D)	(D)	(D)	(D)	-	-	-	-
California.....	(D)	(D)	80,547	65,267	-	-	(D)	-
Colorado.....	-	-	(D)	(D)	-	-	-	-
Delaware.....	(D)	(D)	-	-	(D)	(D)	(D)	(D)
Florida.....	-	-	(D)	(D)	-	-	-	-
Georgia.....	(D)	(D)	100,139	114,933	(D)	(D)	(D)	(D)
Illinois.....	(D)	(D)	(D)	(D)	-	-	-	-
Indiana.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Kansas.....	(D)	(D)	-	-	(D)	(D)	(D)	(D)
Kentucky.....	(D)	(D)	-	-	(D)	(D)	(D)	(D)
Louisiana.....	1,353,400	1,293,292	124,600	91,241	5,051,976	4,940,309	5,108,591	4,948,398
Maine.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Maryland.....	(D)	(D)	(D)	(D)	-	-	(D)	(D)
Massachusetts.....	-	-	(D)	(D)	-	-	-	-
Michigan.....	(D)	(D)	(D)	(D)	-	-	-	-
Minnesota.....	-	-	(D)	(D)	-	-	-	-
Mississippi.....	-	-	(D)	(D)	(D)	(D)	-	-
Missouri.....	-	-	-	-	-	-	-	-
Montana.....	-	-	(D)	(D)	-	-	-	-
Nevada.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
New Jersey.....	(D)	(D)	(D)	(D)	-	-	-	(D)
New Mexico.....	-	-	-	-	-	-	-	-
New York.....	(D)	(D)	-	-	(D)	(D)	(D)	(D)
North Carolina.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Ohio.....	(D)	(D)	(D)	(D)	(D)	(D)	-	-
Oklahoma.....	-	-	-	-	(D)	(D)	(D)	(D)
Oregon.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Pennsylvania.....	-	-	(D)	(D)	-	-	-	-
South Carolina.....	-	-	(D)	(D)	-	-	-	-
Tennessee.....	(D)	(D)	62,058	58,130	(D)	(D)	(D)	(D)
Texas.....	1,669,580	1,474,182	36,267	37,597	(D)	(D)	(D)	(D)
Utah.....	-	-	(D)	(D)	(D)	(D)	-	-
Virginia.....	-	-	(D)	(D)	-	-	-	-
Washington.....	40,089	(D)	(D)	(D)	431,439	414,018	482,419	459,264
West Virginia.....	(D)	(D)	-	-	(D)	(D)	(D)	(D)
Wisconsin.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Wyoming.....	-	-	-	-	-	-	162,119	180,080

- Represents zero. D Withheld to avoid disclosing data for individual companies.



**Table 7. Total Shipments (Including Interplant Transfers) of Sulfuric Acid by States: 1997 and 1996**

[Quantity in thousands of short tons of 100 percent H<sub>2</sub>SO<sub>4</sub>. Value in millions of dollars]

State	1997		1996	
	Quantity	Value	Quantity	Value
<b>United States</b> .....	<b>12,961.7</b>	<b>528.3</b>	<b>13,014.8</b>	<b>578.1</b>
Arizona .....	(D)	(D)	(D)	(D)
California .....	848.5	(D)	935.8	(D)
Florida .....	950.0	30.0	879.7	26.5
Georgia .....	447.7	20.4	419.9	18.7
Illinois .....	(D)	(D)	(D)	(D)
Louisiana .....	1,936.9	92.4	2,006.4	113.4
New Jersey .....	(D)	(D)	(D)	(D)
Ohio .....	(D)	(D)	352.4	27.1
Texas .....	1,883.4	115.6	1,893.5	114.5
Virginia .....	(D)	(D)	(D)	(D)
Washington .....	(D)	(D)	(D)	(D)
Other states .....	4,009.8	136.9	3,995.9	160.6

D Withheld to avoid disclosing data for individual companies.

**Table 8. Production of New Sulfuric Acid by States: 1997 and 1996**

[Thousands of short tons of 100 percent H<sub>2</sub>SO<sub>4</sub>]

State	1997 <sup>1</sup>	1996 <sup>1</sup>
<b>United States</b> .....	<b>43,243.6</b>	<b>42,732.2</b>
Arizona .....	2,361.5	2,402.5
California .....	1,206.8	1,353.9
Florida .....	20,989.5	20,893.9
Georgia .....	595.3	577.5
Illinois .....	(D)	(D)
Louisiana .....	6,103.5	6,169.6
Missouri .....	(D)	(D)
New Jersey .....	(D)	(D)
New Mexico .....	(D)	(D)
Ohio .....	(D)	420.3
Oklahoma and Texas .....	4,140.9	4,119.8
Virginia .....	(D)	(D)
Washington .....	(D)	(D)
Other states .....	4,884.9	<sup>†</sup> 4,437.8

D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Includes data for government-owned, privately operated plants.

Table 9a. **Primary Production and Stocks of Specified Inorganic Chemicals by Quarter: 1997 and 1996**

[Short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter	Stocks on hand December 31
	Hydrochloric acid (100 percent HCl):							
	Total .....	1997 ...	4,411,167	1,080,074	1,066,486	1,134,478	1,130,129	(NA)
		1996 ...	4,115,838	902,491	1,027,823	1,080,459	1,105,065	(NA)
28194 41	From salt and acid <sup>1</sup> .....	1997 ...	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 ...	(D)	(D)	(D)	(D)	(D)	(NA)
28194 45	From chlorine and hydrogen .....	1997 ...	398,982	100,436	92,284	96,775	109,487	(NA)
		1996 ...	365,069	92,840	91,965	86,644	93,620	(NA)
28194 47	Byproduct and other <sup>1</sup> .....	1997 ...	4,012,185	979,638	974,202	1,037,703	1,020,642	(NA)
		1996 ...	3,750,769	809,651	935,858	993,815	1,011,445	(NA)
	Hydrofluoric acid (100 percent HF):							
	Produced and withdrawn from system:							
	Anhydrous and technical .....	1997 ...	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 ...	(D)	(D)	(D)	(D)	(D)	(NA)
28194 11	Boric (boracic) (100 percent H <sub>3</sub> BO <sub>3</sub> ) .....	1997 ...	(D)	(D)	(D)	(D)	(D)	(D)
		1996 ...	(D)	(D)	(D)	(D)	(D)	(D)
	Chlorine (100 percent Cl):							
28121 11	Total gas <sup>2</sup> .....	1997 ...	12,922,235	3,191,514	3,152,362	3,298,188	3,280,171	(NA)
		1996 ...	12,460,241	2,805,421	3,266,732	3,174,031	3,214,056	(NA)
28121 15	Total liquid .....	1997 ...	10,427,140	2,561,898	2,454,262	2,708,282	2,702,698	(NA)
		1996 ...	10,008,127	2,228,325	2,656,221	2,509,538	2,614,043	(NA)
28125 21	Potassium hydroxide liquid <sup>3</sup> .....	1997 ...	532,754	128,182	135,598	134,440	134,535	(NA)
		1996 ...	499,915	93,453	(D)	128,374	(D)	(NA)
28125 30	Sodium bicarbonate, finished (100 percent NaHCO <sub>3</sub> ) .....	1997 ...	522,028	124,951	130,934	129,453	136,690	(NA)
		1996 ...	501,951	122,803	121,973	126,680	130,495	(NA)
	Sodium hydroxide (caustic soda) (100 percent NaOH) (all processes):							
	Liquid <sup>4</sup> .....	1997 ...	11,971,869	2,956,136	2,983,175	3,013,900	3,018,658	187,416
		1996 ...	11,562,556	2,646,292	3,060,541	2,938,239	2,917,483	424,071
28123 67	Dry (all forms) .....	1997 ...	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 ...	(D)	(D)	(D)	(D)	(D)	(NA)
28125 90, 14745 11	Sodium carbonate, natural and synthetic <sup>5</sup> ...	1997 ...	11,838	2,804	3,022	2,943	3,069	285
		1996 ...	10,942	2,609	2,817	2,706	2,810	299
28195 00	Aluminum oxide (alumina) (100 percent Al <sub>2</sub> O <sub>3</sub> ) .....	1997 ...	5,072,140	1,184,041	1,270,193	1,310,652	1,307,255	<sup>a</sup> 116,678
		1996 ...	4,734,078	1,198,180	1,194,159	1,205,362	1,136,376	<sup>a</sup> 96,447
28196 17	Aluminum chloride (anhydrous) (100 percent AlCl <sub>3</sub> ) .....	1997 ...	28,111	6,498	7,690	7,147	6,776	(NA)
		1996 ...	31,557	7,975	8,884	7,815	6,883	(NA)
28196 51	Aluminum sulfate (commercial) (17 percent Al <sub>2</sub> O <sub>3</sub> ) <sup>6</sup> .....	1997 ...	1,161,136	272,156	291,333	315,905	281,742	(NA)
		1996 ...	1,196,673	275,208	300,479	327,553	293,434	(NA)
28199 12	Calcium carbide (commercial) .....	1997 ...	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 ...	(D)	(D)	(D)	(D)	(D)	(NA)
	Calcium phosphate:							
	Monobasic (21 percent minimum P) (100 percent CaH <sub>4</sub> ) .....	1997 ...	840,594	227,918	205,743	200,504	206,429	(D)
		1996 ...	780,334	199,960	190,742	185,154	204,477	(D)
28199 19	Dibasic (except fertilizer grades) (18.5 minimum P) (100 percent CaHPO <sub>4</sub> ) .....	1997 ...	645,884	157,522	178,333	160,501	149,529	33,014
		1996 ...	695,379	193,435	170,960	164,336	166,649	37,716
28742 71	Tribasic (100 percent Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ): Animal feed grades (defluorinated phosphate rock) (18.0 percent minimum P) .....	1997 ...	522,088	135,392	135,180	118,607	132,909	33,910
		1996 ...	514,902	124,740	133,139	129,690	127,332	20,727
28199 22	Other grades .....	1997 ...	(D)	7,104	7,751	8,486	(D)	1,336
		1996 ...	30,800	8,923	6,633	7,003	8,241	3,039

See footnotes at end of table.

Table 9a. **Primary Production and Stocks of Specified Inorganic Chemicals by Quarter: 1997 and 1996—Con.**

[Short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter	Stocks on hand December 31
28199 25	Carbon activated, excluding reactivated carbon (dry weight) . . . . .	1997 . . .	173,162	41,784	43,195	43,995	44,188	(D)
		1996 . . .	170,229	40,005	43,190	42,981	44,054	<sup>a</sup> 14,862
28199 27	Granular carbons . . . . .	1997 . . .	99,504	22,988	25,260	24,787	26,468	(D)
		1996 . . .	94,664	22,160	24,327	22,030	26,147	<sup>a</sup> 7,376
28199 27	Pulverized carbons . . . . .	1997 . . .	73,658	18,796	17,935	19,208	17,720	<sup>a</sup> 8,912
		1996 . . .	75,565	17,845	18,863	20,951	17,907	<sup>a</sup> 7,486
28163 15	Chrome colors (C.P.): Chrome yellow and orange . . . . .	1997 . . .	(D)	1,774	(D)	(D)	580	(NA)
		1996 . . .	5,939	1,237	2,055	1,631	1,017	(NA)
28163 17	Molybdate chrome orange . . . . .	1997 . . .	880	258	(D)	(D)	233	(NA)
		1996 . . .	833	238	191	251	152	(NA)
28199 39	Hydrogen peroxide (100 percent by weight) . . . . .	1997 . . .	368,704	82,357	92,177	98,190	95,981	(NA)
		1996 . . .	343,218	87,341	85,700	91,136	79,042	(NA)
28199 58	Phosphorus elemental (technical) . . . . .	1997 . . .	(D)	(D)	(D)	(D)	(D)	(D)
		1996 . . .	(D)	(D)	(D)	(D)	(D)	(D)
28199 60	Phosphorus oxychloride (100 percent POCl <sub>3</sub> ) . . . . .	1997 . . .	37,756	10,273	10,387	8,467	8,629	(NA)
		1996 . . .	36,687	9,879	9,431	8,684	8,693	(NA)
28199 61	Phosphorus pentasulfide (100 percent P <sub>2</sub> S <sub>5</sub> ) . . . . .	1997 . . .	58,538	14,537	16,888	14,338	12,775	(NA)
		1996 . . .	65,677	17,828	14,915	16,993	15,942	(NA)
28199 63	Phosphorus trichloride (chloride) (100 percent PCl <sub>3</sub> ) . . . . .	1997 . . .	259,886	66,759	70,845	59,845	62,437	(NA)
		1996 . . .	205,431	48,098	50,699	53,062	53,572	(NA)
28197 18	Potassium pyrophosphate (tetrapotassium pyrophosphate) (100 percent K <sub>4</sub> P <sub>2</sub> O <sub>7</sub> ) . . . . .	1997 . . .	29,148	6,751	8,267	8,146	5,984	(NA)
		1996 . . .	28,101	5,248	7,451	9,563	5,839	(NA)
28199 69	Silicon tetrachloride (100 percent SiCl <sub>4</sub> ) . . . . .	1997 . . .	48,580	12,280	12,363	13,346	10,592	(NA)
		1996 . . .	(D)	(D)	(D)	(D)	(D)	(NA)
28199 33	Sodium bichromate and chromate (hydrous) . . . . .	1997 . . .	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 . . .	(D)	(D)	(D)	(D)	(D)	(NA)
28197 27	Sodium chlorate (100 percent NaClO <sub>3</sub> ) . . . . .	1997 . . .	625,883	164,621	143,832	155,955	161,474	25,869
		1996 . . .	662,361	159,560	158,346	168,953	175,501	20,021
28197 30	Sodium hydrosulfite (100 percent Na <sub>2</sub> SO <sub>4</sub> ) . . . . .	1997 . . .	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 . . .	(D)	(D)	(D)	(D)	(D)	(NA)
28197 21	Sodium (metal) (100 percent Na) . . . . .	1997 . . .	(D)	(D)	(D)	(D)	(D)	(D)
		1996 . . .	(D)	(D)	(D)	(D)	(D)	(D)
28197 34	Sodium phosphate: Tribasic (100 percent Na <sub>3</sub> PO <sub>4</sub> ) . . . . .	1997 . . .	(D)	(D)	(D)	4,952	3,946	(NA)
		1996 . . .	19,733	3,963	5,226	5,158	5,385	(NA)
28197 35	Tetrabasic (pyro) (100 percent Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> ) . . . . .	1997 . . .	(D)	3,704	(D)	3,429	2,903	(NA)
		1996 . . .	(D)	3,360	3,721	3,196	(D)	(NA)
28197 36	Meta (100 percent NaPO <sub>3</sub> ) . . . . .	1997 . . .	41,051	8,998	11,887	10,208	9,958	(NA)
		1996 . . .	45,946	10,502	10,112	12,601	12,731	(NA)
28197 38	Tripoly (100 percent Na <sub>5</sub> P <sub>3</sub> O <sub>10</sub> ) . . . . .	1997 . . .	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 . . .	(D)	(D)	(D)	(D)	(D)	(NA)

See footnotes at end of table.

Table 9a. **Primary Production and Stocks of Specified Inorganic Chemicals by Quarter: 1997 and 1996—Con.**

[Short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter	Stocks on hand December 31
28197 41	Sodium silicate: Soluble silicate glass (water glass, solid and liquid)(anhydrous) <sup>7</sup> .....	1997 ...	1,213,753	286,361	321,300	300,670	305,422	(NA)
		1996 ...	1,104,820	266,821	279,752	275,016	283,231	(NA)
28197 42	Metasilicate pentahydrate (100 percent Na <sub>2</sub> SiO <sub>3</sub> ·5H <sub>2</sub> O) .....	1997 ...	40,371	10,833	10,117	9,730	9,691	(NA)
		1996 ...	42,522	10,908	11,288	9,062	11,264	(NA)
28197 44	Metasilicate anhydrous (100 percent Na <sub>2</sub> SiO <sub>3</sub> ) .....	1997 ...	42,855	11,388	11,684	11,340	8,442	(NA)
		1996 ...	43,992	10,811	12,667	10,322	10,192	(NA)
28197 61	Sodium sulfate (100 percent Na <sub>2</sub> SO <sub>4</sub> ): Total .....	1997 ...	669,465	159,260	175,955	174,896	159,354	(NA)
		1996 ...	663,588	176,318	159,376	156,208	171,686	(NA)
28197 66	High purity (more than 99 percent Na <sub>2</sub> SO <sub>4</sub> ).....	1997 ...	(D)	(D)	(D)	(D)	(D)	(NA)
		1996 ...	(D)	(D)	(D)	(D)	(D)	(NA)
28161 00	Titanium dioxide (composite and pure) (100 percent TiO <sub>2</sub> ) (commodity weight) <sup>8</sup> .....	1997 ...	1,477,247	347,555	376,595	385,190	367,907	118,454
		1996 ...	1,351,960	325,825	337,872	335,154	353,109	117,591

D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>“Hydrochloric acid produced from salt and acid” is combined with “Hydrochloric acid byproduct and other” to avoid disclosing data for individual companies.

<sup>2</sup>Total gas production including quantities liquefied for use, storage, or shipments.

<sup>3</sup>Liquid production data represent total production including quantities later evaporated to solid caustic and reported as such.

<sup>4</sup>Includes some liquid shipped as interplant transfers to other establishments for further processing to dry forms.

<sup>5</sup>U.S. Geological Survey; quantity in thousand short tons.

<sup>6</sup>Excludes quantities produced and consumed by municipalities.

<sup>7</sup>Excludes quantities produced and consumed in same establishment in manufacture of meta-, ortho-, and sesquisilicates.

<sup>8</sup>Represents total stocks of producing companies, including amounts held at locations other than producing locations.

Note: Percent of estimation for each item is indicated as follows: <sup>a</sup>20 percent or more is estimated.

**Table 9b. Primary Production of Inorganic Fertilizer Chemicals by Quarter: 1997 and 1996**

[Thousands of short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter	
28731 31	Ammonia, synthetic anhydrous (100 percent NH <sub>3</sub> ): Production .....	1997 .....	17,340.4	4,266.9	4,328.6	4,269.4	4,475.5	
		1996 .....	17,922.8	4,594.7	4,404.2	4,364.8	4,559.2	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	1,554.5	822.2	1,456.0	2,045.3
		1996 .....	(NA)	1,566.4	1,024.9	988.7	1,181.9	
28731 30	Fertilizer use: Production .....	1997 .....	14,798.3	3,714.6	3,712.8	3,602.2	3,768.6	
		1996 .....	15,617.2	4,000.8	3,833.6	3,830.5	3,952.4	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)	
28731 32	Other uses: Production .....	1997 .....	2,542.1	552.2	615.8	667.2	706.9	
		1996 .....	2,305.5	593.9	570.6	534.2	606.8	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)	
28731 44	Ammonium nitrate (100 percent NH <sub>4</sub> NO <sub>3</sub> ): Original solution <sup>1</sup> : Production .....	1997 .....	8,604.4	2,194.8	2,206.8	2,008.6	2,194.2	
		1996 .....	'8,497.8	'2,188.4	'2,143.6	'1,982.7	'2,183.1	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	284.9	255.6	301.5	218.8
		1996 .....	(NA)	220.1	168.3	195.6	191.9	
28731 45	Total production: Consumed in the manufacture of other nitrogen solutions (e.g. CAN17, AM20, AAN): Production .....	1997 .....	245.3	63.0	60.9	52.7	68.7	
		1996 .....	'279.2	'58.8	'55.8	'70.6	'94.0	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)	
28731 46	Liquor consumed in the manufacture of urea- ammonium nitrate solutions: Production .....	1997 .....	3,770.3	989.6	948.0	935.2	897.4	
		1996 .....	'3,786.1	'1,050.1	'996.4	'831.1	'908.5	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	32.1	31.0	32.1	62.0
		1996 .....	(NA)	47.1	25.1	30.6	33.6	
28731 47	High density prill and granular: Production .....	1997 .....	2,550.5	703.7	681.4	513.9	651.5	
		1996 .....	2,503.1	626.1	638.0	566.6	672.4	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	46.2	42.4	(D)	35.6
		1996 .....	(NA)	31.2	38.6	48.4	42.7	
28731 48	Low density prill and grained: Production .....	1997 .....	1,653.3	336.5	418.4	417.3	481.1	
		1996 .....	1,556.2	367.2	364.2	411.2	413.6	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)	
28731 49	All other (e.g., liquor sales, etc.): Production .....	1997 .....	385.0	102.1	98.1	89.4	95.4	
		1996 .....	373.2	86.2	89.2	103.1	94.7	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	12.7	(D)	(D)	3.4
		1996 .....	(NA)	(D)	(D)	(D)	(D)	
28731 57 28731 58	Ammonium sulfate (100 percent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ): Production .....	1997 .....	2,644.8	579.6	692.6	679.8	692.7	
		1996 .....	2,669.7	635.2	659.0	688.5	687.0	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	138.3	100.2	220.4	266.6
		1996 .....	(NA)	250.3	130.8	173.1	218.8	
28731 11	Nitric acid (100 percent HNO <sub>3</sub> ): Production .....	1997 .....	9,432.7	2,426.3	2,421.1	2,185.6	2,399.7	
		1996 .....	9,204.8	2,277.0	2,287.5	2,163.4	2,476.9	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	(X)	(X)	(X)	(X)
		1996 .....	(NA)	(X)	(X)	(X)	(X)	
28731 55	Nitrogen solutions, including mixtures containing urea (100 percent N): Production .....	1997 .....	3,627.0	978.6	935.0	844.0	869.3	
		1996 .....	3,649.8	938.6	935.8	883.6	892.0	
		Stocks on hand, end of quarter.....	1997 .....	(NA)	468.0	310.4	470.0	424.4
		1996 .....	(NA)	368.2	270.4	262.1	274.0	

See footnotes at end of table.

Table 9b. **Primary Production of Inorganic Fertilizer Chemicals by Quarter: 1997 and 1996**—Con.

[Thousands of short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter
28731 55	Nitrogen solutions, including mixtures containing urea (100 percent N)—Con.						
28731 66		Solutions containing ammonium nitrate/urea:					
	Production .....	1997 .....	3,495.6	946.7	895.0	803.6	850.3
		1996 .....	3,529.3	908.8	906.5	845.9	868.1
	Stocks on hand, end of quarter .....	1997 .....	(NA)	455.8	304.3	462.9	420.2
		1996 .....	(NA)	362.7	266.7	251.2	268.8
28731 68	All other solutions <sup>2</sup> :						
	Production .....	1997 .....	131.4	31.9	40.1	40.4	19.0
		1996 .....	120.5	29.8	29.3	37.7	23.8
	Stocks on hand, end of quarter .....	1997 .....	(NA)	12.2	6.1	7.1	4.3
		1996 .....	(NA)	5.5	3.7	10.9	5.2
28741 —	Phosphoric acid (100 percent P <sub>2</sub> O <sub>5</sub> ):						
	Production .....	1997 .....	13,158.7	3,214.1	3,251.2	3,212.5	3,481.0
		1996 .....	13,210.0	3,241.9	3,129.6	3,451.3	3,387.3
	Stocks on hand, end of quarter .....	1997 .....	(NA)	208.1	220.2	216.7	234.9
		1996 .....	(NA)	280.6	276.6	238.9	212.2
28741 81	Thermal:						
	Production .....	1997 .....	299.1	130.0	56.4	56.6	56.2
		1996 .....	306.5	78.0	75.1	78.8	74.5
	Stocks on hand, end of quarter .....	1997 .....	(NA)	12.6	10.3	8.2	8.1
		1996 .....	(NA)	21.2	9.1	11.6	10.4
28741 85	Wet:						
	Production .....	1997 .....	12,859.6	3,084.1	3,194.8	3,155.9	3,424.8
		1996 .....	12,903.5	3,163.9	3,054.4	3,372.5	3,312.8
	Stocks on hand, end of quarter .....	1997 .....	(NA)	195.5	210.0	208.5	226.9
		1996 .....	(NA)	259.3	267.6	227.3	201.8
28741 86	By use:						
	Fertilizer:						
	Production .....	1997 .....	11,980.3	2,876.4	2,966.7	2,930.7	3,206.5
		1996 .....	11,877.6	2,908.4	2,808.8	3,112.0	3,048.3
	Stocks on hand, end of quarter .....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)
28741 87	Feed and other:						
	Production .....	1997 .....	880.0	207.7	228.1	225.8	218.4
		1996 .....	1,026.0	255.4	245.6	260.5	264.4
	Stocks on hand, end of quarter .....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)
28741 88	By grade:						
	Ortho (less than 65 percent P <sub>2</sub> O <sub>5</sub> ):						
	Production .....	1997 .....	11,411.1	2,737.6	2,827.7	2,791.3	3,054.5
		1996 .....	11,479.6	2,816.8	2,744.5	2,996.7	2,921.6
	Stocks on hand, end of quarter .....	1997 .....	(NA)	170.9	184.7	182.8	198.9
		1996 .....	(NA)	232.6	241.5	209.0	181.0
28741 89	Super (more than 65 percent P <sub>2</sub> O <sub>5</sub> ):						
	Production .....	1997 .....	1,448.5	346.4	367.2	364.6	370.4
		1996 .....	1,423.9	347.1	309.9	375.8	391.1
	Stocks on hand, end of quarter .....	1997 .....	(NA)	24.7	25.2	24.0	28.0
		1996 .....	(NA)	26.7	26.1	18.3	20.9
28732 —	Urea original melt liquor (100 percent urea):						
	Production .....	1997 .....	7,666.2	2,069.0	1,966.5	1,812.8	1,817.9
		1996 .....	8,548.3	2,236.6	2,132.6	2,027.8	2,151.4
	Stocks on hand, end of quarter .....	1997 .....	(NA)	373.7	296.1	328.2	259.7
		1996 .....	(NA)	300.3	239.8	239.0	212.8

See footnotes at end of table.

Table 9b. **Primary Production of Inorganic Fertilizer Chemicals by Quarter: 1997 and 1996**—Con.

[Thousands of short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter
28732 —	Urea original melt liquor (100 percent urea)—Con.						
28732 17	Total production: Consumed in the manufacture of urea-ammonium nitrate solutions:						
	Production .....	1997 .....	2,776.5	725.1	693.9	679.5	677.9
		1996 .....	2,761.2	741.8	713.4	623.4	682.6
	Stocks on hand, end of quarter .....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)
28732 19	Prills:						
	Production .....	1997 .....	2,080.5	612.6	563.6	444.4	459.9
		1996 .....	2,736.4	714.7	682.5	648.1	691.2
	Stocks on hand, end of quarter .....	1997 .....	(NA)	87.2	44.0	47.3	82.9
		1996 .....	(NA)	93.0	79.1	120.2	45.7
28732 20	Granular:						
	Production .....	1997 .....	2,696.3	697.6	680.4	665.0	653.2
		1996 .....	2,765.1	704.6	669.3	686.5	704.6
	Stocks on hand, end of quarter .....	1997 .....	(NA)	139.1	109.5	130.6	72.9
		1996 .....	(NA)	84.0	59.1	26.1	78.3
28732 23	All other (solid and solution):						
	Production .....	1997 .....	112.9	33.6	28.5	23.9	26.9
		1996 .....	1285.7	175.5	167.4	169.8	173.0
	Stocks on hand, end of quarter .....	1997 .....	(NA)	(D)	(D)	(D)	(D)
		1996 .....	(NA)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies. NA Not available. †Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Represents total amount of original solution produced, including amounts used for fertilizer, explosives, and other uses and amounts consumed in manufacturing other products such as "Nitrogen solutions" (product code 28731 55).

<sup>2</sup>Excludes data for government-owned, privately operated plants.

Note: The 1997 and 1996 stocks on hand, end of quarter, were originally published in the Current Industrial Report series, MQ28B, "Fertilizer Materials." Detail may not add because of independent rounding.

**Table 9c. Production, Shipments, and Stocks of Superphosphates and Other Phosphatic Fertilizer Materials by Quarter: 1997 and 1996**

[Thousands of short tons]

Product code	Product description	Year	Total	First quarter	Second quarter	Third quarter	Fourth quarter	
28742 —	Superphosphates and other phosphatic fertilizer materials:	Production (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	10,431.4	2,547.0	2,659.9	2,592.4	2,632.1
			1996 . . . . .	10,547.2	2,593.7	2,422.1	2,835.7	2,695.6
		Shipments, including interplant transfers (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	10,429.0	2,602.0	2,772.0	2,496.3	2,558.6
			1996 . . . . .	10,500.9	2,467.2	2,720.8	2,743.7	2,569.2
		Stocks on hand, end of quarter (gross weight) . . . . .	1997 . . . . .	(NA)	669.3	569.9	513.7	771.3
			1996 . . . . .	(NA)	838.9	552.4	638.6	745.5
28742 15, 41	Normal, concentrated, and enriched superphosphates (triple) (over 40 percent P <sub>2</sub> O <sub>5</sub> ): <sup>1</sup>	Production (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	728.0	164.6	195.9	202.0	165.5
			1996 . . . . .	822.8	213.2	174.3	231.7	203.6
		Shipments, including interplant transfers (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	675.9	153.3	193.8	206.1	122.6
			1996 . . . . .	763.2	131.1	376.3	144.8	111.0
		Stocks on hand, end of quarter (gross weight) . . . . .	1997 . . . . .	(NA)	109.0	80.1	54.1	124.3
			1996 . . . . .	(NA)	63.4	82.0	(D)	116.1
28742 51	Ammonium phosphates: Monoammonium phosphates:	Production (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	1,910.6	475.8	486.2	480.3	468.3
			1996 . . . . .	1,797.6	435.6	352.4	577.8	431.9
		Shipments, including interplant transfers (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	1,912.1	445.6	512.0	496.1	458.5
			1996 . . . . .	1,773.7	389.5	370.1	607.8	406.3
		Stocks on hand, end of quarter (gross weight) . . . . .	1997 . . . . .	(NA)	174.4	134.8	88.8	120.4
			1996 . . . . .	(NA)	162.6	119.9	80.6	150.8
28742 52	Diammonium phosphates:	Production (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	7,531.7	1,847.1	1,890.3	1,862.3	1,932.0
			1996 . . . . .	7,590.2	1,868.4	1,814.9	1,939.4	1,967.4
		Shipments, including interplant transfers (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	7,564.3	1,942.8	1,961.1	1,732.6	1,927.8
			1996 . . . . .	7,617.2	1,882.6	1,841.1	1,909.8	1,983.8
		Stocks on hand, end of quarter (gross weight) . . . . .	1997 . . . . .	(NA)	298.3	287.9	288.2	470.6
			1996 . . . . .	(NA)	506.0	282.9	388.5	355.6
28742 55, 61	Other ammonium phosphates and other phosphatic fertilizer materials: <sup>2</sup>	Production (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	261.1	59.5	87.5	47.8	66.3
			1996 . . . . .	336.5	76.5	80.6	86.8	92.7
		Shipments, including interplant transfers (100 percent P <sub>2</sub> O <sub>5</sub> ) . . . . .	1997 . . . . .	276.6	60.4	105.2	61.4	49.7
			1996 . . . . .	346.7	64.0	133.2	81.3	68.1
		Stocks on hand, end of quarter (gross weight) . . . . .	1997 . . . . .	(NA)	87.6	67.0	82.5	56.1
			1996 . . . . .	(NA)	106.9	67.7	(D)	(S)

D Withheld to avoid disclosing data for individual companies. NA Not available. S Does not meet publication standards.

<sup>1</sup>“Normal and enriched superphosphates” (product code 28742 15) is combined with “Concentrated superphosphates” (product code 28742 41) to avoid disclosing data for individual companies.

<sup>2</sup>“Other ammonium phosphates” (product code 28742 55) is combined with “Other phosphatic fertilizer materials” (product code 28742 61) to avoid disclosing data for individual companies.

Note: The 1997 and 1996 stocks on hand, end of quarter, were originally published in the Current Industrial Report series, MQ28B, “Fertilizer Materials.” Detail may not add because of independent rounding.



**Table 10. Production and Stocks of Sulfuric Acid by Process and by Quarter: 1997 and 1996**

[Thousands of short tons of 100 percent H<sub>2</sub>SO<sub>4</sub>]

Quarter and year	Production					Stocks (gross) at producing plants at end of period
	Sulfuric acid, gross, new and fortified			New acid <sup>1</sup>	Sulfuric acid produced through decomposition of alkylation and other spent acid <sup>2</sup>	
	Total	Oleum grades	Other than oleum grades			
<b>1997</b>						
<b>Total</b> .....	<b>48,018.0</b>	<b>1,503.5</b>	<b>46,514.6</b>	<b>43,243.6</b>	<b>4,774.5</b>	<b>(NA)</b>
First quarter .....	11,634.2	355.5	11,278.7	10,343.7	1,290.6	777.3
Second quarter .....	11,976.6	387.5	11,589.1	10,757.8	1,218.7	679.5
Third quarter .....	12,250.0	395.8	11,854.2	10,965.0	1,285.0	723.9
Fourth quarter .....	12,157.2	364.6	11,792.6	11,177.1	980.1	893.0
<b>1996</b>						
<b>Total</b> .....	<b>47,770.3</b>	<b>1,530.9</b>	<b>46,239.5</b>	<b>42,732.2</b>	<b>5,038.2</b>	<b>(NA)</b>
First quarter .....	11,807.9	424.6	11,383.3	10,856.8	<sup>1</sup> 951.2	677.6
Second quarter .....	11,364.6	310.7	11,053.9	10,399.1	<sup>1</sup> 965.5	686.8
Third quarter .....	12,437.6	446.0	11,991.6	10,811.8	<sup>1</sup> 1,625.8	724.5
Fourth quarter .....	12,160.2	349.5	11,810.7	10,664.5	<sup>1</sup> 1,495.7	855.3

NA Not available. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Represents gross production of sulfuric acid less acid produced through decomposition and spent acid used in fortification.

<sup>2</sup>Spent acid fortified by addition of sulfur trioxide.

Note: Detail may not add because of independent rounding.

**Table 11. Production, Exports, Imports, and Apparent Consumption of Selected Inorganic Chemicals and Fertilizer Materials: 1997 and 1996**

[Quantity in thousands of metric tons. Value in thousands of dollars]

Product code	Product description	Production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to production (quantity)	Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup> (quantity)	Percent imports to apparent consumption (quantity)
			Quantity	Value		Quantity	Value <sup>3</sup>		
<b>1997</b>									
28121 11	Chlorine gas .....	11,723.0	24.2	8.6	0.2	410.7	66.1	12,109.5	3.4
28123 50	Sodium hydroxide, total liquid (all processes) .....	10,860.8	1,348.4	277.3	12.4	498.6	107.9	10,011.0	5.0
28125 21	Potassium hydroxide, liquid .....	483.3	81.6	28.7	16.9	33.8	11.0	435.5	(D)
28125 30	Finished sodium bicarbonate .....	473.6	66.5	23.5	14.0	14.2	10.5	421.4	3.4
28161 00	Titanium dioxide (composite and pure) .....	1,340.2	404.8	576.4	30.2	194.3	348.5	1,129.6	17.2
28193 —	Sulfuric acid gross .....	43,561.7	117.8	12.7	0.3	2,014.6	84.0	45,458.5	4.4
28194 11	Boric acid .....	(D)	92.3	60.5	(D)	20.2	11.8	(D)	(D)
28194 41, 45, 47	Hydrochloric acid .....	4,001.8	54.9	12.9	1.4	77.7	7.4	4,024.7	1.9
28194 61, 65	Hydrofluoric acid .....	(D)	6.4	9.0	(D)	158.1	152.7	(D)	(D)
28194 51, 67	Other inorganic acids .....	(NA)	20.3	26.9	(NA)	21.1	18.2	(NA)	(NA)
28194 98, 28195 00	Aluminum oxide .....	4,601.4	1,217.4	481.2	26.5	3,704.1	964.7	7,088.2	52.3
28196 13, 17	Aluminum chloride .....	56.0	12.4	13.2	22.2	0.6	0.7	44.1	1.3
28196 25	Aluminum hydroxide trihydrate .....	936.6	81.8	42.2	8.7	188.1	106.9	1,042.9	18.0
28196 27	Aluminum flouride .....	(D)	11.4	9.7	(D)	12.8	12.0	(D)	(D)
28196 51	Aluminum sulfate (commercial) .....	1,053.4	4.4	1.2	0.4	34.4	8.7	1,083.4	3.2
28196 73	Aluminates (sodium aluminate, etc.) .....	291.3	9.9	6.4	3.4	3.1	3.3	284.6	1.1
28197 13	Potassium iodide .....	1.0	0.1	2.5	14.2	0.4	5.7	1.2	30.0
28197 16	Potassium sulfate .....	(D)	-	-	(X)	56.3	12.9	(D)	(D)
28197 23	Potassium phosphates .....	21.2	2.0	2.4	9.5	10.4	8.5	29.6	35.0
28197 24	Potassium silicates .....	(D)	2.5	2.4	(D)	0.2	0.6	(D)	(D)
28197 21	Sodium metal .....	(D)	3.7	13.3	(D)	1.2	3.6	(D)	(D)
28197 27	Sodium chlorate .....	567.8	65.7	23.3	11.6	411.6	140.1	913.8	45.0
28197 84	Sodium sulfite .....	111.7	83.6	19.0	74.8	8.7	4.1	36.8	23.7
28197 32, 33	Sodium phosphate mono and dibasic .....	(D)	3.7	5.9	(D)	10.6	12.2	(D)	(D)
28197 34	Sodium phosphate tribasic .....	(D)	1.0	1.3	(D)	3.6	2.4	(D)	(D)
28197 38	Sodium phosphate tripoly .....	(D)	34.6	24.1	(D)	65.6	46.0	(D)	(D)
28197 41, 45, 47	Sodium silicates (other than metasilicates) .....	1,101.1	25.3	16.4	2.3	24.4	7.5	1,100.2	2.2
28197 42, 44	Sodium metasilicates .....	75.5	11.1	5.6	14.7	2.2	1.2	66.6	3.3
28197 61, 66	Sodium sulfate .....	607.3	42.7	16.5	7.0	154.4	16.9	719.0	21.5
28197 85	Sodium thiosulfate (hypo) .....	(D)	6.4	2.4	(D)	0.9	0.4	(D)	(D)
28199 05	Barium sulfate .....	(D)	1.2	2.4	(D)	12.4	13.4	(D)	(D)
28199 04	Barium carbonate .....	(D)	2.2	2.1	(D)	25.9	15.9	(D)	(D)
28199 10	Bromine .....	(D)	2.3	3.6	(D)	1.6	1.2	(D)	(D)
28199 12	Calcium carbide .....	(D)	35.4	19.3	(D)	0.5	0.4	(D)	(D)
28199 13	Calcium carbonate (precipitated) .....	1,567.5	31.7	16.2	2.0	74.0	13.7	1,609.8	4.6
28199 14	Calcium chloride .....	899.8	72.6	18.2	8.1	257.9	26.6	1,085.0	23.8
28199 18, 19, 22, 28742 71	Calcium phosphates .....	(D)	218.8	208.7	(D)	21.8	21.1	(D)	(D)
28199 25, 27	Carbon activated (granular and pulverized) <sup>5</sup> .....	157.1	41.1	79.2	26.1	45.5	71.5	161.5	28.2
28199 35	Cuprous oxide .....	(D)	(NA)	(NA)	(X)	0.1	0.3	(D)	(D)
28199 39	Hydrogen peroxide .....	334.5	53.7	33.6	16.0	78.9	42.6	359.8	21.9
28199 40	Iodine .....	1.4	2.8	23.4	200.2	6.0	88.4	4.7	129.7
28199 43	Iron oxides and hydroxides .....	41.9	26.3	46.4	62.8	22.8	30.1	38.4	59.5

See footnotes at end of table.

**Table 11. Production, Exports, Imports, and Apparent Consumption of Selected Inorganic Chemicals and Fertilizer Materials: 1997 and 1996—Con.**

[Quantity in thousands of metric tons. Value in thousands of dollars]

Product code	Product description	Production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to production (quantity)	Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup> (quantity)	Percent imports to apparent consumption (quantity)
			Quantity	Value		Quantity	Value <sup>3</sup>		
<b>1997—Con.</b>									
28199 48	Magnesium chloride .....	713.7	5.3	3.3	0.7	12.8	4.8	721.2	(D)
28199 49	Magnesium sulfate .....	(D)	6.8	2.5	(D)	20.4	5.4	(D)	(D)
28199 51	Manganese dioxide .....	65.4	4.1	4.7	6.3	28.8	43.9	90.2	32.0
28199 53	Mercury .....	(D)	0.1	0.6	(D)	0.2	0.7	(D)	(D)
28199 5B	Molybdates .....	(D)	2.0	9.7	(D)	0.6	7.9	(D)	(D)
28199 56	Nickel oxides and hydroxides .....	(D)	0.2	2.7	(D)	1.5	14.7	(D)	(D)
28199 57	Nickel chloride .....	(D)	0.1	0.3	(D)	0.6	1.5	(D)	(D)
28199 55	Nickel sulfate .....	(D)	3.9	7.9	(D)	3.5	7.4	(D)	(D)
28199 58	Phosphorous, elemental .....	(D)	8.8	18.0	(D)	1.6	4.4	(D)	(D)
28199 60, 63	Phosphorous, oxychloride and trichloride .....	270.0	1.0	3.4	0.4	-	2.8	269.1	-
28199 71	Strontium carbonate .....	(D)	0.4	0.4	(D)	43.7	28.0	(D)	(D)
28199 74	Sulfur, recovered elemental .....	(NA)	776.5	39.7	(NA)	3,583.4	351.4	(NA)	(NA)
28199 75	Sulfur dioxide .....	151.9	1.7	0.7	1.2	84.5	15.6	234.7	36.0
28199 84	Tungstates .....	(D)	0.1	1.3	(D)	2.5	16.8	(D)	(D)
28199 87	Zinc sulfate .....	43.4	5.8	3.4	13.4	7.1	4.1	44.7	15.9
28199 86	Zinc oxide and peroxide .....	(D)	6.7	11.6	(D)	62.2	73.5	(D)	(D)
28199 88	Zinc chloride .....	(D)	2.8	1.9	(D)	2.1	1.7	(D)	(D)
28163 13, 15, 17-19	Chrome colors .....	(D)	3.8	13.1	(D)	9.7	31.1	(D)	(D)
28199 15, 30, 28422 43, 53	Bleaches (sodium and calcium hypochlorite, etc.) .....	594.7	41.7	57.3	7.0	46.8	23.0	599.7	7.8
28731 31	Ammonia, synthetic anhydrous .....	16,230.3	(D)	(NA)	(D)	(D)	(NA)	(D)	(D)
28731 44	Ammonium nitrate, original solution .....	7,805.9	47.5	(NA)	0.6	708.1	(NA)	8,466.6	8.4
28731 66	Nitrogen solutions, ammonium nitrate/urea solutions .....	3,290.4	57.5	(NA)	1.7	780.4	(NA)	4,013.3	19.4
28731 57	Ammonium sulfate .....	2,459.2	868.3	(NA)	35.3	478.4	(NA)	2,069.4	23.1
28732 —	Urea .....	7,429.8	932.7	(NA)	12.6	2,533.1	(NA)	9,030.2	28.1
28741 —	Phosphoric acid .....	11,937.5	(D)	(NA)	(D)	24.6	(NA)	(D)	(D)
28742 15, 41	Normal, concentrated, and enriched superphosphates .....	1,469.3	592.2	(NA)	40.3	-	(NA)	877.1	-
28742 52	Diammonium phosphates .....	14,097.0	9,439.2	(NA)	67.0	56.6	(NA)	4,714.4	1.2
28193 —	Sulfuric acid, gross .....	43,561.7	117.8	(NA)	0.3	2,014.6	(NA)	45,458.5	4.4
<b>1996</b>									
28121 11	Chlorine gas .....	11,303.9	17.4	7.9	0.2	379.9	45.4	11,666.3	3.3
28123 50	Sodium hydroxide, total liquid (all processes) .....	10,489.5	1,858.7	387.4	17.7	512.4	135.7	9,143.2	5.6
28125 21	Potassium hydroxide, liquid .....	453.5	79.6	28.5	17.6	26.8	10.1	400.7	(D)
28125 30	Finished sodium bicarbonate .....	455.4	62.8	22.8	13.8	14.8	9.1	407.3	3.6
28161 00	Titanium dioxide (composite and pure) .....	1,226.5	332.2	526.4	27.1	167.1	302.2	1,061.4	15.7
28193 —	Sulfuric acid, gross .....	43,337.0	117.3	12.3	0.3	2,139.7	87.5	45,359.4	4.7
28194 11	Boric acid .....	(D)	42.0	35.1	(D)	17.9	10.8	(D)	(D)
28194 41, 45, 47	Hydrochloric acid .....	3,733.9	55.3	10.5	1.5	69.1	6.5	3,747.7	1.8
28194 61, 65	Hydrofluoric acid .....	(D)	10.7	14.6	(D)	136.3	126.0	(D)	(D)
28194 51, 67	Other inorganic acids .....	(NA)	23.4	27.7	(NA)	19.5	16.9	(NA)	(NA)

See footnotes at end of table.

**Table 11. Production, Exports, Imports, and Apparent Consumption of Selected Inorganic Chemicals and Fertilizer Materials: 1997 and 1996—Con.**

[Quantity in thousands of metric tons. Value in thousands of dollars]

Product code	Product description	Production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to production (quantity)	Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup> (quantity)	Percent imports to apparent consumption (quantity)
			Quantity	Value		Quantity	Value <sup>3</sup>		
<b>1996—Con.</b>									
28194 98, 28195 00	Aluminum oxide .....	4,294.7	853.3	335.4	19.9	4,232.1	991.1	7,673.5	55.2
28196 13, 17	Aluminum chloride .....	57.2	8.1	8.2	14.1	2.7	0.9	51.8	5.2
28196 25	Aluminum hydroxide trihydrate .....	916.6	67.5	34.1	7.4	142.5	92.1	991.6	14.4
28196 27	Aluminum flouride .....	(D)	16.9	12.6	(D)	18.3	16.8	(D)	(D)
28196 51	Aluminum sulfate (commercial).....	1,085.6	2.8	0.9	0.3	40.4	11.1	1,123.2	3.6
28196 73	Aluminates (sodium aluminate, etc.) .....	257.0	8.3	7.0	3.2	2.5	2.4	251.2	1.0
28197 13	Potassium iodide .....	0.8	0.1	1.5	10.7	0.2	2.3	0.9	22.3
28197 16	Potassium sulfate .....	(D)	-	-	(X)	60.4	12.9	(D)	(D)
28197 23	Potassium phosphates .....	13.1	2.3	2.5	17.7	7.3	6.4	18.1	40.2
28197 24	Potassium silicates .....	(D)	2.0	1.1	(D)	0.2	0.5	(D)	(D)
28197 21	Sodium metal .....	(D)	2.2	11.0	(D)	0.5	1.7	(D)	(D)
28197 27	Sodium chlorate .....	600.9	54.4	19.6	9.0	395.2	145.2	941.7	42.0
28197 84	Sodium sulfite .....	109.1	58.7	15.2	53.8	9.2	4.4	59.6	15.5
28197 32, 33	Sodium phosphate mono and dibasic .....	(D)	2.6	3.9	(D)	8.4	9.3	(D)	(D)
28197 34	Sodium phosphate tribasic .....	17.9	0.6	0.9	3.5	3.3	2.2	20.6	16.0
28197 38	Sodium phosphate tripoly .....	(D)	31.9	22.6	(D)	60.7	42.5	(D)	(D)
28197 41, 42, 45, 47	Sodium silicates (other than metasilicates) .....	1,002.3	21.3	10.5	2.1	19.4	4.7	1,000.4	1.9
28197 44	Sodium metasilicates .....	78.5	10.7	4.7	13.6	2.9	2.2	70.7	4.1
28197 61, 66	Sodium sulfate .....	602.0	30.8	13.3	5.1	191.2	19.1	762.5	25.1
28197 85	Sodium thiosulfate (hypo) .....	(D)	3.4	1.3	(D)	1.0	0.5	(D)	(D)
28199 05	Barium sulfate .....	(D)	0.8	3.2	(D)	12.4	12.7	(D)	(D)
28199 04	Barium carbonate .....	(D)	1.1	3.8	(D)	18.9	13.1	(D)	(D)
28199 10	Bromine .....	(D)	2.9	4.0	(D)	0.4	0.4	(D)	(D)
28199 12	Calcium carbide .....	(D)	30.5	15.0	(D)	0.9	0.5	(D)	(D)
28199 13	Calcium carbonate (precipitated) ...	1,406.7	30.0	13.8	2.1	83.4	12.4	1,460.1	5.7
28199 14	Calcium chloride .....	802.8	91.2	19.8	11.4	296.7	34.9	1,008.3	29.4
28199 18, 19, 22, 25 28742 71	Calcium phosphates .....	1,833.8	221.7	107.0	12.1	12.1	16.2	1,624.3	0.7
28199 27	Carbon activated (granular and pulverized) <sup>5</sup> .....	154.4	34.4	63.5	22.3	38.8	60.9	158.8	24.4
28199 35	Cuprous oxide .....	(D)	(NA)	(NA)	(X)	-	0.1	(D)	(D)
28199 39	Hydrogen peroxide .....	311.4	42.2	29.7	13.5	79.2	49.7	348.4	22.7
28199 40	Iodine .....	(D)	2.3	17.6	(D)	4.7	60.2	(D)	(D)
28199 43	Iron oxides and hydroxides .....	35.8	27.1	41.4	75.7	20.0	33.2	28.8	69.7
28199 48	Magnesium chloride .....	589.5	3.6	2.7	0.6	21.5	7.1	607.4	(D)
28199 49	Magnesium sulfate .....	(D)	5.0	1.8	(D)	20.2	5.5	(D)	(D)
28199 51	Manganese dioxide .....	62.2	3.4	3.8	5.5	28.9	44.8	87.7	32.9
28199 53	Mercury .....	(D)	-	0.3	(D)	0.3	1.8	(D)	(D)
28199 5B	Molybdates .....	(D)	1.3	7.6	(D)	0.4	5.9	(D)	(D)
28199 56	Nickel oxides and hydroxides .....	(D)	0.2	2.1	(D)	1.3	14.0	(D)	(D)
28199 57	Nickel chloride .....	(D)	0.1	0.3	(D)	0.6	1.8	(D)	(D)
28199 55	Nickel sulfate .....	(D)	2.4	5.4	(D)	3.2	6.7	(D)	(D)
28199 58	Phosphorous, elemental .....	(D)	12.6	25.5	(D)	0.9	3.3	(D)	(D)
28199 60, 63	Phosphorous, oxychloride and trichloride .....	219.6	1.2	4.7	0.6	-	2.7	218.4	-
28199 71	Strontium carbonate .....	(D)	0.4	0.4	(D)	34.3	21.7	(D)	(D)
28199 74	Sulfur, recovered elemental .....	(NA)	598.8	35.0	(NA)	1,859.6	115.2	(NA)	(NA)

See footnotes at end of table.

Table 11. **Production, Exports, Imports, and Apparent Consumption of Selected Inorganic Chemicals and Fertilizer Materials: 1997 and 1996—Con.**

[Quantity in thousands of metric tons. Value in thousands of dollars]

Product code	Product description	Production (quantity)	Exports of domestic merchandise <sup>1</sup>		Percent exports to production (quantity)	Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup> (quantity)	Percent imports to apparent consumption (quantity)
			Quantity	Value		Quantity	Value <sup>3</sup>		
<b>1996—Con.</b>									
28199 75	Sulfur dioxide .....	188.4	1.2	0.4	0.6	77.7	14.2	264.9	29.3
28199 84	Tungstates .....	(D)	0.2	1.3	(D)	2.4	16.0	(D)	(D)
28199 87	Zinc sulfate .....	45.5	5.2	3.0	11.5	4.1	2.9	44.4	9.1
28199 86	Zinc oxide and peroxide.....	(D)	5.8	9.4	(D)	55.9	57.3	(D)	(D)
28199 88	Zinc chloride.....	(D)	1.5	1.2	(D)	2.4	2.4	(D)	(D)
28163 13, 15, 17-19	Chrome colors .....	(D)	2.1	6.9	(D)	9.9	27.5	(D)	(D)
28199 15, 30, 28422 43, 53	Bleaches (sodium and calcium hypochlorite, etc.) .....	659.7	40.1	58.8	6.1	40.8	22.7	660.4	6.2
28731 30, 32	Ammonia, synthetic anhydrous.....	16,259.4	(D)	(NA)	(D)	(D)	(NA)	(D)	(D)
28731 50	Ammonium nitrate, original solution.	7,709.1	61.9	(NA)	0.8	720.6	(NA)	8,367.8	8.6
28731 66	Nitrogen solutions, ammonium nitrate/urea solutions.....	3,311.1	33.1	(NA)	1.0	628.2	(NA)	3,906.3	16.1
28731 56, 58	Ammonium sulfate.....	2,414.9	824.4	(NA)	34.1	373.4	(NA)	1,963.9	19.0
28732 —	Urea.....	7,755.0	1,470.5	(NA)	19.0	2,521.1	(NA)	8,805.6	28.6
28741 81, 85	Phosphoric acid.....	11,984.1	(D)	(NA)	(D)	50.0	(NA)	(D)	(D)
28742 15, 41	Normal, concentrated, and enriched superphosphates.....	1,670.4	687.6	(NA)	41.2	-	(NA)	982.8	-
28742 52	Diammonium phosphates .....	13,638.1	7,917.3	(NA)	58.1	76.5	(NA)	5,797.3	1.3
28193 —	Sulfuric acid, gross .....	43,337.0	627.5	(NA)	1.4	1,629.6	(NA)	44,339.1	3.7

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. X Not applicable.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus calculated import duty.

<sup>4</sup>Apparent consumption is derived by subtracting exports from manufacturers' production plus imports. Apparent consumption does not include any adjustments for changes in inventories.

<sup>5</sup>Includes reactivated carbon.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

## HISTORICAL NOTE

Data on inorganic chemicals and fertilizer materials have been collected by the Census Bureau since 1941. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical

data are also available on microfiche; contact Customer Services, 301-457-4100.

## CONTACT FOR DATA USERS

For additional information about these data, contact Lissene Witt (Inorganic Chemicals), 301-457-4830 or Walter R. Hunter Jr. (Fertilizer Materials), 301-457-4798.

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## INDUSTRIAL GASES (MA28C)

### INTRODUCTION

The data in this subsection are from surveys MQ28C and MA28C, Industrial Gases. The data shown are production, quantity, and value of shipments. Gases that are vented or used for fuel by the manufacturer are excluded.

### SUMMARY OF FINDINGS

In 1997, total manufacturers' shipments of industrial gases amounted to \$3,657.2 million, an increase of 2.0 percent from the 1996 shipments of \$3,585.7 million.

Total shipments of carbon dioxide decreased 0.9 percent to \$395.1 million in 1997, from \$398.6 million in 1996. Carbon dioxide gas increased 0.6 percent to \$51.6 million in 1997, from \$51.3 million in 1996. Carbon dioxide liquid decreased 2.5 percent to \$306.2 million in 1997, from \$313.9 million in 1996, and solid carbon dioxide (dry ice) increased 11.7 percent in 1997, bringing its value to \$37.3 million, from a 1996 value of \$33.4 million.

Total production of nitrogen decreased 1.7 percent to 809.3 billion cubic feet in 1997, from 823.5 billion in 1996.

Shipments of nitrogen decreased 1.8 percent to \$1,103.8 million in 1997, from \$1,123.9 million in 1996. Production of nitrogen gas decreased 2.5 percent in 1997 to 520.2 billion cubic feet, from 533.5 billion in 1996; and shipments of nitrogen gas decreased 7.2 percent to \$398.5 million in 1997, from \$429.5 million in 1996. Production of liquid nitrogen for merchant shipments decreased 2.9 percent in 1997 to 240.1 billion cubic feet, from 247.2 billion in 1996; but shipments increased 0.9 percent to \$640.8 million in 1997, from \$635.1 million in 1996.

Total production of oxygen increased 7.8 percent to 735.7 billion cubic feet in 1997, from 682.2 billion in 1996; and shipments of oxygen increased 5.3 percent to \$998.0 million in 1997, from \$947.9 million in 1996. Production of oxygen gas increased 9.1 percent in 1997 to 576.9 billion cubic feet, from 528.7 billion in 1996; but shipments of oxygen gas decreased 2.1 percent to \$558.7 million in 1997, from \$570.7 million in 1996. Production of liquid

oxygen for merchant shipments decreased 0.8 percent in 1997 to 111.3 billion cubic feet, from 112.2 billion in 1996; but shipments increased 15.4 percent to \$386.6 million in 1997, from \$335.0 million in 1996.

Total production of hydrogen increased 21.6 percent to 469.1 billion cubic feet in 1997, from 385.7 billion in 1996; shipments of hydrogen increased 15.2 percent to \$420.7 million in 1997, from \$365.3 million in 1996.

### EXPLANATION OF TERMS

**Carbon dioxide.** Includes all gas produced that is not vented, regardless of whether it will be used as a gas or to make liquid or solid. Also includes natural carbon dioxide produced from well operations. Excludes amounts produced and consumed in the manufacture of urea or soda ash.

**Hydrogen.** Excludes amounts produced and consumed in the manufacture of synthetic ammonia, synthetic methanol, petroleum products (hydrocracking and hydrotreating), and amounts produced by the ammonia dissociation process (cracking of ammonia).

**Nitrogen/oxygen.** Excludes amounts produced and consumed in the manufacture of synthetic ammonia and ammonia derivatives.

**Production.** Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end of products.

**Unit of measure.** All figures included in this report are shown in million cubic feet, 70 degrees Fahrenheit, at 1 atmosphere pressure, unless otherwise specified.

**Table 12. Production and Shipments of Selected Industrial Gases: 1994 to 1997**

[Value in millions of dollars]

Product code	Product description	Year	Unit of measure	Production	Shipments	
					Quantity	Value
28132 00	Acetylene .....	1997 .....	Bil cu ft. ....	5.2	3.1	147.3
		1996 .....	.....do.....	5.5	3.3	158.7
		1995 .....	.....do.....	5.9	3.4	155.0
		1994 .....	.....do.....	5.3	2.9	143.3
28133 00	Carbon dioxide: Gas.....	1997 .....	1,000 s tons ..	5,268.9	4,575.9	51.6
		1996 .....	.....do.....	4,899.7	4,462.9	51.3
		1995 .....	.....do.....	5,633.2	5,282.4	59.9
		1994 .....	.....do.....	6,944.7	6,530.4	67.1
	Liquid .....	1997 .....	.....do.....	6,659.2	6,610.4	306.2
		1996 .....	.....do.....	6,661.6	6,528.6	313.9
		1995 .....	.....do.....	6,409.6	6,057.2	369.0
		1994 .....	.....do.....	5,898.4	5,728.9	238.7
	Solid (dry ice).....	1997 .....	.....do.....	377.7	378.6	37.3
		1996 .....	.....do.....	320.0	300.2	33.4
		1995 .....	.....do.....	300.4	297.9	35.1
		1994 .....	.....do.....	288.0	288.1	30.9
28135 00	Nitrogen.....	1997 .....	Bil cu ft. ....	809.3	786.9	1,103.8
		1996 .....	.....do.....	823.5	792.9	1,123.9
		1995 .....	.....do.....	808.9	806.1	1,139.4
		1994 .....	.....do.....	823.6	752.0	1,057.6
28136 00	Oxygen .....	1997 .....	.....do.....	735.7	681.0	998.0
		1996 .....	.....do.....	682.2	649.1	947.9
		1995 .....	.....do.....	629.8	597.7	968.5
		1994 .....	.....do.....	605.0	564.5	881.9
28137 pt.	Hydrogen.....	1997 .....	.....do.....	469.1	206.6	420.7
		1996 .....	.....do.....	385.7	165.9	365.3
		1995 .....	.....do.....	351.7	138.4	310.8
		1994 .....	.....do.....	331.0	126.6	273.4

pt. Part.      <sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 13. Quantity of Primary Production of Specified Industrial Gases: 1997 and 1996**

[Production and quantity of shipments in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Unit of measure	1997			1996		
			Production	Shipments		Production	Shipments	
				Quantity	Value		Quantity	Value
2813—	Industrial gases	....(X)....	(X)	(X)	3,657,162	(X)	(X)	3,585,651
28132 00	Acetylene <sup>1</sup>	Mil cu ft....	5,248	3,080	147,280	5,512	3,264	158,682
28132 11	Produced for compression, including cylinder and pipeline	....do....	808	838	68,235	947	920	80,754
28132 21	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant	....do....	4,440	2,242	79,045	4,565	2,344	77,928
28133 00	Carbon dioxide <sup>2</sup>	Short tons .	12,305,794	11,564,966	395,087	11,881,366	11,291,676	'398,634
28133 01	Gas, including amounts produced and liquefied	....do....	5,268,818	4,575,941	51,558	4,899,728	4,462,891	51,293
28133 02	Liquid, including amounts produced and used to make dry ice	....do....	6,659,243	6,610,417	306,218	6,661,626	6,528,559	'313,917
28133 31	Solid (dry ice)	....do....	377,733	378,608	37,311	320,012	300,226	'33,424
28135 00	Nitrogen <sup>3</sup>	Mil cu ft....	809,292	786,935	1,103,844	823,467	792,916	1,123,868
28135 22	Gas produced by: Cryogenic onsite and pipeline <sup>4</sup>	....do....	(D)	(D)	(D)	(D)	(D)	(D)
28135 23	Noncryogenic processes (psa, vpsa, membranes, etc.) <sup>4</sup>	....do....	520,177	522,369	398,499	'533,523	'529,765	429,503
28135 24	Captive uses for consumption in same plant: Cryogenic processes <sup>5</sup>	....do....	(D)	(X)	(X)	(D)	(X)	(X)
28135 26	Noncryogenic processes (psa, vpsa, membranes, etc.) <sup>5</sup>	....do....	(D)	(X)	(X)	(D)	(X)	(X)
28135 12	Liquid produced for: Merchant shipment	....do....	240,067	244,619	640,799	247,189	247,117	635,087
28135 32	Consumption in same plant <sup>5</sup>	....do....	26,936	(X)	(X)	'26,433	(X)	(X)
28135 34	Supplemental shipments or uses	....do....	22,112	19,947	64,546	16,322	16,034	59,278
28136 00	Oxygen	....do....	735,732	681,011	998,032	682,234	649,144	947,869
28136 22	Gas produced by: Cryogenic onsite and pipeline <sup>6</sup>	....do....	(D)	(D)	(D)	(D)	(D)	(D)
28136 23	Noncryogenic processes (psa, vpsa, membranes, etc.) <sup>6</sup>	....do....	576,859	553,183	558,667	528,735	524,661	570,670
28136 24	Captive uses for consumption in same plant: Cryogenic processes <sup>7</sup>	....do....	(D)	(X)	(X)	(D)	(X)	(X)
28136 26	Noncryogenic processes (psa, vpsa, membranes, etc.) <sup>7</sup>	....do....	(D)	(X)	(X)	(D)	(X)	(X)
28136 12	Liquid produced for: Merchant shipment	....do....	111,278	111,780	386,554	112,225	111,485	334,980
28136 32	Consumption in same plant <sup>7</sup>	....do....	30,958	(X)	(X)	26,537	(X)	(X)
28136 34	Supplemental shipments or uses	....do....	16,637	16,048	52,811	14,737	12,998	42,219
28137 00	Elemental gases and other industrial gases, n.e.c.	Mil cu ft....	(X)	(X)	965,786	(X)	(X)	911,834
28137 11	Argon	....do....	(D)	(D)	(D)	(D)	(D)	(D)
28137 15	Argon, crude	....do....	(D)	(D)	(D)	(D)	(D)	(D)
	Argon, high purity, produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant	....do....	17,672	17,286	311,249	'17,243	'16,817	'317,759
	Helium <sup>8</sup>	....do....	(X)	3,854	(X)	(X)	3,414	(X)
	Hydrogen <sup>9</sup>	....do....	469,140	206,640	420,672	'385,660	'165,897	'365,281

See footnotes at end of table.



Table 13. **Quantity of Primary Production of Specified Industrial Gases: 1997 and 1996—Con.**

[Production and quantity of shipments in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Unit of measure	1997			1996		
			Production	Shipments		Production	Shipments	
				Quantity	Value		Quantity	Value
2813— 28137 00	Industrial gases—Con. Elemental gases and other industrial gases, n.e.c.—Con.							
	Gas produced for:							
28137 22	Merchant shipment <sup>10</sup> . . . . .	. . .do . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28137 32	Pipeline and on-site use <sup>10</sup> . . . . .	. . .do . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28137 42	Consumption in same plant. . . . .	. . .do . . . .	247,414	(X)	(X)	207,101	(X)	(X)
	Liquid produced for:							
28137 52	Merchant shipment <sup>10</sup> . . . . .	. . .do . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28137 62	Supplemental shipments or uses <sup>10</sup> . . . . .	. . .do . . . .	221,726	206,640	420,672	178,559	165,897	365,281
28137 90	Other elemental gases . . . . .	. . .(X) . . . .	(X)	(X)	(D)	(X)	(X)	(D)
28137 71	Nitrous oxide <sup>11</sup> . . . . .	. . .do . . . .	(D)	(D)	(D)	(D)	(D)	(D)
28137 98	Other compressed and liquefied gases <sup>11 12</sup> . . . . .	. . .(X) . . . .	(X)	(X)	153,212	(X)	(X)	158,852
28130 00	Industrial gases, n.s.k. . . . .	. . .(X) . . . .	(X)	(X)	47,133	(X)	(X)	44,764

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. n.s.k. Not specified by kind.  
 †Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Excludes information from railroad ships, shipyards, welding shops, and small establishments using portable generators.  
<sup>2</sup>Excludes quantities produced and consumed in plants manufacturing soda ash or urea. "Carbon dioxide gas" data should be used with caution since it includes data for gas produced in the production of petroleum, whose data is difficult to measure.  
<sup>3</sup>Excludes amounts produced and consumed in manufacturing of synthetic ammonia or ammonia derivatives.  
<sup>4</sup>Product code 28135 22 has been combined with product code 28135 23 to avoid disclosing data for individual companies.  
<sup>5</sup>Product codes 28135 24 and 28135 26 are combined with product code 28135 32 to avoid disclosing data for individual companies.  
<sup>6</sup>Product code 28136 22 has been combined with product code 28136 23 to avoid disclosing data for individual companies.  
<sup>7</sup>Product codes 28136 24 and 28136 26 are combined with product code 28136 32 to avoid disclosing data for individual companies.  
<sup>8</sup>Source: U.S. Geological Surveys.  
<sup>9</sup>Excludes amounts vented, used as fuel, etc., and amounts produced and consumed in the manufacturing of synthetic ammonia and methanol, but includes an unspecified amount produced for sale or interplant transfer to plants consuming this gas in production of ammonia. Also excludes amount produced by ammonia dissociation process (cracking of ammonia). Also excludes amounts produced in petroleum refineries for captive use.  
<sup>10</sup>Product codes 28137 22, 28137 32, 28137 52, and 28137 62 are combined to avoid disclosing data for individual companies.  
<sup>11</sup>Product codes 28137 71 and 28137 98 are combined to avoid disclosing data for individual companies  
<sup>12</sup>Excludes hydrocarbon gases such as propane, butane, and propylene, or halogenated hydrocarbons and cyclopropane. Also excludes sulfur dioxide and chlorine data, which are shown in Current Industrial Reports Series, MA28A(97)-1, *Inorganic Chemicals*.

Note: N.s.k. represents value of shipments for establishments that did not provide detailed information by type of product. These establishments, typically with less than five employees, are not included on the MA28C mailing panel. N.s.k. value has been estimated based on rate of change for reporting establishments applied to previous year's data.

**Table 14. Production and Shipments of Acetylene by Geographic Area: 1997 and 1996**

[Production and quantity in million cubic feet. Value in thousands of dollars]

Geographic area	1997			1996		
	Production	Shipments		Production	Shipments	
		Quantity	Value		Quantity	Value
<b>Total</b> .....	<b>5,248</b>	<b>3,080</b>	<b>147,280</b>	<b>5,512</b>	<b>3,264</b>	<b>158,682</b>
Northeast Region.....	113	112	10,598	94	96	9,149
North Central Region .....	193	243	18,064	231	222	22,455
East North Central.....	129	122	12,913	156	149	16,382
West North Central.....	64	121	5,151	75	73	6,073
South Region .....	4,825	2,609	105,887	5,031	2,789	109,930
South Atlantic and East South Central .....	742	722	47,056	737	717	47,268
West South Central.....	4,083	1,887	58,831	4,294	2,072	62,662
West Region.....	117	116	12,731	156	157	17,148
Mountain.....	26	25	2,957	32	33	3,355
Pacific .....	91	91	9,774	124	124	13,793

<sup>†</sup>Revised by 5 percent or more from previously published data.

See note at end of Table 17.

**Table 15. Production and Shipments of Carbon Dioxide by Geographic Area: 1997 and 1996**

[Production and quantity in short tons. Value in thousands of dollars]

Geographic area	Liquid			Solid		
	Production	Shipments		Production	Shipments	
		Quantity	Value		Quantity	Value
<b>1997</b>						
<b>Total</b> .....	<b>6,659,243</b>	<b>6,610,417</b>	<b>306,218</b>	<b>377,733</b>	<b>378,608</b>	<b>37,311</b>
Northeast Region <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)
North Central Region .....	1,874,503	1,826,863	82,603	172,309	172,148	15,220
East North Central <sup>1</sup> .....	1,318,164	1,297,341	63,459	83,390	84,585	7,785
West North Central.....	556,339	529,522	19,144	88,919	87,563	7,435
South Region .....	3,668,635	3,692,111	172,219	106,975	106,469	12,399
South Atlantic and East South Central .....	2,135,561	2,168,129	90,910	53,727	53,241	5,698
West South Central.....	1,533,074	1,523,982	81,309	53,248	53,228	6,701
West Region.....	1,116,105	1,091,443	51,396	98,449	99,991	9,692
Mountain.....	363,457	337,159	19,460	20,631	21,222	1,602
Pacific .....	752,648	754,284	31,936	77,818	78,769	8,090
<b>1996</b>						
<b>Total</b> .....	<b>6,661,626</b>	<b>6,528,559</b>	<b>313,917</b>	<b>320,012</b>	<b>300,226</b>	<sup>†</sup> <b>33,424</b>
Northeast Region <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)
North Central Region .....	1,890,058	1,824,423	80,838	152,359	144,344	15,658
East North Central <sup>1</sup> .....	1,272,812	1,241,962	60,587	86,021	79,936	10,411
West North Central.....	617,246	582,461	20,251	66,338	64,408	5,247
South Region .....	<sup>†</sup> 3,666,768	<sup>†</sup> 3,618,045	<sup>†</sup> 174,653	<sup>†</sup> 111,746	<sup>†</sup> 101,199	<sup>†</sup> 11,443
South Atlantic and East South Central .....	<sup>†</sup> 2,156,476	<sup>†</sup> 2,133,295	<sup>†</sup> 105,485	63,239	53,729	5,789
West South Central.....	1,510,292	1,484,750	69,168	<sup>†</sup> 48,507	<sup>†</sup> 47,470	<sup>†</sup> 5,654
West Region.....	1,104,800	1,086,091	58,426	<sup>†</sup> 55,907	<sup>†</sup> 54,683	<sup>†</sup> 6,323
Mountain.....	<sup>†</sup> 301,870	<sup>†</sup> 275,838	<sup>†</sup> 17,935	<sup>†</sup> 15,287	<sup>†</sup> 15,287	<sup>†</sup> 886
Pacific .....	802,930	810,253	40,491	40,620	39,396	5,437

D Withheld to avoid disclosing data for individual companies.

<sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Totals for Northeast Region are combined with East North Central to avoid disclosing data for individual companies.

See note at end of Table 17.

**Table 16. Production and Shipments of Argon and Hydrogen by Geographic Area: 1997 and 1996**

[Production and quantity in million cubic feet. Value in thousands of dollars]

Geographic area	Argon						Hydrogen					
	1997			1996			1997			1996		
	Production	Shipments		Production	Shipments		Production	Shipments		Production	Shipments	
Quantity		Value	Quantity		Value	Quantity		Value	Quantity		Value	
<b>Total</b> .....	<b>(D)</b>	<b>(D)</b>	<b>(D)</b>	<b>(D)</b>	<b>(D)</b>	<b>(D)</b>	<b>469,140</b>	<b>206,640</b>	<b>420,672</b>	<b>'385,660</b>	<b>'165,897</b>	<b>'365,281</b>
Northeast Region.....	1,726	1,759	31,769	1,641	1,643	27,978	10,299	10,386	36,114	9,893	9,753	32,142
North Central Region .....	(D)	(D)	(D)	(D)	(D)	(D)	53,666	4,608	16,767	48,878	3,428	11,080
East North Central .....	6,448	6,463	113,922	'6,973	'6,988	'119,256	(D)	(D)	(D)	(D)	(D)	(D)
West North Central .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
South Region .....	9,313	8,889	153,020	8,542	8,134	145,105	350,828	(D)	(D)	308,630	(D)	(D)
South Atlantic .....	1,695	1,701	33,594	1,655	1,647	31,811	9,470	2,192	6,623	'16,713	'13,465	'20,103
East South Central .....	1,324	1,325	26,926	1,458	1,458	24,129	7,280	(D)	(D)	'6,976	(D)	(D)
West South Central .....	6,294	5,863	92,500	5,429	5,029	89,165	334,078	183,176	327,019	284,941	'132,981	267,902
West Region.....	1,622	1,645	28,724	1,538	1,505	36,514	54,347	(D)	(D)	18,259	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

'Revised by 5 percent or more from previously published data.

See note at end of Table 17.

**Table 17. Production and Shipments of Liquid Nitrogen and Oxygen Produced for Merchant Shipment by Geographic Area: 1997 and 1996**

[Production and quantity in million cubic feet. Value in thousands of dollars]

Geographic area	Nitrogen						Oxygen					
	1997			1996			1997			1996		
	Production	Shipments		Production	Shipments		Production	Shipments		Production	Shipments	
Quantity		Value	Quantity		Value	Quantity		Value	Quantity		Value	
<b>Total</b> .....	<b>240,067</b>	<b>244,619</b>	<b>640,799</b>	<b>247,189</b>	<b>247,117</b>	<b>635,087</b>	<b>111,278</b>	<b>111,780</b>	<b>386,554</b>	<b>112,225</b>	<b>111,485</b>	<b>334,980</b>
Northeast Region.....	49,212	48,846	124,767	46,899	47,903	114,158	21,042	21,061	63,158	20,821	20,843	60,734
North Central Region .....	80,298	80,142	159,176	69,554	69,509	'163,969	35,257	35,545	87,658	36,515	36,489	91,665
East North Central .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
West North Central .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
South Region .....	74,953	80,028	211,222	87,361	87,381	235,833	42,872	42,919	130,033	41,720	41,876	132,919
South Atlantic .....	34,198	39,442	90,766	39,778	39,773	100,360	17,649	17,759	52,325	20,355	20,453	59,889
East South Central .....	12,539	12,525	31,781	'17,490	'17,264	46,495	6,515	6,512	19,000	9,433	9,396	28,658
West South Central .....	28,216	28,061	88,675	30,093	30,344	88,978	18,708	18,648	58,708	11,932	12,027	44,372
West Region.....	35,604	35,603	145,634	43,375	42,324	121,127	12,107	12,255	105,705	13,169	12,277	49,662

D Withheld to avoid disclosing data for individual companies.

'Revised by 5 percent or more from previously published data.

Note: Northeast Region: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania. North Central Region: East North Central Division: Ohio, Indiana, Illinois, Michigan, and Wisconsin. West North Central Division: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. South Region: South Atlantic Division: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida. East South Central Division: Kentucky, Tennessee, Alabama, and Mississippi. West South Central Division: Arkansas, Louisiana, Oklahoma, and Texas. West Region: Mountain: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada. Pacific: Washington, Oregon, California, Alaska, and Hawaii.

**Table 18. Quantity of Primary Production of Specified Industrial Gases: 1997 and 1996**

[Production in million cubic feet, except where otherwise noted]

Product code	Product description	1997					1996				
		Total	First quarter	Second quarter	Third quarter	Fourth quarter	Total	First quarter	Second quarter	Third quarter	Fourth quarter
28132 00	Acetylene <sup>1</sup> . . . . .	5,248	1,301	1,200	1,254	1,493	5,512	1,342	1,368	1,359	1,443
28132 11	Produced for compression, including cylinder and pipeline . .	808	212	204	185	207	947	246	227	218	256
28132 21	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant . . . . .	4,440	1,089	996	1,069	1,286	4,565	1,096	1,141	1,141	1,187
28133 01	Carbon dioxide: <sup>2</sup> Gas, including amounts produced and liquefied (short tons) . .	5,268,818	(S)	(S)	(S)	(S)	4,899,728	(S)	(S)	(S)	(S)
28133 02	Liquid, including amounts produced and used to make dry ice (short tons) . . . . .	6,659,243	1,414,001	1,575,533	1,703,669	1,966,040	6,661,626	1,525,513	1,665,407	1,791,977	1,678,729
28133 31	Solid (dry ice) (short tons) . . . . .	377,733	73,147	79,642	112,092	112,852	320,012	73,602	76,802	89,604	80,004
28137 15	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant . . . . .	17,672	4,277	4,440	4,405	4,550	17,243	4,139	4,311	4,311	4,482
28137 22	Hydrogen <sup>3</sup> . . . . .	469,140	105,549	112,268	123,667	127,656	385,660	86,916	92,560	89,916	116,268
28137 32	Gas produced for: Merchant shipment <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28137 42	Pipeline and onsite use <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28137 52	Consumption in same plant . . . . .	247,414	62,565	59,028	64,184	61,637	207,101	47,633	49,705	43,491	66,272
28137 62	Liquid produced for: Merchant shipment <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28135 00	Other shipments or uses <sup>4</sup> . . . . .	221,726	42,984	53,240	59,483	66,019	178,559	39,283	42,855	46,425	49,996
28135 22	Nitrogen <sup>5</sup> . . . . .	809,292	201,512	200,064	202,755	204,931	823,467	200,043	202,623	209,275	211,526
28135 23	Gas produced by: Cryogenic onsite and pipeline <sup>5</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28135 24	Noncryogenic processes (psa, vpsa, membranes, etc.) by industrial gas-producing companies <sup>6</sup> . . . . .	520,177	130,929	128,380	129,004	131,864	533,523	128,045	133,301	133,462	138,715
28135 26	Captive uses for consumption in same plant (user-owned): Cryogenic processes <sup>7</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28135 32	Noncryogenic processes (psa, vpsa, membranes, etc.) <sup>7</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28135 12	Liquid produced for: Merchant shipment . . . . .	240,067	58,695	60,199	61,282	59,891	247,189	61,798	59,325	64,269	61,797
28135 34	Consumption in same plant <sup>7</sup> . . . . .	26,936	6,574	6,625	6,986	6,751	26,433	6,609	6,080	7,137	6,607
28136 00	Other shipments or uses . . . . .	22,112	5,314	4,860	5,483	6,455	16,322	3,591	3,917	4,407	4,407
28136 22	Oxygen . . . . .	735,732	179,823	181,775	187,284	186,850	682,234	163,736	170,558	170,559	177,381
28136 23	Gas produced by: Cryogenic onsite and pipeline <sup>8</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28136 23	Noncryogenic processes (psa, vpsa, membranes, etc.) by industrial gas-producing companies <sup>8</sup> . . . . .	576,859	140,734	143,230	146,561	146,334	528,735	126,897	132,184	137,471	132,183

See footnotes at end of table.

**Table 18. Quantity of Primary Production of Specified Industrial Gases: 1997 and 1996—Con.**

[Production in million cubic feet, except where otherwise noted]

Product code	Product description	1997					1996				
		Total	First quarter	Second quarter	Third quarter	Fourth quarter	Total	First quarter	Second quarter	Third quarter	Fourth quarter
28136 24	Oxygen—Con. Captive uses for consumption in same plant (user-owned): Cryogenic processes <sup>9</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28136 26	Noncryogenic processes (psa, vpsa, membranes, etc.) <sup>9</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28136 12	Liquid produced for: Merchant shipment . .	111,278	27,161	27,367	28,210	28,540	112,225	29,178	28,057	26,934	28,056
28136 32	Consumption in same plant <sup>9</sup> . . . . .	30,958	7,544	7,128	8,323	7,963	26,537	(S)	(S)	(S)	(S)
28136 34	Other shipments or uses . . . . .	16,637	4,384	4,050	4,190	4,013	14,737	3,536	3,389	3,536	4,276

D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data.  
S Does not meet publication standards.

<sup>1</sup>Excludes information from railroad ships, shipyards, welding shops, and small establishments using portable generators.

<sup>2</sup>Excludes quantities produced and consumed in plants manufacturing soda ash and urea.

<sup>3</sup>Excludes amounts vented, used as fuel, etc., and amounts produced and consumed in manufacturing of synthetic ammonia and methanol, but includes an unspecified amount produced for sale or interplant transfer to plants consuming this gas in production of ammonia. Also excludes amounts produced by ammonia dissociation process (cracking of ammonia). Also excludes amounts produced in petroleum refineries for captive use.

<sup>4</sup>Product codes 28137 22, 28137 32, 28137 52, and 28137 62 have been combined to avoid disclosing data for individual companies.

<sup>5</sup>Excludes amounts produced and consumed in manufacturing of synthetic ammonia derivatives.

<sup>6</sup>Product code 28135 22 has been combined with product code 28135 23 to avoid disclosing data for individual companies.

<sup>7</sup>Product codes 28135 24, 28135 26, and 28135 32 have been combined to avoid disclosing data for individual companies.

<sup>8</sup>Product codes 28136 22 and 28136 23 have been combined to avoid disclosing data for individual companies.

<sup>9</sup>Product codes 28136 24, 28136 26, and 28136 32 have been combined to avoid disclosing data for individual companies.

Table 19. **Production, Exports, Imports, and Apparent Consumption of Industrial Gases: 1997 and 1996**

[Quantity in million cubic meters, unless otherwise noted]

Product code	Product description	Manufacturers' production	Exports of domestic merchandise <sup>1</sup>	Percent exports to manufacturers' production	Imports for consumption <sup>2</sup>	Apparent consumption <sup>3</sup>	Percent imports to apparent consumption
<b>1997</b>							
28133 01, 02, 31	Carbon dioxide (gas, liquid, and solid) (metric tons) .....	11,171,200	100,224	0.9	22,119	11,093,095	0.2
28137 15	Argon (high purity) .....	500	263	52.6	27	264	10.2
28137 22, 32, 42, 52, 62	Hydrogen .....	13,286	298	2.2	141	13,129	1.1
28135 00	Nitrogen .....	22,919	80	0.3	171	23,010	0.7
28136 00	Oxygen .....	20,836	154	0.7	55	20,737	0.3
<b>1996</b>							
28133 01, 02, 31	Carbon dioxide (gas, liquid, and solid) ....	10,785,904	70,461	0.7	18,946	10,734,389	0.2
28137 15	Argon (high purity) .....	1,488	193	39.5	27	322	8.4
28137 22, 32, 42, 52, 62	Hydrogen .....	10,922	246	2.3	155	10,831	1.4
28135 00	Nitrogen .....	123,321	49	0.2	74	23,346	0.3
28136 00	Oxygen .....	19,321	143	0.7	14	19,192	0.1

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Apparent consumption is derived by subtracting exports from total of production plus imports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

## HISTORICAL NOTE

Data on industrial gases have been collected by the Census Bureau since 1941. Prior to 1991, data were collected both monthly and annually. Beginning in 1991, as a result of budget reductions, the monthly series was canceled and replaced with a similar quarterly series. Historical data may be obtained from Current Industrial Reports

(called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

## CONTACT FOR DATA USERS

For additional information about these data, contact Suzanne Conard, 301-457-4791.

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## PAINT, VARNISH, AND LACQUER (MA28F)

### INTRODUCTION

The data in this subsection were collected in the Current Industrial Report surveys MQ28F and MA28F, Paint and Allied Products. The data consist of quarterly and annual statistics on manufacturers' shipments of paint and allied products for 1997 and 1996. The annual statistics are based on reported data from approximately 500 companies having 20 or more employees and represent approximately 95 percent of the paint industry (SIC 2851). Estimates are used for companies with less than 20 employees, as well as for those companies whose reports were not received in time for publication.

### SUMMARY OF FINDINGS

In 1997, total manufacturers' shipments of paint and allied products amounted to \$16,436.8 million, a decrease of 0.7 percent from the 1996 shipments of \$16,554.7 million.

Shipments of architectural coatings decreased 1.6 percent to \$6,148.1 million in 1997 from \$6,246.3 million in 1996.

Shipments of original equipment manufactures (OEM) coatings increased 4.8 percent to \$5,739.4 million in 1997 from \$5,474.1 million in 1996.

Shipments of powder coatings increased 9.6 percent to \$589.9 million in 1997 from \$538.3 million in 1996.

Shipments of special-purpose coatings decreased 11.2 percent to \$2,898.2 million in 1997 from \$3,263.8 million in 1996.

Shipments of miscellaneous allied paint products increased 5.1 percent to \$1,651.1 million in 1997 from \$1,570.5 million in 1996.

### EXPLANATION OF TERMS

**Architectural coatings.** Coatings for onsite application to interior or exterior surfaces of residential, commercial, institutional, or industrial buildings. These are protective and decorative finishes applied at ambient temperatures for ordinary use and exposure.

*Clear finishes and spar varnishes.* Transparent protective and/or decorative films, including urethane coatings, natural varnishes, and shellac varnishes.

*Eggshell finish.* Low sheen (semimatte) surfaces that exhibit surface reflectance (gloss) similar to that of an eggshell, lying between flat and semigloss.

*Enamels.* Topcoats with the ability to form a smooth surface; usually associated with a high gloss, but also used with lesser gloss, i.e., flat enamels.

*Primer.* First complete coat of a painting system applied to a surface. Designed to provide adequate adhesion to new surfaces and to meet special requirements such as absorption and/or corrosion control.

*Stains.* Transparent and semitransparent solutions or suspensions of coloring matter in a vehicle, designed to color a surface by penetration without hiding it, or to color a material into which it is incorporated.

*Solvent.* Nonaqueous liquid, usually volatile, used to dissolve or disperse the coating constituents. This liquid evaporates during drying and does not become part of the dried coating.

*Lacquers.* Coating composition based on synthetic thermoplastic materials dissolved in organic solvent, which dries primarily by solvent evaporation. Typical lacquers include those based on nitrocellulose and other cellulose derivations, vinyl resins, and acrylic resins.

*Undercoat.* A coat of paint applied on new wood, over a primer, or over a previous coat of paint, to improve the seal and to serve as a base for the top coat.

*Exterior coatings.* Architectural coatings that are expected to possess reasonable durability when exposed to natural weathering.

**Miscellaneous paint products.** Includes thinners for dopes, lacquers, and oleoresinous thinners, including mixtures and proprietary thinners (sold as such); aerosol paints made from purchased paint, both exterior and interior; organosols and plastisols, other than coatings; paint and varnish driers; and miscellaneous related paint products, e.g., pigment dispersions, ink vehicles, and bleached shellac (not varnish).

*Putty and allied products.* Includes wood and textile preservatives (nonpressure type) such as wood fillers and sealers, putty and glazing compounds, paint and varnish removers, and other allied paint products, including brush cleaners.

(Source: *Paint/Coatings Dictionary, Federation of Societies for Coatings Technology, 1978*)

**OEM coatings.** Coatings formulated specifically for OEM to meet conditions of application and product requirements, and applied to such products during the manufacturing process.

*Powder coatings.* One hundred-percent solid coatings applied as dry powders and subsequently formed into a film with heat.

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*Electrical insulating coatings.* Coatings (varnishes), often used in combination with materials such as mica, fabrics, and paper, to provide insulation for electrical equipment. These coatings are formulated to have high resistance to electrical conduction.

**Quantity and value of shipments.** Shipments are collected in thousands of gallons and thousands of dollars. The only exception to this is powder coatings that are collected in pounds and converted to gallons by using a conversion factor of 3 (3 lb = 1 gallon).

**Special-purpose coatings, including coatings for transportation after market.** These may also be stock type or shelf goods, but differ from general architectural coatings by the fact that they are formulated for special applications and/or special environmental conditions such as extreme temperatures, chemicals, and fumes.

*Industrial new construction and maintenance paints.* High performance coatings formulated to withstand extremes of use such as heavy abrasion, water immersion, chemicals, corrosion, extreme temperatures, and electrical or

solvent exposure. Also includes maintenance coatings used to maintain nonresidential structures; building and nonbuilding requirements in such areas as public utilities, railroads, roads, and highways; and other industrial plant coatings, the primary purpose of which is protection. Industrial new construction and maintenance paints can be used on either interior or exterior applications.

*Marine paints, including ship and offshore.* Paints and coatings specifically formulated to withstand water immersion and exposure to marine atmosphere. Excludes spar varnish. Includes marine refinish paints.

*Traffic marking paints.* Paints specifically formulated to withstand wear of vehicular traffic and to be highly visible at night; used to mark center lines on roadways, traffic lanes, crosswalks, etc. Includes paints manufactured with reflective beads.

*Refinish paints.* Coatings formulated specifically to meet particular product and application requirements, and sold to the refinishing trade or through retail outlets for after-market application.



**Table 20. Summary of Estimated U.S. Total Quantity and Value of Shipments of Paint and Allied Products: 1992 to 1997**

[Quantity in millions of gallons. Value in millions of dollars]

Year	Total		Architectural coatings		Product coatings OEM		Special-purpose coatings		Miscellaneous allied paint products	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1997.....	1,470.4	16,436.8	646.6	6,148.1	425.2	5,739.4	181.7	2,898.2	216.9	1,651.1
1996.....	1,468.2	16,554.7	640.3	6,246.3	398.7	5,474.1	208.9	3,263.8	220.3	1,570.5
1995.....	1,408.3	15,951.6	621.1	6,041.3	376.2	5,263.6	195.1	3,103.0	215.9	1,543.7
1994.....	1,431.1	15,645.2	644.8	5,888.3	372.9	5,069.9	193.8	3,197.3	219.6	1,498.7
1993.....	1,336.5	14,630.1	608.1	5,615.3	356.6	4,788.3	179.0	2,937.7	192.8	1,288.8
1992.....	1,236.0	13,595.1	575.6	5,294.3	311.7	4,213.5	172.7	2,933.8	176.0	1,153.5

Note: Data for 1992 through 1997 are estimates of total U.S. value of shipments of paint, varnish, and lacquer. These estimates were developed by increasing product class totals shown in Table 21 by adjustment factors. For 1992 through 1997, these factors are: 1.008 for "Architectural coatings," .989 for "Product coatings OEM," 1.011 for "Special-purpose coatings," and 1.026 for "Miscellaneous paint products." For example: quantity and value of OEM coatings for 1997 shown in Table 21 amounted to \$429,959 and \$5,803,283, respectively. Adjusting these data by factor of .989 (multiplying \$429,959 and \$5,803,283 by .989) equals adjusted and rounded quantity and value of 425.2 and \$5,739.4 shown above in Table 20. These factors are used because the annual survey panel was selected to measure approximately 95 percent of total shipments in the paint industry (SIC 2851). Adjustment factors (based on 1992 census relationships) bring each product code value up to 100 percent. Quarterly data for 1997 and 1996 reflect adjusted totals in Table 20 and are shown in Table 22 along with the quarterly data originally published in Current Industrial Reports, quarterly series MQ28F, *Paint, Varnish, and Lacquer*.

**Table 21. Quantity and Value of Shipments of Paint and Allied Products: 1997 and 1996**

[Quantity in thousands of gallons. Value in thousands of dollars]

Product code	Product description	1997		1996	
		Quantity	Value	Quantity	Value
2851—	Paint and allied products <sup>1</sup> .....	1,462,591	16,378,576	1,459,703	16,490,775
28511 —	Architectural coatings.....	641,440	6,099,301	635,270	6,196,776
	Exterior solvent type.....	64,598	724,190	67,588	757,917
28511 12	Solvent thinned paints and tinting bases, including barn and roof paints.....	12,647	133,519	13,981	151,521
28511 15	Solvent thinned enamels and tinting bases, including exterior-interior floor enamels.....	14,577	208,553	13,970	121,141
28511 25	Solvent thinned undercoaters and primers.....	7,450	91,618	8,371	95,458
28511 35	Solvent thinned clear finishes and sealers.....	10,512	90,225	7,464	71,440
28511 37	Solvent thinned stains, including shingle and shake.....	12,743	133,294	15,680	150,075
28511 39	Other exterior solvent thinned coatings, including bituminous paints.....	6,669	66,981	8,122	77,282
	Exterior water-type.....	184,606	1,789,904	166,179	1,553,958
28511 41	Water thinned paints and tinting bases, including barn and roof paints.....	137,136	1,337,173	119,763	1,110,599
28511 42	Water thinned exterior-interior deck and floor enamels.....	1,852	19,980	2,604	24,141
28511 44	Water thinned undercoaters and primers.....	8,925	100,269	8,924	109,754
28511 49	Water thinned stains and sealers.....	18,466	153,945	11,862	112,104
28511 55	Other exterior water thinned coatings.....	18,227	178,537	23,026	197,360
	Interior solvent type.....	51,621	639,213	59,669	755,565
28511 63	Flat solvent thinned wall paints and tinting bases, including mill white paints.....	3,488	42,393	5,423	59,443
28511 65	Gloss and quick drying enamels and other gloss-solvent thinned paints and enamels.....	6,038	79,255	4,422	52,590
28511 69	Semigloss, eggshell, satin solvent thinned paints, and tinting bases.....	11,438	149,863	15,456	217,294
28511 71	Solvent thinned undercoaters and primers.....	9,792	100,933	10,827	109,762
28511 75	Solvent thinned clear finishes and sealers.....	8,151	112,743	9,112	131,456
28511 77	Solvent thinned stains.....	4,791	59,462	6,462	90,714
28511 79	Other interior solvent thinned coatings.....	7,923	94,564	7,967	94,306

See footnotes at end of table.

Table 21. **Quantity and Value of Shipments of Paint and Allied Products: 1997 and 1996—Con.**

[Quantity in thousands of gallons. Value in thousands of dollars]

Product code	Product description	1997		1996	
		Quantity	Value	Quantity	Value
2851—	Paint and allied products—Con.				
28511—	Architectural coatings—Con.				
28511 81	Interior water-type .....	331,378	2,859,012	328,923	3,002,291
28511 83	Flat water thinned paints and tinting bases .....	146,763	1,202,395	151,743	1,360,739
28511 86	Semigloss, eggshell, satin, and other water thinned paints and tinting bases .....	119,522	1,155,796	121,585	1,205,519
28511 88	Water thinned undercoaters and primers .....	25,950	194,374	25,853	179,932
28511 93	Other interior water thinned coatings, stains, and sealers .....	39,143	306,447	29,742	256,101
28511 00	Architectural lacquers .....	5,575	49,656	5,468	49,304
28512	Architectural coatings, n.s.k. ....	3,662	37,326	7,443	77,741
28512	Product finishes for original equipment manufactures (OEM), excluding marine coatings .....	429,959	5,803,283	403,122	5,534,990
28512 21	Automobile, light truck, van, and sport utility vehicle finishes .....	42,771	1,127,650	43,342	1,160,347
28512 24	Automobile parts finishes .....	3,238	77,524	2,896	67,055
28512 26	Heavy duty truck, bus, and recreational vehicle finishes ..	15,561	369,193	14,684	348,206
28512 28	Other transportation equipment finishes, including aircraft and railroad .....	10,853	165,674	9,263	140,547
28512 35	Appliance, heating equipment, and air-conditioner finishes .....	5,716	84,046	6,465	94,234
28512 37	Wood furniture, cabinet, and fixture finishes .....	49,938	511,615	44,678	440,628
28512 39	Wood and composition board flat stock finishes .....	16,731	171,277	15,272	154,098
28512 41	Metal building product finishes, including coatings for aluminum extrusions and siding .....	39,162	661,737	31,613	540,560
28512 43	Container and closure finishes .....	48,711	492,271	54,886	506,539
28512 47	Machinery and equipment finishes, including road building equipment and farm implements .....	14,623	241,526	15,484	238,762
28512 49	Nonwood furniture and fixture finishes, including business equipment finishes .....	26,048	384,557	27,243	402,620
28512 52	Paper, paper board, film, and foil finishes, excluding pigment binders .....	17,794	142,960	16,075	132,715
28512 53	Electrical insulating coatings .....	4,169	112,627	4,820	135,765
28512 54	Appliance powder coatings <sup>2</sup> .....	10,006	85,841	8,732	81,601
28512 56	Automotive powder coatings <sup>2</sup> .....	13,023	110,754	12,378	109,349
28512 58	Architectural powder coatings (such as aluminum extrusions) <sup>2</sup> .....	2,763	18,463	2,605	18,124
28512 60	Lawn and garden powder coatings <sup>2</sup> .....	3,663	44,437	3,264	38,356
28512 62	General metal finishing powder coatings <sup>2</sup> .....	35,363	311,632	30,633	290,889
28512 64*	Thermoset functional powder coatings (for pipe, rebar, electrical insulation, etc.) <sup>2</sup> .....	(D)	(D)	(NA)	(NA)
28512 66*	Thermoplastic powder coatings (all) <sup>2</sup> .....	(D)	(D)	(NA)	(NA)
28512 67	Other industrial product finishes .....	48,834	536,131	48,332	521,697
28512 00	Product finishes for original equipment manufactures (OEM), excluding marine coatings, n.s.k. ....	10,007	134,609	10,457	112,898
28513	Special-purpose coatings, including all marine coatings ....	179,735	2,866,686	206,581	3,228,335
28513 01	Industrial new construction and maintenance paints (especially formulated coatings for special conditions of industrial plants and/or facilities requiring protection against extreme temperatures, fungi, chemicals, fumes, etc.):				
28513 05	Interior .....	9,355	139,697	20,804	243,982
28513 11	Exterior .....	48,060	608,790	50,047	684,741
28513 13	Traffic marking paints (all types, shelf goods, and highway department) .....	37,125	244,654	38,387	246,311
28513 15	Automotive, other transportation and machinery refinish paints and enamels, including primers .....	42,816	1,302,569	48,065	1,436,321
28513 19	Marine paints, ship and off-shore facilities and shelf goods for both new construction and marine refinish and maintenance, excluding spar varnish .....	13,109	248,615	14,745	262,762
28513 31	Marine paints for yacht and pleasure craft, new construction, refinish, and maintenance .....	104	1,533	85	1,317
28513 00	Aerosol-paint concentrates produced for packaging in aerosol containers .....	24,880	237,083	30,051	267,072
28513 00	Special-purpose coatings, n.s.k. ....	4,286	83,745	4,397	85,829

See footnotes at end of table.

**Table 21. Quantity and Value of Shipments of Paint and Allied Products: 1997 and 1996—Con.**

[Quantity in thousands of gallons. Value in thousands of dollars]

Product code	Product description	1997		1996	
		Quantity	Value	Quantity	Value
2851—	Paint and allied products—Con.				
28515	Miscellaneous allied paint products . . . . .	211,457	1,609,306	214,730	1,530,674
28515 23	Paint and varnish removers . . . . .	7,355	67,268	7,526	68,591
28515 31	Thinners for lacquers and other solvent based paint products . . . . .	33,425	157,601	58,444	236,578
28515 33	Pigment dispersions . . . . .	35,583	472,155	32,432	420,969
28515 98	Other miscellaneous allied paint products, including brush cleaners, ink vehicles, putty and glazing compounds . . . . .	131,930	857,528	112,432	748,098
28515 00	Miscellaneous allied paint products, n.s.k. . . . .	3,164	54,754	3,896	56,438

\* New product code for 1997. D Withheld to avoid disclosing data for individual companies. NA Not available. n.s.k. Not specified by kind. †Revised by 5 percent or more from previously published data.

<sup>1</sup>Represents total shipments for those establishments producing paint and allied products that have 20 or more employees. These establishments represent approximately 95 percent of total value of shipments for SIC Industry 2851, Paint, varnishes, lacquers, enamels, and allied products, based on relationships observed in the 1992 Census of Manufactures final report.

<sup>2</sup>Data for powder coatings are collected in pounds and converted to gallons by using a conversion factor of 3 (3 lb = 1 gallon). Data collected in pounds amounted to 227,407 thousand pounds in 1997 and 172,836 thousand pounds in 1996.

**Table 22. Quantity and Value of Shipments of Paint, Varnish, and Lacquer by Quarter: 1997 and 1996**

[Quantity in thousands of gallons. Value in thousands of dollars]

Quarter and year	As revised							
	Total		Architectual coatings		Product coatings OEM		Special-purpose coatings	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>								
<b>Total . . . . .</b>	<b>1,253,512</b>	<b>14,785,761</b>	<b>646,571</b>	<b>6,148,095</b>	<b>425,229</b>	<b>5,739,447</b>	<b>181,712</b>	<b>2,898,219</b>
Fourth quarter . . . . .	273,762	3,323,020	127,470	1,236,997	106,988	1,441,749	39,304	644,274
Third quarter . . . . .	328,073	3,924,072	175,836	1,737,452	103,883	1,409,608	48,354	777,012
Second quarter . . . . .	350,061	4,023,438	191,289	1,772,496	108,093	1,469,872	50,679	781,070
First quarter . . . . .	301,616	3,515,231	151,976	1,401,150	106,265	1,418,218	43,375	695,863
<b>1996</b>								
<b>Total . . . . .</b>	<b>1,247,893</b>	<b>14,984,302</b>	<b>640,352</b>	<b>6,246,350</b>	<b>398,688</b>	<b>5,474,105</b>	<b>208,853</b>	<b>3,263,847</b>
Fourth quarter . . . . .	280,650	3,428,853	134,730	1,316,731	95,127	1,313,785	50,793	798,337
Third quarter . . . . .	334,752	3,954,933	179,747	1,772,089	101,267	1,383,854	53,738	798,990
Second quarter . . . . .	352,513	4,161,879	191,017	1,853,292	105,732	1,449,543	55,764	859,044
First quarter . . . . .	279,978	3,438,637	134,858	1,304,238	96,562	1,326,923	48,558	807,476
	As published							
<b>1997</b>								
<b>Total . . . . .</b>	<b>1,134,916</b>	<b>14,367,150</b>	<b>566,624</b>	<b>5,675,738</b>	<b>365,812</b>	<b>5,353,780</b>	<b>202,480</b>	<b>3,337,632</b>
Fourth quarter . . . . .	247,582	3,229,321	111,699	1,142,071	92,069	1,345,250	43,814	742,000
Third quarter . . . . .	297,346	3,814,092	154,067	1,604,033	89,387	1,315,005	53,892	895,054
Second quarter . . . . .	317,137	3,907,545	167,646	1,636,768	93,000	1,371,225	56,491	899,552
First quarter . . . . .	272,851	3,416,192	133,212	1,292,866	91,356	1,322,300	48,283	801,026
<b>1996</b>								
<b>Total . . . . .</b>	<b>1,221,518</b>	<b>14,917,540</b>	<b>638,072</b>	<b>6,243,774</b>	<b>373,388</b>	<b>5,398,421</b>	<b>210,058</b>	<b>3,275,345</b>
Fourth quarter . . . . .	274,490	3,413,509	134,277	1,316,319	89,117	1,295,880	51,096	801,310
Third quarter . . . . .	328,071	3,938,495	179,143	1,771,536	94,869	1,364,994	54,059	801,965
Second quarter . . . . .	345,524	4,144,744	190,375	1,852,713	99,052	1,429,788	56,097	862,243
First quarter . . . . .	273,433	3,420,792	134,277	1,303,206	90,350	1,307,759	48,806	809,827

See note at end of Table 20.

**Table 23. Shipments, Exports, Imports, and Apparent Consumption of Selected Paints: 1997 and 1996**

[Quantity in millions of gallons. Value in millions of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Percent exports to manufacturers' production		Imports for consumption <sup>2</sup>		Apparent consumption <sup>4</sup>	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value <sup>3</sup>	Quantity	Value
28511 00, 28512 00, 28513 00	Paint, varnish, and lacquer . . . . .	1,253.5	14,785.7	(NA)	859.0	(NA)	5.8	(NA)	297.3	(NA)	14,224.0
	1997 . . . . .			(NA)	747.2	(NA)	5.0	(NA)	265.5	(NA)	14,502.5
	1996 . . . . .	1,247.9	14,984.2								
28515 23, 31	Paint and varnish remover, including thinners . . . . .	41.8	230.7	(NA)	60.9	(NA)	26.4	(NA)	16.3	(NA)	186.1
	1997 . . . . .	67.7	313.1	(NA)	49.4	(NA)	15.8	(NA)	14.8	(NA)	278.5
	1996 . . . . .										
28515 98	Other miscellaneous allied paint products . . . . .	135.4	879.8	(NA)	145.0	(NA)	16.5	(NA)	66.5	(NA)	801.3
	1997 . . . . .	115.4	767.5	(NA)	114.9	(NA)	15.0	(NA)	56.1	(NA)	708.7
	1996 . . . . .										

NA Not available.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>4</sup>Apparent consumption is equal to domestic shipments, plus imports, minus exports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

**HISTORICAL NOTE**

Data on paint, varnish, and lacquer have been collected by the Census Bureau since 1928. Prior to 1981, a monthly sample survey, benchmarked to the census of manufactures, was used to collect these data. Beginning with data year 1981, an annual survey on paint and related products was added. The monthly survey was still conducted through 1990. Beginning in 1991, due to budget reductions, the monthly series was canceled and replaced with a similar quarterly series.

Historical data may be obtained from the Current Industrial Reports (called Facts for Industry before 1959), available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Thanos Theodoropoulos, 301-457-1606.

## PHARMACEUTICAL PREPARATIONS, EXCEPT BIOLOGICALS (MA28G)

### INTRODUCTION

The data in this subsection are from the survey MA28G, Pharmaceutical Preparations, which covers manufacturers of pharmaceutical preparations, except biologicals. The data include all preparations that can be dispensed in measured portions, to produce the therapeutic effect for which the preparation is most commonly employed (liquids, tablets, pills, capsules, lozenges, powders, ointments, jellies, salves, inhaler tubes, etc.). The survey excludes all uncompounded medicinal chemicals and botanicals.

### EXPLANATION OF TERMS

**Bulk domestic shipments.** Represents the value of dosage forms shipped in bulk to other plants of the same company or other companies in large drums or other bulk-type containers requiring only repackaging. Shipments to

hospitals or similar users are excluded from this item description and are reported in the product areas described in the Prescription and Nonprescription definition.

**Nonprescription.** A drug product that is sold over the counter, whether advertised or otherwise promoted to the professions, or advertised or otherwise promoted to the general public. (Note: Prior to 1984, separate figures were collected for drugs promoted to the professions, "OTC Professional," and drugs promoted to the general public, "Proprietary".)

**Prescription legend.** A drug product that by Federal law is available only by prescription by a licensed physician.

Table 24. **Value of Product Class Shipments of Pharmaceutical Preparations, Except Biologicals: 1988 to 1997**

[In millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
28341 —	Pharmaceutical preparations . . . . .	62,593.4	51,844.4	48,864.3	48,209.4	45,612.4	41,961.7	36,837.0	33,954.3	31,604.2	29,350.7
	Pharmaceutical preparations affecting neoplasms, endocrine system, and metabolic diseases, for human use . . . . .	6,873.0	4,788.0	4,075.9	4,119.8	3,820.3	3,317.8	2,877.4	2,743.2	2,507.4	2,071.2
28342 —	Pharmaceutical preparations acting on the central nervous system and sense organs, for human use . . . . .	12,279.9	10,123.1	9,228.2	8,989.9	8,926.8	8,319.3	7,430.8	7,218.5	6,441.3	6,172.7
28343 —	Pharmaceutical preparations acting on the cardiovascular system, for human use . . . . .	8,261.5	6,911.9	5,987.9	5,673.9	5,234.2	4,908.7	4,810.3	4,814.6	4,874.9	4,449.9
28344 —	Pharmaceutical preparations acting on the respiratory system, for human use . . . . .	5,486.2	4,993.9	5,196.1	5,566.4	5,509.8	5,276.8	4,259.7	3,724.1	3,286.2	3,224.0
28345 —	Pharmaceutical preparations acting on the digestive or genito-urinary system, for human use . . . . .	10,099.6	8,494.4	8,593.4	8,479.2	7,995.7	7,110.9	5,624.8	4,840.2	4,363.0	3,860.8
28346 —	Pharmaceutical preparations acting on the skin, for human use . . . . .	1,981.7	2,184.8	2,171.0	2,089.7	1,979.7	1,759.6	1,578.5	1,558.0	1,451.7	1,388.5
28347 —	Vitamin, nutrient, and hematinic preparations, for human use . . . . .	7,108.8	5,280.8	4,811.6	4,402.1	3,559.8	2,923.7	2,787.2	2,587.9	2,672.4	2,538.5
28348 —	Pharmaceutical preparations affecting parasitic and infective diseases, for human use . . . . .	8,689.7	7,304.1	7,195.5	7,257.4	7,233.6	7,017.6	6,006.1	5,411.0	4,936.2	4,593.6
28349 —	Pharmaceutical preparations for veterinary use . . . . .	1,813.0	1,763.3	1,604.7	1,631.0	1,352.5	1,327.3	1,462.2	1,056.8	1,071.1	1,051.5

**Table 25. Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals) . . . . .	62,593,374	48,790,734	12,501,152	1,301,488	51,844,384	40,017,773	10,652,701	1,173,910
28341—	Pharmaceutical preparations affecting neoplasms, endocrine system, and metabolic diseases, for human use . . . . .	6,872,950	6,755,931	14,532	102,487	4,788,026	4,689,883	'31,130	'67,013
	Hormones and synthetic substitutes:								
	Corticoids:								
28341 11	Systemic . . . . .	143,463	(D)	(D)	(D)	213,454	(D)	(D)	(D)
28341 15	Local and topical including anti-infective combinations . . . . .	382,862	381,303	1,559	(D)	424,453	(D)	(D)	-
28341 17	Androgens . . . . .	(D)	(D)	-	(D)	(D)	(D)	-	(D)
28341 19	Estrogens . . . . .	224,885	224,885	-	(D)	173,558	173,558	-	(D)
28341 21	Insulin and antidiabetic agents . . . . .	1,670,118	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28341 25	ACTH (corticotropin) . . . . .	(D)	(D)	-	-	3,672	3,672	-	-
28341 27	Oral contraceptive preparations . . . . .	(D)	(D)	-	-	58,223	58,223	-	-
28341 29	Progestogens, excluding premenstrual tension preps (see product code 28345 85) . . . . .	(D)	(D)	-	(D)	(D)	(D)	-	(D)
28341 31	Sex hormone combinations (except progestogen combinations) . . . . .	(D)	(D)	-	-	(D)	(D)	-	-
28341 35	Thyroid and antithyroid preparations, including iodides . . . . .	60,051	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28341 37	Anabolic agents . . . . .	(D)	(D)	(D)	-	(D)	(D)	(D)	1,775
28341 39	Other hormone preparations . . . . .	248,095	(D)	(D)	(D)	270,783	(D)	(D)	(D)
	Antineoplastic agents:								
28341 43	Radioactive isotopes for internal use . . . . .	42,405	42,405	-	-	18,333	18,333	-	-
28341 45	Specific antineoplastic agents . . . . .	2,154,269	2,154,269	-	(D)	670,248	670,248	-	(D)
28341 98	Other pharmaceutical preparations affecting neoplasms, the endocrine system, and metabolic diseases, for human use . . . . .	1,541,587	(D)	(D)	(D)	<sup>a</sup> 1,488,342	(D)	(D)	(D)
28342—	Pharmaceutical preparations acting on the central nervous system and the sense organs, for human use . . . . .	12,279,859	10,039,629	2,095,524	144,706	10,123,104	8,049,222	'1,959,017	'114,865
28342 11	Parasympathomimetic cholinergic drugs . . . . .	22,940	22,940	-	(D)	'20,357	'20,357	-	(D)
28342 13	Skeletal muscle relaxants . . . . .	336,752	336,752	-	-	309,727	(D)	(D)	(D)
	Internal analgesics and antipyretics:								
	Narcotic:								
28342 19	Opium and derivatives . . . . .	<sup>a</sup> 390,052	<sup>a</sup> 390,05	-	(D)	398,655	398,655	-	(D)
28342 20	Synthetic narcotics . . . . .	285,257	285,257	-	-	'273,615	'273,615	-	-
	Nonnarcotic:								
	Salicylates:								
28342 22	Aspirin (acetylsalicylic acid) . . . . .	196,320	(D)	(D)	(D)	241,525	(D)	(D)	7,304
28342 24	Other salicylates, such as sodium salicylate <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28342 25	Aspirin combinations . . . . .	192,939	(D)	(D)	(D)	'237,094	(D)	(D)	(D)
28342 26	Acetaminophen and combinations . . . . .	453,708	89,356	364,352	25,975	'384,511	'111,048	'273,463	26,135
28342 27	Antiarthritic (nonhormonal) . . . . .	731,302	560,587	170,715	37,471	585,086	471,525	'113,561	(D)

See footnotes at end of table.

Table 25. **Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28342—	Pharmaceutical preparations acting on the central nervous system and the sense organs, for human use—Con.								
	Internal analgesics and antipyretics—Con.								
28342 28	Other internal analgesics and antipyretics, including effervescent types and suppositories <sup>2</sup> .....	187,054	126,381	60,673	6,119	244,830	166,531	78,299	4,230
28342 41	Anticonvulsants (except phenobarbital).....	585,521	(D)	(D)	(D)	442,688	(D)	(D)	(D)
	Psychotherapeutic agents:								
28342 51	Antidepressants.....	2,454,149	(D)	(D)	(D)	1,998,627	(D)	(D)	(D)
	Tranquilizers:								
28342 55	Phenothiazine derivatives .	345,494	345,494	-	(D)	382,823	382,823	-	(D)
28342 57	Other tranquilizers.....	60,888	60,888	-	-	75,842	75,842	-	-
28342 59	Other psychotherapeutic agents.....	906,712	(D)	(D)	(D)	253,031	(D)	(D)	(D)
	Central nervous system stimulants (respiratory and cerebral stimulants, including sympathomimetic agents employed mainly as CNS stimulants); excluding nondrug dietaries for weight control:								
28342 61	Amphetamines.....	(D)	(D)	-	-	(D)	(D)	-	-
28342 63	Anorexiant (except amphetamines).....	574,004	(D)	(D)	(D)	271,685	(D)	(D)	(D)
28342 69	Other CNS stimulants.....	(D)	(D)	2,420	409	241,211	239,005	2,206	349
	Sedatives and hypnotics:								
	Prescription:								
28342 71	Barbiturates.....	38,789	38,789	(X)	-	36,210	36,210	(X)	(D)
28342 75	Nonbarbiturates.....	(D)	(D)	(X)	(D)	(D)	(D)	(X)	(D)
	Nonprescription:								
28342 77	Sleep inducers.....	50,395	(X)	50,395	(D)	49,191	(X)	49,191	(D)
28342 79	Calming agents.....	(D)	(X)	(D)	-	(D)	(X)	(D)	-
	Anesthetics (except urinary tract anesthetics) and skin preparations used as antipruritics:								
28342 81	Local and topical.....	295,059	288,828	6,231	-	252,114	245,840	6,274	-
28342 85	General.....	42,294	(D)	(D)	(D)	111,428	(D)	(D)	(D)
	Eye and ear preparations, excluding anti-infectives, corticoids, and antibacterials and antiseptics:								
28342 91	Mydriatics and miotics.....	(D)	(D)	-	-	(D)	(D)	(D)	-
28342 93	Contact lens solutions.....	643,573	(D)	(D)	(D)	611,486	(D)	(D)	-
28342 94	Other eye and ear preparations.....	673,310	306,619	366,691	(D)	448,370	188,243	260,127	(D)
28342 98	Other pharmaceutical preparations acting on the central nervous system and the sense organs, for human use.....	1,620,562	1,547,132	73,460	(D)	1,451,166	1,338,002	113,164	(D)
28343—	Pharmaceutical preparations acting on the cardiovascular system, for human use.....	8,261,537	8,151,598	5,266	104,673	6,911,905	6,778,664	10,584	122,657
28343 11	Anticoagulants.....	1,664,026	(D)	(D)	42,339	865,275	(D)	(D)	(D)
28343 21	Hemostatics.....	26,298	26,138	160	-	(D)	(D)	-	-
28343 31	Digitalis preparations.....	(D)	(D)	-	(D)	(D)	(D)	-	(D)

See footnotes at end of table.

Table 25. **Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28343—	Pharmaceutical preparations acting on the cardiovascular system, for human use—Con.								
	Hypotensives:								
28343 43	Rauwolfia-alkaloid preparations . . . . .	17,305	(D)	(D)	-	(D)	(D)	(D)	-
28343 47	Beta receptor blocking agents . . . . .	259,265	259,265	-	-	†111,489	†111,489	-	(D)
28343 48	Other hypotensives . . . . .	220,360	220,360	-	(D)	226,724	226,724	-	(D)
	Vasodilators:								
28343 51	Coronary . . . . .	631,380	631,380	-	(D)	463,173	463,173	-	(D)
28343 55	Peripheral . . . . .	72,699	72,699	-	-	78,772	78,772	-	(D)
28343 61	Antiarrhythmics such as propanolol and quinidine. . . . .	<sup>a</sup> 269,931	<sup>a</sup> 269,931	-	(D)	220,337	220,337	-	-
28343 71	Calcium channel blockers such as isoptin, calan, procardia, cardizem, and adalat . . . . .	697,931	697,931	-	(D)	†560,862	†560,862	-	(D)
28343 81	Ace inhibitors such as vasotec, capoten, prinvil, and zestril . . . . .	2,538,520	2,538 520	-	(D)	(D)	(D)	-	(D)
28343 97	Other pharmaceutical preparations acting on the cardiovascular system, including vasopressors, and antiheparin agents, for human use . . . . .	1,533,363	(D)	(D)	41,051	1,757,809	(D)	(D)	(D)
28344—	Pharmaceutical preparations acting on the respiratory system, for human use. . . . .	5,486,171	3,619,192	1,794,572	72,407	4,993,919	3,201,966	†1,687,056	†104,897
28344 11	Antihistamines (except cold preparations and antiemetics). . . . .	1,077,668	850,383	227,285	(D)	†727,819	†488,183	239,636	(D)
28344 15	Bronchial dilators, including antiasthmatics . . . . .	713,061	680,202	32,859	(D)	781,896	716,503	65,393	(D)
	Cough and cold preparations (prescription):								
	Cough preparations and expectorants (containing antitussive or other ingredients intended primarily to treat cough only):								
28344 21	Narcotic . . . . .	58,044	58,044	(X)	-	57,768	<sup>a</sup> 57,768	(X)	-
28344 25	Nonnarcotic. . . . .	101,450	101,450	(X)	(D)	96,957	<sup>a</sup> 96,957	(X)	(D)
	Cold preparations containing combinations of the following ingredients (but not antitussive): nasal decongestant, antihistamine, analgesic, bioflavonoid, or antibiotic:								
28344 31	Nasal decongestants . . . . .	4,555	4,555	(X)	(D)	6,200	6,200	(X)	(D)
28344 35	Antihistamine cold preparations . . . . .	4,208	4,208	(X)	(D)	(D)	(D)	(X)	-
28344 39	Other prescription cold preparations . . . . .	38,271	38,271	(X)	(D)	60,810	60,810	(X)	-
28344 41	Cough and cold combinations (prescription) . . . . .	90,790	90,790	(X)	<sup>a</sup> 480	<sup>a</sup> 131,529	<sup>a</sup> 131,529	(X)	666

See footnotes at end of table.



Table 25. **Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28344—	Pharmaceutical preparations acting on the respiratory system, for human use—Con.								
	Cough and cold preparations (nonprescription):								
	Decongestants:								
28344 51	Nasal sprays.....	205,749	(X)	205,749	-	103,093	(X)	103,093	-
28344 55	Nose drops.....	(D)	(X)	(D)	-	(D)	(X)	(D)	-
28344 59	Other decongestants.....	191,743	(X)	191,743	(D)	222,353	(X)	222,353	(D)
28344 61	Cough syrups.....	467,303	(X)	467,303	-	446,958	(X)	446,958	(D)
28344 63	Capsules and tablets.....	502,859	(X)	502,859	38,858	452,743	(X)	452,743	33,601
28344 65	Lozenges.....	49,994	(X)	49,994	(D)	33,273	(X)	33,273	(D)
28344 67	Topical preparations.....	(D)	(X)	(D)	-	(D)	(X)	(D)	-
28344 71	Cough drops.....	(D)	(X)	(D)	-	(D)	(X)	(D)	-
28344 79	Other nonprescription cough and cold preparations.....	71,790	(X)	71,790	(D)	71,167	(X)	71,167	(D)
28344 81	Beta agonists such as proventil and ventolin.....	1,131,534	1,131,534	-	(D)	1,167,765	1,167,157	(D)	(D)
28344 98	Other pharmaceutical preparations acting on the respiratory system, for human use.....	688,164	659,755	28,409	(D)	470,960	455,879	15,081	(D)
28345—	Pharmaceutical preparations acting on the digestive or the genito-urinary systems, for human use.....	10,099,604	8,852,040	1,194,742	52,822	8,494,387	7,210,630	1,240,416	43,341
	Digestive system preparations:								
28345 11	Enzymes.....	78,249	59,223	<sup>a</sup> 19,026	(D)	748,509	729,958	<sup>a</sup> 18,551	(D)
28345 15	Antacids, including acid neutralizing products with coating functions, but excluding effervescent salicylate products classified as analgesics.....	344,989	7,266	337,723	(D)	432,547	<sup>a</sup> 8,545	424,002	2,005
28345 19	Antidiarrheals.....	263,271	27,228	236,043	(D)	204,035	6,316	197,719	(D)
	Laxatives:								
28345 21	Irritants.....	88,318	(D)	(D)	(D)	79,976	(D)	(D)	(D)
28345 23	Bulk producing.....	202,800	(D)	(D)	(D)	194,589	(D)	(D)	(D)
28345 25	Fecal softeners.....	41,619	(D)	(D)	19,309	47,725	-	47,725	(D)
28345 27	Emollients.....	(D)	(D)	(D)	-	21,223	(D)	(D)	-
28345 28	Saline.....	6,802	(D)	(D)	-	15,419	10,543	4,876	-
28345 29	Enema specialties.....	(D)	-	(D)	(D)	37,767	(D)	(D)	(D)
28345 31	Digestants.....	(D)	(D)	(D)	(D)	9,912	(D)	(D)	(D)
28345 33	Bile therapy preparations, including bile products, cholagogues, and cholagogues.....	(D)	(D)	(D)	-	(D)	(D)	(D)	-
28345 35	Antinauseants and motion sickness remedies (antiemetics), including antihistaminic antiemetic preparations.....	(D)	(D)	13,840	(D)	(D)	(D)	4,843	(D)
28345 37	Lipotropics and cholesterol reducers.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28345 39	Diet aids containing local anesthetics such as benzocaine.....	(D)	-	(D)	(D)	(D)	-	(D)	(D)

See footnotes at end of table.

Table 25. **Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28345 —	Pharmaceutical preparations acting on the digestive or the genito-urinary system, for human use—Con.								
	Antispasmodics and anticholinergics:								
28345 41	Synthetics . . . . .	23,491	23,491	-	-	13,150	13,150	-	-
28345 43	Ataractic combinations . . . . .	(D)	(D)	-	-	(D)	(D)	-	-
28345 45	Belladonna and derivatives . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28345 47	H <sub>2</sub> blocking agents such as zantac, tagamet, carafate, and pepcid . . . . .	3,861,543	(D)	(D)	-	3,773,362	(D)	(D)	-
28345 49	Other antispasmodics and anticholinergics . . . . .	(D)	(D)	-	-	(D)	(D)	-	-
28345 58	Other digestive system preparations, including emetics . . . . .	68,996	66,946	2,050	(D)	96,617	(D)	(D)	(D)
28345 61	Genito-urinary preparations: Urinary antibacterials and antiseptics . . . . .	116,177	(D)	(D)	(D)	113,423	(D)	(D)	(D)
	Diuretics, excluding aminophylline, xanthine, and rauwolfia-diuretic combinations (see cardiovascular preparations):								
28345 71	Thiazides and related agents . . . . .	28,245	28,245	-	-	32,828	32,828	-	-
28345 73	Other diuretics . . . . .	120,937	(D)	(D)	-	105,164	(D)	(D)	-
28345 81	Oxytocics . . . . .	(D)	(D)	-	-	(D)	(D)	-	-
28345 83	Contraceptive agents (except oral contraceptives; i.e., aerosols, jels, sponges, and creams) . . . . .	35,524	(D)	(D)	-	(D)	(D)	(D)	-
28345 85	Premenstrual tension preparations . . . . .	(D)	-	(D)	(D)	(D)	-	(D)	(D)
28345 87	Vaginal cleaners . . . . .	(D)	(D)	(D)	-	89,899	(D)	(D)	-
28345 98	Other pharmaceutical preparations acting on the genito-urinary system, including urinary tract anesthetics, for human use . . . . .	338,464	284,212	54,252	1,675	158,140	110,528	47,612	<sup>a</sup> 1,267
28346 —	Pharmaceutical preparations acting on the skin, for human use . . . . .	1,981,706	710,743	1,227,834	43,129	2,184,783	752,165	1,391,339	<sup>r</sup> 41,279
28346 11	Dermatological preparations: Emollients and protectives, including burn remedies and ointment bases . . . . .	503,097	107,244	<sup>a</sup> 395,853	(D)	<sup>r</sup> 820,804	(D)	(D)	(D)
28346 13	Antipruritics and local anesthetic skin preparations . . . . .	79,910	<sup>a</sup> 9,465	70,445	(D)	119,373	<sup>a</sup> 11,895	107,478	(D)
28346 15	Coal tar, sulfur and resorcinol preparations . . . . .	(D)	(D)	(D)	(D)	28,965	(D)	(D)	(D)
28346 16	Antiacne preparations . . . . .	552,175	(D)	(D)	(D)	<sup>r</sup> 223,427	(D)	(D)	(D)
28346 18	Antidandruff and antiseborrheic preparations (except dandruff shampoos) . . . . .	12,225	(D)	(D)	-	12,188	-	12,188	-
28346 19	Other dermatological preparations . . . . .	175,283	82,378	92,905	(D)	<sup>a</sup> 188,825	<sup>a</sup> 117,418	71,407	(D)

See footnotes at end of table.

Table 25. **Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28346—	Pharmaceutical preparations acting on the skin, for human use—Con.								
28346 21	Hemorrhoidal preparations . . . .	112,316	(D)	(D)	(D)	127,621	(D)	(D)	-
28346 31	External analgesics and counterirritants: Ointments, jellies, pastes, creams, cerates, and salves. . . . .	116,850	1,684	115,166	-	112,316	(D)	(D)	(D)
28346 35	Liquid, excluding rubbing alcohol, but including liniments . . . . .	240,150	(D)	(D)	(D)	221,517	(D)	(D)	(D)
28346 37	Rubbing alcohol . . . . .	50,341	-	50,341	(D)	69,109	-	69,109	(D)
28346 39	Other external analgesics and counterirritants . . . . .	15,949	-	15,949	-	53,426	-	53,426	-
28346 98	Other pharmaceutical preparations acting on the skin, for human use . . . . .	30,114	(D)	(D)	(D)	73,761	(D)	(D)	(D)
28347—	Vitamin, nutrient, and hematinic preparations, for human use . . . .	132,582	67,733	64,849	(D)	121,793	(D)	(D)	(D)
28347 11	Vitamins: Multivitamins, plain and with minerals, (except B complex vitamins and fish liver oils) . . . . .	7,108,848	2,027,220	4,516,094	565,534	5,280,805	1,776,420	2,985,530	518,855
28347 13	Pediatric vitamin preparations (drops, suspensions, and chewable tablets) . . . . .	<sup>a</sup> 2,262,869	22,357	<sup>a</sup> 2,240,512	(D)	<sup>a</sup> 1,327,077	12,481	<sup>a</sup> 1,314,596	(D)
28347 14	Prenatal vitamin preparations . . . . .	95,695	(D)	(D)	2,279	96,806	(D)	(D)	1,901
28347 15	B complex preparations . . . .	32,190	10,320	21,870	877	30,716	10,329	20,387	1,394
28347 17	Fluoride preparations . . . . .	111,042	9,986	101,056	7,265	116,187	<sup>a</sup> 12,418	103,769	7,373
28347 19	All other vitamin preparations . . . . .	1,514	(D)	(D)	-	1,613	1,211	402	(D)
28347 21	Fish liver oils (cod, etc.) . . . . .	983,790	<sup>a</sup> 8,189	975,601	217,810	<sup>f</sup> 642,636	8,142	<sup>f</sup> 634,494	191,074
28347 31	Nutrients, excluding therapeutic dietary foods and infant formulas . . . . .	22,331	(D)	(D)	(D)	13,777	(D)	(D)	(D)
28347 41	Tonics and alteratives . . . . .	364,926	41,510	<sup>a</sup> 323,416	<sup>a</sup> 31,586	316,092	41,060	275,032	<sup>a</sup> 21,129
28347 51	Hematinics: With B <sub>12</sub> : Oral . . . . .	14,017	-	14,017	(D)	18,828	-	18,828	(D)
28347 53	Parenteral . . . . .	15,780	13,572	2,208	164	18,816	16,737	2,079	174
28347 55	Other hematinics: Oral . . . . .	(D)	(D)	-	-	4,343	4,343	-	-
28347 57	Parenteral . . . . .	15,583	(D)	(D)	302	24,094	(D)	(D)	137
28347 61	Hospital solutions, including dextran, etc., but excluding biologicals such as blood plasma . . . . .	(D)	(D)	-	-	(D)	(D)	-	-
28347 98	Other vitamin, nutrient, and hematinic preparations, for human use . . . . .	1,714,669	(D)	(D)	-	1,504,077	(D)	(D)	-

See footnotes at end of table.

Table 25. **Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

Product code	Product description	1997				1996			
		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28348 —	Pharmaceutical preparations affecting parasitic and infective diseases, for human use . . . . .	<sup>a</sup> 818,504	<sup>a</sup> 203,115	615,389	66,412	<sup>a</sup> 595,227	<sup>a</sup> 192,758	402,469	77,651
	Anti-infective agents, excluding corticoid anti-infective combinations (see product code 28341 15):								
28348 11	Amebicides and trichomonocides . . . . .	8,689,724	7,839,634	726,996	123,094	7,304,121	6,553,522	636,965	<sup>r</sup> 113,634
28348 15	Anthelmintics . . . . .	58,343	(D)	(D)	(D)	51,090	(D)	(D)	(D)
	Systemic antibiotic preparations:								
	Broad and medium spectrum (single or in combinations with other antibiotics):								
28348 20	Tetracyclines, including chlortetracycline and congeners . . . . .	21,587	(D)	(D)	(D)	20,853	(D)	(D)	(D)
28348 22	Cephalosporins such as cefamandole nafate and cephalexin . . . . .	106,985	106,985	-	-	71,462	71,462	-	-
28348 24	Erythromycins such as erythromycin ethylsuccinate and erythromycin stearate . . . . .	2,102,079	2,102,079	-	(D)	1,679,929	1,679,929	-	(D)
	Penicillins (single):								
	Semisynthetic penicillins such as ampicillin and ampicillin:								
28348 26	Injectable . . . . .	89,657	89,657	-	-	106,282	106,282	-	(D)
28348 28	Other forms . . . . .	45,482	45,482	-	(D)	21,514	21,514	-	(D)
	Other penicillins (except semisynthetic) such as penicillin V and penicillin G:								
28348 30	Injectable . . . . .	1,984,685	1,984,685	-	-	1,650,478	1,650,478	-	-
28348 32	Other forms . . . . .	(D)	(D)	-	-	(D)	(D)	-	-
28348 34	Other broad and medium spectrum antibiotics (except sulfa-antibiotic combinations) . . . . .	15,349	15,349	-	(D)	<sup>a</sup> 7,363	<sup>a</sup> 7,363	-	(D)
28348 36	Antibiotics in combination with sulfonamides . . . . .	503,954	(D)	(D)	(D)	557,088	(D)	(D)	(D)
28348 38	Other systemic antibiotic preparations, including narrow-spectrum antibiotics and streptomycins . . . . .	31,730	31,730	-	-	17,030	17,030	-	-
28348 41	Topical antibiotic preparations . . . . .	97,356	97,356	-	(D)	87,026	87,026	-	(D)
28348 51	Tuberculostatic agents: Isoniazid (isonicotinic acid hydrazide) preparations . . . . .	89,805	(D)	(D)	-	137,829	96,907	40,922	(D)
28348 55	Other antituberculars . . . . .	<sup>a</sup> 3,359	<sup>a</sup> 3,359	-	(D)	<sup>a</sup> 2,716	<sup>a</sup> 2,716	-	(D)
28348 61	Antimalarials (plasmodicides) . . . . .	27,861	27,861	-	-	(D)	(D)	-	-

See footnotes at end of table.

**Table 25. Value of Shipments of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996—Con.**

[In thousands of dollars]

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		Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>	Total	Prescription legend	Non-prescription	Bulk shipments <sup>1</sup>
2834—	Pharmaceutical preparations (except biologicals)—Con.								
28348—	Pharmaceutical preparations affecting parasitic and infective diseases, for human use—Con.								
	Anti-infective agents, excluding corticoid anti-infective combinations (see product code 28341 15)—Con.								
28348 63	Sulfonamides (except antibiotic)—sulfonamide combinations . . . . .	(D)	(D)	-	-	72,248	72,248	-	(D)
28348 65	Antifungal preparations . . . . .	55,118	(D)	(D)	-	59,106	(D)	(D)	-
28348 67	Antivirals, systemic such as zovirax, and retrovir . . . . .	598,354	(D)	(D)	-	393,387	265,766	127,621	(D)
28348 69	Other anti-infective agents . . .	1,869,578	1,869,578	-	(D)	1,327,443	1,327,443	-	(D)
	Antibacterials and antiseptics:								
28348 71	General . . . . .	47,514	(D)	(D)	-	267,864	(D)	(D)	-
28348 75	Mouth and throat preparations . . . . .	91,098	(D)	(D)	(D)	76,825	22,248	54,577	14,891
28348 98	Other pharmaceutical preparations affecting parasitic and infective diseases, for human use . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28349—	Pharmaceutical preparations for veterinary use . . . . .	185,557	138,876	46,681	(D)	1201,301	1164,718	36,583	(D)
28349 11	Anesthetics . . . . .	1,812,975	794,747	925,592	92,636	1,763,334	1,005,301	710,664	47,369
28349 21	Anthelmintics . . . . .	(D)	(D)	(D)	-	(D)	(D)	(D)	-
	Antibiotics:								
28349 22	Tetracyclines . . . . .	165,778	117,727	48,051	(D)	182,815	114,910	67,905	(D)
28349 24	Penicillins . . . . .	39,512	(D)	(D)	(D)	127,396	(D)	(D)	(D)
28349 26	Other antibiotics . . . . .	68,239	<sup>a</sup> 26,674	41,565	(D)	90,911	(D)	(D)	(D)
28349 27	Antiseptics, wound dressings, and fungicides . . . . .	198,346	<sup>a</sup> 130,448	67,898	(D)	190,561	(D)	(D)	(D)
28349 31	Hematinics <sup>3</sup> . . . . .	24,358	2,812	21,546	(D)	82,664	(D)	(D)	(D)
28349 33	Hemostatics <sup>3</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Hormones:								
28349 34	Insulin preparations . . . . .	45,211	43,954	1,257	-	5,910	1,112	4,798	-
28349 36	ACTH (corticotropin) preparations . . . . .	(D)	(D)	(D)	-	(D)	(D)	(D)	-
28349 38	Other hormone preparations .	63,935	16,231	47,704	(D)	78,718	(D)	(D)	(D)
28349 39	Intravenous solutions and electrolytes . . . . .	8,675	<sup>a</sup> 5,252	3,423	-	10,465	6,874	3,591	-
28349 41	Nitrofurans . . . . .	1,104	-	1,104	(D)	1,018	-	1,018	(D)
28349 43	Nutrients and tonics . . . . .	13,681	-	13,681	(D)	25,814	-	25,814	1,256
28349 45	Parasiticides, external . . . . .	171,735	(D)	(D)	(D)	247,101	(D)	(D)	(D)
28349 47	Sulfonamides . . . . .	12,009	(D)	(D)	(D)	11,308	(D)	(D)	(D)
28349 51	Tranquilizers and ataractics . . .	9,622	9,622	-	(D)	12,950	12,950	-	(D)
28349 55	Vitamins and minerals . . . . .	142,807	20,421	122,386	(D)	135,969	18,482	117,487	(D)
28349 98	Other pharmaceutical preparations for veterinary use . . . . .	727,082	(D)	(D)	(D)	472,784	(D)	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Data for "Bulk shipments" are excluded from all horizontal seven-digit product detail totals; however, these data are included in all five-digit product code and four-digit industry level totals. Since bulk shipments are typically reported by a small number of producers, and often must be suppressed, inclusion of bulk shipments in all horizontal totals would require suppression of additional detail.

<sup>2</sup>Product code 28342 24 is combined with product code 28342 28 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 28349 31 is combined with product code 28349 33 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>20 percent or more of this item is estimated.

Table 26. **Domestic Value of Shipments, Exports, Imports, and Apparent Consumption of Pharmaceutical Preparations, Except Biologicals: 1997 and 1996**

[In thousand of dollars]

Product code	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise <sup>1</sup>	Percent exports to manufacturers' shipments	Imports for consumption <sup>2</sup> (value)	Apparent consumption <sup>3</sup> (value)	Percent imports to apparent consumption
<b>1997</b>							
	Pharmaceutical preparations . . . . .	62,593,374	2,654,572	4.2	3,734,125	63,672,927	5.9
28341 —	Pharmaceutical preparations affecting neoplasms, endocrine system, and metabolic diseases, for human use . . . . .	6,872,950	483,361	7.0	999,221	7,388,810	13.5
28342 —	Pharmaceutical preparations acting on the central nervous system and sense organs, for human use . . . . .	12,279,859	232,725	1.9	446,795	12,493,929	3.6
28343 —	Pharmaceutical preparations acting on the cardiovascular system, for human use . . . . .	8,261,537	191,136	2.3	239,515	8,309,916	2.9
28344 —	Pharmaceutical preparations acting on the respiratory system, for human use . . . . .	5,486,171	223,807	4.1	153,707	5,416,071	2.8
28345 —	Pharmaceutical preparations acting on the digestive or genito-urinary system, for human use . . . . .	10,099,604	107,838	1.1	417,223	10,408,989	4.0
28346 —	Pharmaceutical preparations acting on the skin, for human use . . . . .	1,981,706	41,474	2.1	116,403	2,056,635	5.7
28347 —	Vitamin, nutrient, and hematinic preparations, for human use . . . . .	7,108,848	192,090	2.7	64,577	6,981,335	0.9
28348 —	Pharmaceutical preparations affecting parasitic and infective diseases, for human use . . . . .	8,689,724	1,001,314	11.5	1,074,538	8,762,948	12.3
28349 —	Pharmaceutical preparations for veterinary use . . . . .	1,812,975	180,827	10.0	222,146	1,854,294	12.0
<b>1996</b>							
	Pharmaceutical preparations . . . . .	51,844,384	2,464,672	4.8	3,078,499	52,458,211	5.9
28341 —	Pharmaceutical preparations affecting neoplasms, endocrine system, and metabolic diseases, for human use . . . . .	4,788,026	506,793	10.6	898,074	5,179,307	17.3
28342 —	Pharmaceutical preparations acting on the central nervous system and sense organs, for human use . . . . .	10,123,104	177,143	1.7	263,938	10,209,899	2.6
28343 —	Pharmaceutical preparations acting on the cardiovascular system, for human use . . . . .	6,911,905	176,047	2.5	258,809	6,994,667	3.7
28344 —	Pharmaceutical preparations acting on the respiratory system, for human use . . . . .	4,993,919	158,361	3.2	158,655	4,994,213	3.2
28345 —	Pharmaceutical preparations acting on the digestive or genito-urinary system, for human use . . . . .	8,494,387	107,103	1.3	330,893	8,718,177	3.8
28346 —	Pharmaceutical preparations acting on the skin, for human use . . . . .	2,184,783	33,150	1.5	106,451	2,258,084	4.7
28347 —	Vitamin, nutrient, and hematinic preparations, for human use . . . . .	5,280,805	151,582	2.9	32,778	5,162,001	0.6
28348 —	Pharmaceutical preparations affecting parasitic and infective diseases, for human use . . . . .	7,304,121	1,038,044	14.2	846,255	7,112,332	11.9
28349 —	Pharmaceutical preparations for veterinary use . . . . .	1,763,334	116,449	6.6	182,646	1,829,531	10.0

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Apparent consumption represents new domestic supply and is derived by subtracting exports from total of manufacturers' shipments plus imports.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

**HISTORICAL NOTE**

Data on pharmaceutical preparations, except biologicals, have been collected by the Census Bureau since 1962. Historical data may be obtained from Current Industrial Reports available at your local Federal

Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Walter R. Hunter, Jr., 301-457-4798.

# Chapter 5.

## Glass Products

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### FLAT GLASS (MA32A)

#### INTRODUCTION

The data in this section are from a survey of all companies engaged in the manufacturing of flat or float glass, except laminated or otherwise fabricated flat glass products, as collected on the quarterly report MA32A, Flat Glass. The survey panel includes all known manufacturers of flat glass, approximately 6 companies. Prior to 1975, the panel included approximately 10 companies.

The categories of flat glass in this survey were revised for 1997. The revision reflects a change from emphasis on thickness and color to categories of end use: automotive and nonautomotive.

#### SUMMARY OF FINDINGS

Production and shipments of flat glass in the United States both amounted to 6.1 billion square feet in 1997. The reported value of shipments was \$1.82 billion. Automotive glass accounted for 29 percent of both total production and total shipments (in square footage) of flat glass for the year.

In 1997, outside customer sales of 4.1 billion square feet accounted for 67.7 percent of the total quantity of shipments and 70.5 percent of the total value of shipments. Exports reported by flat glass manufacturers amounted to 422 million square feet, 7 percent of their total shipments.

#### EXPLANATION OF TERMS

**Unit of measure.**Quantities of glass are reported in short tons and thousands of square feet. Total value of shipments, exports, and outside customer sales are reported in thousands of dollars.

**Production.** Includes flat glass packed direct from the production line for shipments to customers, finished glass transferred to other establishments of the producing company or added to finished inventory, and consumption within the same plant. Glass blanks are included in production when they are cut and packed for shipments or put into finished inventory. Blanks transferred to another raw glass producing plant of the same company are reported by the receiving plant when cut and packed for shipment or added to finished inventory.

**Quantities produced and consumed.** Includes quantities of each type of glass produced by each company for internal consumption within each company (i.e., the quantity of interplant transfer and the quantity produced and consumed within that same producing plant).

**Stocks.** Includes total quantity of ending finished stock inventory, excluding glass blanks.

**Sheet glass.** Flat glass made by continuous drawing.

**Plate glass.** Flat glass formed by a rolling process, ground and polished on both sides, with surfaces essentially plane and parallel.

**Float glass.** Flat glass, identical in appearance to plate glass, but formed by a process in which thickness is controlled by floating the glass on a molten bed of tin.

**Sales to outside customers.** Sales outside the reporting company to nonraw glass producing companies.

**Table 1. Summary of Flat Glass Shipments and Sales: 1997**

Description	Total shipments				Quantity produced and consumed within each company (1,000 sq ft)	Inventory (end of year) (1,000 sq ft)	Producer Price Index (1982=100.0)
	Quantity (includes produced and consumed) (short tons)	Quantity (includes produced and consumed) (1,000 sq ft)	Value in current dollars (\$1,000)	Value in constant dollars <sup>1</sup> (\$1,000)			
<b>Total</b> .....	<b>4,936,144</b>	<b>6,066,935</b>	<b>1,817,144</b>	<b>1,776,289</b>	<b>1,827,012</b>	<b>789,353</b>	<b>102.3</b>
Exports <sup>2</sup> .....	385,872	422,805	184,939	180,781	(X)	(X)	102.3
Outside customer sales <sup>3</sup> ..	3,409,241	4,107,652	1,281,233	1,252,427	(X)	(X)	102.3

X Not applicable.

<sup>1</sup>Adjustments for price changes were made to data using producer price index for flat glass as published by the Bureau of Labor Statistics (BLS).

<sup>2</sup>Exports reported by flat glass manufacturers only.

<sup>3</sup>Shipments and sales to nonraw glass producing companies.

**Table 2. Summary of Production, Shipments, and Inventories of Flat Glass: 1997**

Product code	Product description	Number of companies	Production		Shipments (includes quantity produced and consumed within each company)		Quantity produced and consumed within each company (1,000 sq ft)	Inventory (end of year) (1,000 sq ft)
			Total (short tons)	Total (1,000 sq ft)	Total (short tons)	Total (1,000 sq ft)		
<b>32115 00</b>	<b>Flat glass</b> .....	<b>6</b>	<b>5,000,521</b>	<b>6,084,332</b>	<b>4,936,144</b>	<b>6,066,935</b>	<b>1,827,012</b>	<b>789,353</b>
	Automotive:							
	Standard greens/blue greens:							
32115 21	Less than 2.9 mm thick .....	4	456,006	797,691	447,780	784,648	424,435	77,102
32115 22	2.9 mm or thicker .....	4	259,985	265,434	280,150	286,950	(D)	28,853
	High performance greens/blue greens/blues:							
32115 23	Less than 2.9 mm thick .....	3	132,809	232,636	129,203	225,750	(D)	29,231
32115 24	2.9 mm or thicker .....	3	157,454	148,896	142,004	142,049	(D)	39,949
32115 27	Privacy (high performance uncoated dark gray) and other automotive ...	4	299,151	312,796	299,962	307,955	172,879	72,154
	Nonautomotive:							
	Pyrolytically coated:							
32115 32	Greens/blue greens/blues .....	3	37,931	27,380	35,139	25,465	(D)	7,209
32115 35	All other nonautomotive pyrolytically coated .....	4	154,353	157,275	165,881	173,452	(D)	37,023
	Nonautomotive other than pyrolytically coated:							
	Clear:							
32115 41	Less than 5.0 mm thick .....	5	2,120,264	3,052,284	2,129,541	3,156,548	659,706	322,013
32115 42	5.0 mm or thicker .....	5	1,073,043	816,075	990,910	695,523	84,101	81,843
	Greens/blue greens/blues:							
32115 43	Less than 5.0 mm thick .....	4	13,197	21,440	17,199	21,692	2,091	3,981
32115 44	5.0 mm or thicker .....	4	67,188	54,084	83,704	58,454	(D)	10,495
32115 51	All bronze .....	4	87,749	72,099	88,156	74,757	(D)	27,603
	All gray and other:							
32115 52	Less than 5.0 mm thick .....	4	56,962	67,936	(D)	(D)	3,046	27,980
32115 53	5.0 mm or thicker .....	4	84,429	58,306	(D)	(D)	8,693	23,917
32110 21	Heat-treated flat glass for nonautomotive uses, treated in primary glass manufacturing plants <sup>1</sup> .....	3	293,380	344,116	280,853	335,208	(D)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Glass reported in this category is included in nonautomotive categories above. These data should not be added to arrive at a total for nonautomotive or total flat glass.

Note: Data are limited to inventories at manufacturing establishments.



**Table 3. Value of Shipments, Exports, and Imports of Flat Glass: 1997**

[Thousands of dollars]

Product description	Manufacturers' shipments (f.o.b. plant) <sup>1</sup>	Exports of domestic merchandise <sup>2</sup> (value at port)	Percent exports to manufacturers' shipments	Imports for consumption <sup>3</sup> (value at port)	Apparent consumption <sup>4</sup>	Percent imports to apparent consumption
Total flat glass .....	1,817,144	512,765	28.2	170,739	1,475,118	11.6

<sup>1</sup>Value of "Manufacturers' shipments" is in current dollars.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>4</sup>Apparent consumption is derived by subtracting exports from the total of manufacturers' shipments plus imports, including duty.

**HISTORICAL NOTE**

Data on flat glass have been collected by the Census Bureau since 1957. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Susan Sundermann, 301-457-4837.

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## CONSUMER, SCIENTIFIC, TECHNICAL, AND INDUSTRIAL GLASSWARE (MA32E)

### INTRODUCTION

The data in this section are from a survey of manufacturers of consumer, scientific, technical, and industrial glassware in the United States. Establishments manufacturing glassware from glass produced in their own establishment, and establishments manufacturing glassware from glass purchased or transferred from other establishments are included. Data are collected by value of shipments in three major categories: table, kitchen, art, and novelty glassware; lighting and electronic glassware; and all other glassware. Related import and export data are also shown.

### SUMMARY OF FINDINGS

In 1997, total factory shipments of consumer, scientific, technical, and industrial glassware amounted to \$5,323.7 million, an increase of 3 percent from the \$5,179.7 million reported in 1996. Establishments manufacturing glassware from glass produced in their own establishment accounted for approximately 72 percent of the total glassware shipments.

Consumer (table, kitchen, art, and novelty) glassware accounted for approximately 33 percent of the total glassware shipments and showed a 3-percent decrease for the 1997 shipments of \$1,776.7 million, from the 1996 level of \$1,805.4 million.

### EXPLANATION OF TERMS

**Tumblers.** Nonstemmed drinking glasses. Excludes packers' tumblers.

**Stemware.** Vessels with long and short stem and footed-ware used generally for drinking; however, may be used as dessert dishes.

**Tableware.** Items from which food and beverages are served or consumed, but not prepared. Excludes stemware and tumblers.

**Cookware, ovenware, and kitchenware.** Items of ceramic glass and heat-resistant glass used to cook over direct heat or in the oven, and items used in the preparation and storage of foods (e.g., cookie jars, mixing bowls, refrigerator dishes, and measuring cups).

**Microwave specialty pieces.** Cookware and ovenware designed especially for microwave usage.

**Ornamental, decorative, novelty glassware, and smokers' accessories.** Includes floralware, ash trays, humidors, apothecary, bathroom dishes, candy dishes, beverage coasters, fish bowls, and piggy banks.

**Automotive lighting glassware.** Includes sealed beam lenses, and other outside lenses, and interior automotive glassware.

**Searchlight and other lenses.** Includes railroad, marine, air, and traffic lighting glassware.

**Electric light bulb blanks.** Includes incandescent, photo flash and mercury vapor, and high temperature lamps.

**Tubing and cane for electric light bulbs and fluorescent and neon lighting.** Includes exhaust tubes and flares for incandescent and fluorescent lamps.

**Electronic tube blanks.** Includes radio, X-ray, radar, special tubes, cathode ray, power tubes, microwave, and storage tubes. Excludes television picture tube blanks and parts.

**Television tube blanks and parts.** Includes cylinders, rod-support insulators, diodebeads and bodies, multiform parts, and moisture getters.

**Bowls and enclosing globes, etc.** Includes lantern globes, chimneys, enclosing globes, shades, prismatic and diffusing globes, luminaire globes, decorative lighting glass parts, and shields and plates for fluorescent and incandescent lighting fixtures.

**Other lighting and electronic glassware.** Includes dials, insulators, custom-made lighting, and electronic glassware.

**Scientific and laboratory glassware.** Includes beads, beakers, bottles, burrets, centrifuge tubes, condensers, connecting tubes, crucibles, cylinders, desiccators, fritted discs, flasks, funnels, ground joints, jars, microscope slides, cover glasses, Petri culture dishes, pipets, special laboratory apparatus, stopcocks, test and culture tubes, thermometer and hydrometer blanks, and custom-made laboratory apparatus.

**Tubing, rods, and canes, all types (except electrical and electronic).** Items used for volumetric ware, advertising purposes, heat absorbing uses, and precision base applications.

**Industrial and technical glassware.** Includes battery jars, industrial beads, blender jars, caps and bodies, coffee urn liners, explosion capsules, flow meter blanks, gauge glasses, lubrication glasses, copy machine cylinders, sight glasses, vacuum bottle parts, godet wheels, heat exchangers, milking machine accessories, glass pipe for chemical and food process and drainlines, rashing rings, ground glass, glass knobs, and insulators.

**Ophthalmic lens blanks and optical instrument lens blanks.** Includes ophthalmic and optical lens blanks, color filters, photographic window blanks, prism blanks, telescope mirror blanks, infrared and ultraviolet transmitting glasses, and fiber optic glass parts. Excludes finished or semifinished lenses.

**Other glassware.** Includes such products as glass blocks, nursery bottles, balls, radomes, nose cones, vials, and towel bars.

**Table 4. Value of Shipments of Consumer, Scientific, Technical, and Industrial Glassware: 1993 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993
32295, 32298, 32311, 32312	Table, kitchen, art, and novelty glassware <sup>1</sup> . . . . .	1,766.7	1,805.4	1,837.8	1,747	1,633.9
32296, 32298, 32311, 32312	Lighting and electronic glassware <sup>1</sup> . . . . .	1,664.4	1,620.3	1,589.1	1,523.2	1,370.6
32297, 32298, 32311, 32312	All other glassware <sup>1</sup> . . . . .	1,881.7	1,743.5	1,589.7	1,410.7	1,273.1

<sup>1</sup>Difference between industry 3229 and 3231 is as follows: industry 3229 represents glassware produced from glass made in same establishment; whereas, industry 3231 represents glassware produced or fabricated from glass purchased or transferred from other establishments.

**Table 5. Value of Shipments of Consumer, Scientific, Technical, and Industrial Glassware by Industry: 1997 and 1996**

[Millions of dollars]

Product code	Product description	1997			1996		
		Total (all industries)	SIC 3229	All other industries	Total (all industries)	SIC 3229	All other industries
3229 —, 32311 —, 32312 —	Consumer, scientific, technical, and industrial glassware . . . . .	5,323.7	3,851.1	1,472.6	5,179.7	3,721.0	1,458.7
32295 —, 32298 —, 32311 —, 32312 —	Table, kitchen, art, and novelty glassware . . . . .	1,766.7	1,179.5	587.2	1,805.4	1,162.5	642.9
32296 —, 32298 —, 32311 —, 32312 —	Lighting and electronic glassware . . . . .	1,664.4	1,603.2	61.2	1,620.3	1,566.9	53.4
32297 —, 32298 —, 32311 —, 32312 —	All other glassware . . . . .	1,881.7	1,060.3	821.4	1,743.5	983.7	759.8
32295 00, 32296 00, 32297 00, 32298 00, 32311 00, 32312 00	Consumer, scientific, technical, and industrial glassware, n.s.k. . . . .	10.9	8.1	2.8	10.5	7.9	2.6

n.s.k. Not specified by kind.

Note: Detail may not add to the total because of independent rounding.

**Table 6. Shipments of Consumer Glassware: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description <sup>1</sup>	Unit of measure	Number of companies	Total (all industries)		Machine-made <sup>2</sup> (SIC 3229)		Handmade <sup>2</sup> (SIC 3229)	
				Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>									
32295 —, 32298 —, 32311 —, 32312 —	Table, kitchen, art, and novelty glassware .....	.....(X).....	(X)	(X)	1,766,710	(X)	1,078,137	(X)	101,314
3229X 21, 3231X 21	Tumblers (one piece, excluding packers' tumblers) .....	Mil dozens ..	20	41,442	285,662	(D)	(D)	(D)	(D)
3229X 22, 3231X 22	Stemware .....	.....do.....	24	14,911	183,369	(D)	(D)	(D)	(D)
3229X 23, 3231X 23	Tableware .....	Mil pieces ...	26	186,575	253,562	116,453	102,274	(D)	(D)
3229X 25, 3231X 25, 3229X 27, 3231X 27	Cookware, ovenware, and kitchenware, including microwave specialty pieces ...	.....do.....	(NA)	93,007	228,628	(D)	(D)	-	-
3229X 28, 3231X 28	Ornamental, decorative, and novelty glassware, and smokers' accessories <sup>3</sup> ..	.....do.....	60	(X)	(D)	(X)	(D)	(X)	(D)
3229X 38, 3231X 38	Other table, kitchen, art, and novelty glassware <sup>3</sup> .....	.....(X).....	25	(X)	(D)	(X)	(D)	(X)	(D)
3229X 39, 3231X 39	Interplant transfers of shipments of partially made glassware to other glassware establishments <sup>3 4</sup> .....	.....(X).....	(X)	(X)	815,489	(X)	483,166	(X)	64,528
<b>1996</b>									
32295 —, 32298 —, 32311 —, 32312 —	Table, kitchen, art, and novelty glassware .....	.....(X).....	(X)	(X)	1,805,387	(X)	1,061,773	(X)	100,691
3229X 21, 3231X 21	Tumblers (one piece, excluding packers' tumblers) .....	Mil dozens ..	21	46,352	294,095	(D)	(D)	(D)	(D)
3229X 22, 3231X 22	Stemware .....	.....do.....	25	14,122	172,589	(D)	(D)	(D)	(D)
3229X 23, 3231X 23	Tableware .....	Mil pieces ...	27	117,076	266,421	95,647	99,346	(D)	(D)
3229X 25, 3231X 25, 3229X 27, 3231X 27	Cookware, ovenware, and kitchenware, including microwave specialty pieces ...	.....do.....	(NA)	80,989	273,141	(D)	(D)	-	-
3229X 28, 3231X 28	Ornamental, decorative, and novelty glassware, and smokers' accessories <sup>3</sup> ..	.....do.....	58	(X)	(D)	(X)	(D)	(X)	(D)
3229X 38, 3231X 38	Other table, kitchen, art, and novelty glassware <sup>3</sup> .....	.....do.....	26	(X)	(D)	(X)	(D)	(X)	(D)
3229X 39, 3231X 39	Interplant transfers of shipments of partially made glassware to other glassware establishments <sup>3 4</sup> .....	.....(X).....	(X)	(X)	799,141	(X)	471,989	(X)	65,747

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>†</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>See text for specific definitions of individual products.

<sup>2</sup>Shipments by establishments manufacturing glassware primarily from glass produced in same establishment.

<sup>3</sup>Product codes 3229X 28, 3231X 28, 3229X 38, and 3231X 38 are included with product codes 3229X 39 and 3231X 39 to avoid disclosure of individual company data.

<sup>4</sup>Processing establishments report finished product on the appropriate lines, in order to avoid duplicate reporting of same product by separate establishments.

**Table 7. Value of Shipments of Scientific, Technical, and Industrial Glassware: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description <sup>1</sup>	Number of companies	1997		1996	
			Total (all industries)	Machine-made <sup>2</sup> (SIC 3229)	Total (all industries)	Machine-made <sup>2</sup> (SIC 3229)
32296 —, 32298 —, 32311 —, 32312 —	Lighting and electronic glassware.....	(X)	1,664,443	1,603,190	1,620,285	1,566,877
3229Y 41, 3231Y 41	Automotive lighting glassware.....	5	(D)	(D)	(D)	(D)
3229Y 43, 3231Y 43	Searchlight and other lenses.....	5	(D)	(D)	(D)	(D)
3229Y 45, 3231Y 45	Electric light bulb blanks.....	5	166,045	166,045	161,694	161,694
3229Y 47, 3231Y 47	Tubing and cane for electric light bulbs and fluorescent and neon lighting.....	5	(D)	(D)	(D)	(D)
3229Y 51, 3231Y 51	Electric tube blanks (except television).....	7	14,405	(D)	12,979	(D)
3229Y 55, 3231Y 55	Television tube blanks and parts; tubing, cane, and glass parts for electronic tubes and devices.....	18	1,013,800	1,006,574	1,017,368	1,009,737
3229Y 57, 3231Y 57	Bowls and enclosing globes, lamp chimneys, lamp parts, shades, reflectors, and torchieres: Interior.....	24	51,095	48,920	53,278	50,792
3229Y 59, 3231Y 59	Exterior.....	8	16,421	14,150	14,570	(D)
3229Y 65, 3231Y 65	Other lighting and electronic glassware.....	12	(D)	9,085	(D)	7,919
3229Y 69, 3231Y 69	Interplant transfers and shipments of partially made glassware to other glassware establishments <sup>3</sup> .....	(X)	113,180	107,922	108,897	(D)
32297—, 32298—, 32311—, 32312—	All other glassware.....	(X)	1,881,673	1,060,336	1,743,505	982,954
3229Z 71, 3231Z 71	Tubing, rods, canes, all types (except electrical and electronic).....	19	66,772	(D)	62,640	(D)
3229Z 72, 3231Z 72	Scientific and laboratory glassware.....	(X)	621,498	354,198	621,184	372,314
3229Z 74, 3231Z 74	Reusable.....	55	322,411	175,693	309,424	176,722
3229Z 75, 3231Z 75	Disposable.....	23	299,087	175,693	311,760	195,592
3229Z 77, 3231Z 77	Technical and industrial glassware.....	51	628,083	208,191	563,815	162,854
3229Z 79, 3231Z 79	Ophthalmic lens blanks and optical instruments' lens blanks.....	17	146,836	110,675	132,664	110,543
3229Z 89, 3231Z 89	Other glassware (e.g., radomes, nose cones, nursery bottles, and vials).....	27	295,320	226,519	267,055	199,181
32295 00, 32296 00, 32297 00, 32298 00, 32311 00, 32312 00	Interplant transfers and shipments of partially made glassware to other glassware establishments <sup>3</sup> .....	(X)	112,310	(D)	96,147	(D)
32295 00, 32296 00, 32297 00, 32298 00, 32311 00, 32312 00	Consumer, scientific, technical, and industrial glassware, n.s.k. <sup>4</sup> .....	(X)	10,854	8,053	10,538	7,895

D Withheld to avoid disclosing data for individual companies. n.s.k. Not specified by kind. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>See text for specific definitions of individual products.

<sup>2</sup>Shipments by establishments manufacturing glassware primarily from glass produced in same establishment.

<sup>3</sup>Processing establishments report the finished product on the appropriate lines, in order to avoid duplicate reporting of same product by separate establishments.

<sup>4</sup>Not specified by kind (n.s.k.) represents value of shipments for establishments that did not provide detailed information by type of product. These establishments, typically with less than five employees, are not included in the MA32E mailing panel. Value of shipments has been estimated for series MA32E based on year-to-year rate of change for reporting establishments applied to previous year's n.s.k. value.

**Table 8. Value of Shipments, Exports, Imports, and Apparent Consumption of Consumer, Scientific, Technical, and Industrial Glassware: 1997 and 1996**

[Thousands of dollars]

Product description	Manu- facturers' shipments	Exports of domestic merchandise <sup>1 2</sup>	Percent exports to manufac- turers' shipments	Imports for consumption <sup>1 3</sup>	Apparent consumption <sup>4</sup>	Percent imports to apparent consumption
<b>1997</b>						
Table, kitchen, art, and novelty glassware . . . . .	1,766,710	251,715	14.2	979,075	2,494,070	39.3
Searchlight and other lenses . . . . .	(D)	18,417	(D)	3,365	(D)	(D)
Lighting glassware . . . . .	166,045	49,063	29.5	19,334	136,316	14.2
Electronic tube blanks, including television tube blanks and parts. . . . .	1,013,800	56,015	5.5	280,046	1,237,831	22.6
Lamp chimneys, bowls, shades, globes, parts, and other glassware, interior and exterior. . . . .	67,516	14,447	21.4	91,077	144,146	63.2
Glass tubing, rods, and canes, all types (except electrical and electronic) . . . . .	66,772	186,984	280.0	132,191	11,979	11.0
Scientific and laboratory glassware, reusable and disposable . . . . .	621,498	155,321	25.0	31,529	497,706	6.3
Ophthalmic lens blanks and optical lens blanks. . .	146,836	70,758	48.2	32,624	108,702	30.0
<b>1996</b>						
Table, kitchen, art, and novelty glassware . . . . .	1,805,387	206,670	11.4	874,287	2,473,004	35.4
Searchlight and other lenses . . . . .	(D)	10,874	(D)	2,713	(D)	(D)
Lighting glassware . . . . .	161,694	35,818	22.2	15,081	140,957	10.7
Electronic tube blanks, including television blanks and parts. . . . .	1,017,368	39,938	3.9	270,907	1,248,337	21.7
Lamp chimneys, bowls, shades, globes, parts, and other glassware, interior and exterior. . . . .	67,848	14,122	12.6	83,381	162,948	51.2
Glass tubing, rods, and canes, all types (except electrical and electronic) . . . . .	62,640	139,387	208.8	112,198	35,451	3.2
Scientific and laboratory glassware, reusable and disposable . . . . .	621,184	139,681	22.5	28,976	510,479	5.7
Ophthalmic lens blanks and optical lens blanks. . .	132,664	68,088	51.3	28,604	93,180	30.7

D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report, EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report, IM 146, *U.S. Imports for Consumption and General Imports*.

<sup>4</sup>Apparent consumption is derived by subtracting exports from total of shipments, plus imports, including duty.

**HISTORICAL NOTE**

Data on glassware have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.

Historical data are also available on microfiche; contact the Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Joyce Pomeroy, 301-457-4840.

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## GLASS CONTAINERS (M32G)

### INTRODUCTION

The series on glass containers provides data on the production of glass containers regardless of where they are manufactured. Many containers are actually produced by companies that produce the container as a secondary operation to making the product that goes in the container.

### SUMMARY OF FINDINGS

In 1997, production of glass containers amounted to 246.9 million gross, while shipments were 254.0 million gross. In 1996, production was 253.9 million gross, and shipments totaled 257.4 million gross. In 1997, shipments of narrow neck containers amounted to 200.1 million gross, and shipments of wide mouth containers were 54.0 million gross. Stocks on hand of glass containers at the end of 1997 totaled 34.2 million gross.

### EXPLANATION OF TERMS

**Food, narrow neck.** Nonjuice containers with the outside diameter of the mouth being less than 38-millimeter sold for commercial food packing: catsup; concentrated beverage syrup; dairy products; edible oils; flavoring extracts; infant formula; liquid salad dressing; meat sauces; syrups; and vinegars.

**Food, wide mouth.** Nonjuice containers with the outside diameter of the mouth being equal to or greater than 38-millimeter sold for commercial food packing or for home canning: baby foods; candies; coffee; dairy products; edible oils; fruits and vegetables; mayonnaise and salad dressings; meat and fish products; mustard; peanut butter; pickles and relishes; preserves, jams, and jellies; and syrups.

**Beverage, carbonated.** Containers designed for bottling carbonated soft drinks, including carbonated water.

**Beverage, noncarbonated.** Containers designed for bottling noncarbonated fruit and vegetable juices, blends, and ades (including milk style bottles); teas (plain and fruit flavored); still waters; and other noncarbonated beverages, such as chocolate flavored drinks.

**Beer.** Containers designed for bottling alcoholic cereal beverages for multiple-trip and single-trip use, including beer, ale, porter, and malt coolers.

**Liquor.** Containers designed for bottling alcoholic beverages, except wines and malt beverages, including such products as brandies, cordials, gins, rum, and distilled spirits. Include containers designed for bottling multi-service and single-service premixed cocktails and liquor coolers.

**Wine.** Containers designed for bottling wines, whether sparkling or still, and champagnes and vermouths, including wine coolers.

**Other.** Containers for chemical, cosmetic, health, household, industrial, medicinal, and toiletry products.

*Health and medicinal.* Containers for products which are primarily intended to improve or maintain the health of human beings or animals: caplets; capsules; chemicals; citrate of magnesia; essential oils; extracts for medicinal purposes; liniments; nursing bottles; oral antiseptic; pharmaceuticals; prescription bottles; prescription ware; proprietary medicines; serums and parenterals; tablets; and veterinary supplies.

*Chemical, household, and industrial.* Containers for products not used in connection with human or animal bodies: ammonias; bleaches; bluing; cements; cleaning fluids; disinfectants; dyes; embalming fluids; glues; industrial chemicals; inks; insecticides; lubricating oils; oil stove reservoirs; pastes; protective coatings; polishes and waxes; refrigerator water bottles; snuff; and tobacco jars.

*Cosmetic and toiletry.* Containers for products intended primarily to improve personal appearance or to impart a pleasing odor: bath salts and oils; care products; face and hand creams (except medicated protective creams); hair shampoos and conditioners; hair tonics; hand and body lotions and creams; liquid soaps; perfumes and colognes; personal deodorants; pomades; powders; talcum; and toilet waters.

**Table 9. Summary of Shipments, Production, and Stocks of Glass Containers by Type of Container: 1997 and 1996**

[Thousands of gross]

Month and year	Shipments			Production			Stocks, end of month		
	Total	Narrow neck containers <sup>1</sup>	Wide mouth containers <sup>1</sup>	Total	Narrow neck containers <sup>1</sup>	Wide mouth containers <sup>1</sup>	Total <sup>2 3</sup>	Narrow neck containers <sup>1 2 3</sup>	Wide mouth containers <sup>1 2 3</sup>
<b>1997</b>									
<b>Total .....</b>	<b>254,016</b>	<b>200,059</b>	<b>53,957</b>	<b>246,892</b>	<b>193,837</b>	<b>53,055</b>	<b>(NA)</b>	<b>(NA)</b>	<b>(NA)</b>
December .....	18,432	14,249	<sup>†</sup> 4,183	18,027	13,977	<sup>†</sup> 4,050	34,157	24,709	<sup>†</sup> 9,448
November .....	18,390	14,371	<sup>†</sup> 4,019	20,503	15,869	<sup>†</sup> 4,634	34,481	24,852	<sup>†</sup> 9,629
October .....	21,081	<sup>†</sup> 15,998	<sup>†</sup> 5,083	21,395	16,359	<sup>†</sup> 5,036	32,375	23,248	<sup>†</sup> 9,127
September .....	21,700	<sup>†</sup> 16,749	<sup>†</sup> 4,951	20,632	<sup>†</sup> 15,909	<sup>†</sup> 4,723	31,924	22,591	<sup>†</sup> 9,333
August .....	22,488	<sup>†</sup> 17,674	<sup>†</sup> 4,814	21,718	<sup>†</sup> 17,000	<sup>†</sup> 4,718	33,062	23,306	<sup>†</sup> 9,756
July .....	22,887	<sup>†</sup> 18,526	<sup>†</sup> 4,361	21,541	<sup>†</sup> 17,004	<sup>†</sup> 4,537	33,701	23,650	<sup>†</sup> 10,051
June .....	22,896	(D)	(D)	21,153	(D)	(D)	35,286	(D)	(D)
May .....	23,249	(D)	(D)	20,856	(D)	(D)	37,103	(D)	(D)
April .....	22,343	<sup>†</sup> 17,775	<sup>†</sup> 4,568	20,577	<sup>†</sup> 16,229	<sup>†</sup> 4,348	39,093	27,947	<sup>†</sup> 11,146
March .....	21,178	<sup>†</sup> 16,799	<sup>†</sup> 4,379	20,653	<sup>†</sup> 16,118	<sup>†</sup> 4,535	39,515	28,327	<sup>†</sup> 11,188
February .....	19,189	<sup>†</sup> 14,979	<sup>†</sup> 4,210	19,752	<sup>†</sup> 15,661	<sup>†</sup> 4,091	39,277	28,174	<sup>†</sup> 11,103
January .....	20,183	<sup>†</sup> 15,432	<sup>†</sup> 4,751	20,085	<sup>†</sup> 15,653	<sup>†</sup> 4,432	38,885	27,637	<sup>†</sup> 11,248
<b>1996</b>									
<b>Total .....</b>	<b>257,358</b>	<b>179,790</b>	<b>77,568</b>	<b>253,869</b>	<b>178,622</b>	<b>75,247</b>	<b>(NA)</b>	<b>(NA)</b>	<b>(NA)</b>
December .....	17,482	12,172	5,310	15,441	10,804	4,637	38,816	25,616	13,200
November .....	18,638	12,936	5,702	19,529	13,690	5,839	40,422	26,537	13,885
October .....	21,678	14,746	6,932	21,011	14,724	6,287	39,871	26,306	13,565
September .....	20,180	13,895	6,285	19,871	14,248	5,623	40,564	26,729	13,835
August .....	22,876	16,282	6,594	22,187	16,465	5,722	41,155	26,479	14,676
July .....	23,501	17,571	5,930	22,196	15,754	6,442	41,815	26,185	15,630
June .....	22,099	14,696	7,403	21,595	14,788	6,807	43,458	26,265	17,193
May .....	25,461	18,193	7,268	24,448	17,159	7,289	44,582	26,505	18,077
April .....	22,918	16,663	6,255	22,185	15,774	6,411	46,381	28,236	18,145
March .....	22,522	15,485	7,037	22,724	16,070	6,654	47,335	30,372	16,963
February .....	19,677	13,387	6,290	21,380	14,562	6,818	47,448	29,788	17,660
January .....	20,326	13,764	6,562	21,302	14,584	6,718	45,831	28,581	17,250

D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Some narrow neck and wide mouth combined categories are included with "narrow neck containers." For 1997, data may not be comparable with prior years due to reclassification in the food and beverage categories.

<sup>2</sup>Data are limited to stocks at manufacturing establishments. Prior month end-of-month stocks plus current month production minus current month shipments may not equal current month end-of-month stocks due to breakage, stock adjustments, and resales.

<sup>3</sup>Total stocks for the end of a year are shown in December of that year.

Note: One thousand gross = 144,000.



Table 10. **Shipments and Production of Glass Containers by Type of Container and End Use: 1993 to 1997**

[Thousands of gross]

Product code	Product description	1997	1996	1995	1994	1993
<b>SHIPMENTS</b>						
	Total <sup>1</sup> .....	254,016	257,358	269,289	284,667	289,501
	By type:					
	Narrow neck containers <sup>2 3</sup> .....	200,059	179,790	184,254	196,466	212,390
	Wide mouth containers <sup>2 3</sup> .....	53,957	77,568	85,035	88,201	77,111
	By end use:					
	Food:					
32210 11	Narrow neck <sup>3</sup> .....	10,362	13,764	19,959	23,566	31,846
32210 12*	Wide mouth <sup>3</sup> .....	53,957	77,568	85,035	88,201	77,111
	Beverages <sup>3</sup> .....	(D)	(D)	16,410	30,713	45,602
32210 18*	Carbonated <sup>3</sup> .....	6,620	(NA)	(NA)	(NA)	(NA)
32210 21*	Noncarbonated <sup>3</sup> .....	(D)	(NA)	(NA)	(NA)	(NA)
32210 25*	Beer .....	120,181	115,895	111,030	104,372	94,747
32210 27	Liquor .....	9,259	9,636	10,148	10,547	11,434
32210 29	Wine .....	14,703	14,231	14,000	13,567	14,151
32210 35*	Other <sup>4</sup> .....	(D)	(D)	12,707	13,701	14,610
<b>PRODUCTION</b>						
	Total <sup>1</sup> .....	246,892	253,869	270,620	288,570	291,624
	By type:					
	Narrow neck containers <sup>2 3</sup> .....	193,837	178,622	184,939	199,541	214,014
	Wide mouth containers <sup>2 3</sup> .....	53,055	75,247	85,681	89,029	77,610
	By end use:					
	Food:					
32210 11	Narrow neck <sup>3</sup> .....	9,680	13,551	19,993	23,774	33,279
32210 12*	Wide mouth <sup>3</sup> .....	53,055	75,247	85,681	89,029	77,610
	Beverages <sup>3</sup> .....	(D)	(D)	14,182	31,599	44,316
32210 18*	Carbonated <sup>3</sup> .....	6,292	(NA)	(NA)	(NA)	(NA)
32210 21*	Noncarbonated <sup>3</sup> .....	(D)	(NA)	(NA)	(NA)	(NA)
32210 25*	Beer .....	116,524	116,252	113,295	106,290	95,843
32210 27	Liquor .....	9,338	9,789	10,217	10,976	11,227
32210 29	Wine .....	14,078	14,548	14,217	13,665	13,975
32210 35*	Other <sup>4</sup> .....	(D)	(D)	13,035	13,237	15,374

\*New for 1997. D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>Includes exports.

<sup>2</sup>Some narrow neck and wide mouth combined categories are included with "narrow neck containers."

<sup>3</sup>For 1997, data may not be comparable with prior years due to reclassification in the food and beverage categories.

<sup>4</sup>Includes containers for chemical, cosmetic, health, household, industrial, medicinal, and toiletry products.

Note: One thousand gross = 144,000.



**Table 12. Shipments, Production, and Stocks of Glass Containers: 1996**

Product code	Product description	Total	January	February	March	April	May	June	July	August	September	October	November	December
	<b>NET PACKED WEIGHT</b> (Thousands of pounds)													
	Total <sup>1</sup> . . . . .	19,587,150	1,645,503	1,647,018	1,768,954	1,732,648	1,829,477	1,672,399	1,681,417	1,687,629	1,544,265	1,653,561	1,531,646	1,192,633
	By type:													
	Narrow neck containers <sup>2 3</sup> . . . . .	13,774,305	1,119,544	1,141,721	1,224,139	1,238,757	1,266,109	1,170,821	1,197,393	1,267,082	1,094,319	1,156,633	1,070,977	826,810
	Wide mouth containers <sup>2 3</sup> . . . . .	5,812,845	525,959	505,297	544,815	493,891	563,368	501,578	484,024	420,547	449,946	496,928	460,669	365,823
	By end use:													
	Food:													
32210 11	Narrow neck. . . . .	1,046,171	96,786	111,021	118,342	92,108	96,631	101,113	76,070	101,372	74,686	70,310	52,678	55,054
32210 31, 37	Wide mouth, including dairy . . . . .	5,812,845	525,959	505,297	544,815	493,891	563,368	501,578	484,024	420,547	449,946	496,928	460,669	365,823
32210 19, 50	Beverages (refillable and nonrefillable) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32210 23, 60	Beer (refillable and nonrefillable) . . . . .	8,058,119	654,795	631,843	693,420	660,941	712,194	705,455	761,473	761,855	667,564	701,455	641,649	465,475
32210 27	Liquor . . . . .	1,392,477	110,679	112,972	117,414	118,896	100,477	102,663	111,160	150,675	131,633	130,418	118,166	87,324
32210 29	Wine . . . . .	2,219,374	177,201	198,836	189,762	195,118	232,294	195,014	181,155	174,864	158,657	185,767	198,066	132,640
32210 13, 15, 17, 32, 33, 34	Other (narrow neck and wide mouth) <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	<b>SHIPMENTS</b> (Thousands of gross)													
	Total <sup>1</sup> . . . . .	257,358	20,326	19,677	22,522	22,918	25,461	22,099	23,501	22,876	20,180	21,678	18,638	17,482
	By type:													
	Narrow neck containers <sup>2 3</sup> . . . . .	179,790	13,764	13,387	15,485	16,663	18,193	14,696	17,571	16,282	13,895	14,746	12,936	12,172
	Wide mouth containers <sup>2 3</sup> . . . . .	77,568	6,562	6,290	7,037	6,255	7,268	7,403	5,930	6,594	6,285	6,932	5,702	5,310
	By end use:													
	Food:													
32210 11	Narrow neck. . . . .	13,764	1,294	1,411	1,711	1,269	1,189	1,171	1,072	1,135	1,070	952	703	787
32210 31, 37	Wide mouth, including dairy . . . . .	77,568	6,562	6,290	7,037	6,255	7,268	7,403	5,930	6,594	6,285	6,932	5,702	5,310
32210 19, 50	Beverages (refillable and nonrefillable) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32210 23, 60	Beer (refillable and nonrefillable) . . . . .	115,895	8,606	8,577	9,830	10,188	11,289	9,933	11,233	10,258	9,249	9,913	8,742	8,077
32210 27	Liquor . . . . .	9,636	854	753	850	835	810	764	801	859	792	895	737	686
32210 29	Wine . . . . .	14,231	1,178	1,012	1,273	1,333	1,552	1,470	1,331	1,261	932	1,007	1,014	868
32210 13, 15, 17, 32, 33, 34	Other (narrow neck and wide mouth) <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	<b>PRODUCTION</b> (Thousands of gross)													
	Total <sup>1</sup> . . . . .	253,869	21,302	21,380	22,724	22,185	24,448	21,595	22,196	22,187	19,871	21,011	19,529	15,441
	By type:													
	Narrow neck containers <sup>2 3</sup> . . . . .	178,622	14,584	14,562	16,070	15,774	17,159	14,788	15,754	16,465	14,248	14,724	13,690	10,804
	Wide mouth containers <sup>2 3</sup> . . . . .	75,247	6,718	6,818	6,654	6,411	7,289	6,807	6,442	5,722	5,623	6,287	5,839	4,637
	By end use:													
	Food:													
32210 11	Narrow neck. . . . .	13,551	1,343	1,544	1,715	1,341	1,133	1,197	904	1,171	887	825	671	820
32210 31, 37	Wide mouth, including dairy . . . . .	75,247	6,718	6,818	6,654	6,411	7,289	6,807	6,442	5,722	5,623	6,287	5,839	4,637
32210 19, 50	Beverages (refillable and nonrefillable) . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32210 23, 60	Beer (refillable and nonrefillable) . . . . .	116,252	9,429	9,139	9,976	9,407	10,311	9,851	10,888	10,981	9,862	10,221	9,389	6,798
32210 27	Liquor . . . . .	9,789	919	889	927	885	651	667	758	906	872	852	832	631
32210 29	Wine . . . . .	14,548	1,256	1,225	1,294	1,299	1,557	1,462	1,271	1,061	942	1,099	1,241	841
32210 13, 15, 17, 32, 33, 34	Other (narrow neck and wide mouth) <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 12. **Shipments, Production, and Stocks of Glass Containers: 1996—Con.**

Product code	Product description	Total	January	February	March	April	May	June	July	August	September	October	November	December
	<b>STOCKS, END OF MONTH<sup>5 6</sup></b> (Thousands of gross)													
	Total <sup>2</sup> . . . . .	(NA)	45,831	47,448	47,335	46,381	44,582	43,458	41,815	41,155	40,564	39,871	40,422	38,816
	By type:													
	Narrow neck containers <sup>2 3</sup> . . . . .	(NA)	28,581	29,788	30,372	28,236	26,505	26,265	26,185	26,479	26,729	26,306	26,537	25,616
	Wide mouth containers <sup>2 3</sup> . . . . .	(NA)	17,250	17,660	16,963	18,145	18,077	17,193	15,630	14,676	13,835	13,565	13,885	13,200
	By end use:													
	Food:													
32210 11	Narrow neck <sup>3</sup> . . . . .	(NA)	3,619	3,726	3,769	3,305	2,725	2,940	2,937	2,974	2,895	2,525	2,075	2,293
32210 31, 37	Wide mouth <sup>3</sup> . . . . .	(NA)	17,250	17,660	16,963	18,145	18,077	17,193	15,630	14,676	13,835	13,565	13,885	13,200
32210 19, 50	Beverages . . . . .	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32210 23, 60	Beer . . . . .	(NA)	12,969	13,516	13,630	12,886	11,730	11,595	11,138	11,923	12,363	12,538	13,051	12,126
32210 27	Liquor . . . . .	(NA)	2,301	2,448	2,531	2,609	2,437	2,306	2,256	2,268	2,343	2,293	2,383	2,325
32210 29	Wine . . . . .	(NA)	3,063	3,276	3,298	2,884	3,260	2,861	2,792	2,600	2,583	2,625	2,822	2,782
32210 13, 15, 17, 32, 33, 34	Other <sup>4</sup> . . . . .	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>Includes exports.

<sup>2</sup>Some narrow neck and wide mouth combined categories are included with "narrow neck containers."

<sup>3</sup>Data for 1997 may not be comparable with data prior to 1997 due to reclassification in the food and beverage categories.

<sup>4</sup>Includes containers for chemical, cosmetic, health, household, industrial, medicinal, and toiletry products.

<sup>5</sup>Data are limited to stocks at manufacturing establishments. Prior month end-of-month stocks plus current month production minus current month shipments may not equal current month end-of-month stocks due to breakage, stock adjustments, and resales.

<sup>6</sup>Total stocks for the end of a year are shown in December of that year.

Note: One thousand gross = 144,000.

**HISTORICAL NOTE**

Data on glass containers have been collected by the Census Bureau since 1945. Historical data may be obtained from the Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

For several years, these data have been collected under the sponsorship of the Glass Packaging Institute.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Jim Jamski, 301-457-1603.

# Chapter 6.

## Primary Metals

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### IRON AND STEEL CASTINGS (MA33A)

#### INTRODUCTION

These data cover producers of ferrous castings, whether for commercial sale or for use by the producing company. The statistics originate from the annual data for 1997 collected on Census Bureau form MA33A, Iron and Steel Foundries. The annual survey panel consists of approximately 532 weighted sample establishments, taken from a list of over 960 known producers from the 1992 Census of Manufactures universe.

The panel for this survey was selected using a cutoff sampling methodology from a frame that was constructed from the 1992 Census of Manufactures. The sampling frame consisted of all establishments in the census that satisfied at least one of the following criteria:

1. Shipments of castings were reported, or
2. Consumption of materials commonly used in the manufacture of castings was reported, or
3. Foundry activity was indicated by the completion of a special census inquiry.

For sampling purposes, a number of item codes, roughly equivalent to the items collected on the annual survey form, were created from the census product class and materials consumed codes defined by the above criteria. In some cases, the relationship between the item code and a corresponding census code was one to one. In other cases, the item code consisted of a combination of census codes. In either of these cases, a value was assigned to the item code at the establishment level to the corresponding summed values (quantities) of the census codes comprising it. Potentially, a given establishment might have had a multiple number of item codes assigned.

Each individual item code was sampled independently by cutoff methods, by first arraying the establishments with the item in descending order of value and by selecting the largest establishments, which in the cumulative accounted for 85 percent of the total item value. Because of the potential for establishments to be coded to more

than one item code, the effective coverage of all item codes exceeded 85 percent. Plants selected because of their size in one code contributed to the coverage in other codes for which they had a small amount of data.

The select cases constitute the mailing panel for the annual survey. For a given survey year, final estimates are formed for a given item by summing the data obtained for the mail panel and adjusting it by the coverage rate for the item, so that a complete coverage estimate is obtained. This methodology presumes that the nonmail cases exhibit the same growth characteristics as the mail cases.

#### SUMMARY OF FINDINGS

In 1997, quantity of iron and steel castings shipped were estimated at 12,007 thousand short tons, a 1-percent decrease from the 12,042 thousand short tons shipped in 1996. Ductile iron and gray iron castings quantity shipped were estimated at 4,334 and 6,186 thousand short tons respectively, a 1-percent increase from the 4,312 and 6,197 thousand short tons shipped in 1996. Manufacturers of malleable iron castings shipped 271 thousand short tons in 1997, a 3-percent increase from the 262 thousand short tons shipped in 1996. The quantity of steel castings shipped in 1997 decreased 4 percent to 1,217 thousand short tons from the 1,217 thousand short tons in 1996.

#### EXPLANATION OF TERMS

**Shipments for sale.** Represents commercial sales only (castings shipped to the trade). Intracompany sales are not included in this category.

**Shipments for own use.** Represents castings shipped for use by the reporting company or by a subsidiary, parent, or other affiliated company. Castings produced and consumed at the same location in the production of finished products are also included.

**All other gray iron castings.** Includes abrasives, rolls, chilled iron railroad car wheels, grinding balls, white iron castings, semisteel castings, and pressure and soil pipe fittings that require machining, threading, or assembling.

**Cast iron pressure pipe and fittings.** Includes only those fittings that do not require any machining, threading, or assembling.

**Pearlitic malleable.** This classification is reported pursuant to ASTM (American Society for Testing Materials) Designation A220-76.

**Alloy steel.** Steel that contains alloying elements in excess of the maximum standard ranges of the American Iron and Steel Institute as follows:

Manganese ..... in excess of 1.65%  
 Silicon..... in excess of .60%  
 Copper..... in excess of .40%  
 Chromium..... in excess of .30%

Aluminum, cobalt, Any amount specified  
 niobium, molybdenum, nickel, or known to have  
 titanium, tungsten, vanadium, been added to  
 zirconium, or any other obtain a desired  
 alloying element. alloying effect.

**High alloy steel castings.** Heat and/or corrosion resistant steel castings containing 8 percent or more of chromium or nickel or both, with or without molybdenum or other elements.

**Table 1. Quantity of Shipments of Iron and Steel Castings: 1997 and 1996**

[Thousands of short tons]

Year	Ductile iron castings			Gray iron castings			Malleable iron castings			Steel castings		
	Total	For sale	For own use	Total	For sale	For own use	Total	For sale	For own use	Total	For sale	For own use
1997.....	4,333	3,925	408	6,186	4,693	1,493	271	121	150	1,217	1,174	43
1996.....	4,312	3,921	391	6,198	4,573	1,625	263	123	140	1,271	1,225	46

**Table 2. Value of Shipments of Iron and Steel Castings: 1997 and 1996**

[Millions of dollars]

Product description	Value of shipments		Standard error of estimate (percent) for column—	
	1997	1996	A	B
	A	B	A	B
Ductile iron castings.....	4,150.2	3,971.5	1.0	1.0
Gray iron castings.....	4,700.6	4,463.0	2.0	2.0
Malleable iron castings.....	272.7	266.1	1.1	1.2
Steel castings.....	2,246.4	2,295.6	1.0	1.0
Steel investment castings.....	4,032.5	4,382.1	15.6	17.7

<sup>1</sup>Revised by 5 percent or more from previously published data.

Note: Dollar value represents value of castings for sale.

**Table 3. Shipments of Iron and Steel Castings by Type of Castings: 1997 and 1996**

[Quantity in short tons]

Product code	Product description	1997		1996	
		Quantity	Standard error (percent)	Quantity	Standard error (percent)
	Iron and steel castings (except investment castings) . . . . .	12,007,242	(NA)	12,028,009	(NA)
	For sale . . . . .	9,914,225	(NA)	9,827,019	(NA)
	For own use . . . . .	2,093,017	(NA)	2,200,990	(NA)
	Ductile (nodular) iron castings . . . . .	4,333,581	(NA)	4,297,487	(NA)
	For sale . . . . .	3,925,312	(NA)	3,906,966	(NA)
	For own use . . . . .	408,269	(NA)	390,521	(NA)
	Ductile iron pressure pipe:				
	Under 14 inches (inside diameter) . . . . .	1,377,007	-	1,344,072	-
33211 32	14 to 24 inches . . . . .	(D)	(X)	(D)	(X)
33211 35	30 inches and over . . . . .	(D)	(X)	(D)	(X)
	Ductile iron fittings:				
	Under 14 inches (inside diameter) . . . . .	72,543	3.0	66,183	1.4
33211 36	14 to 24 inches . . . . .	15,395	-	19,129	-
33211 37	30 inches and over . . . . .	6,640	-	6,894	1.0
33212 24	Construction and utility castings . . . . .	21,447	1.0	19,601	1.0
33212 22	Automotive uses . . . . .	1,033,408	-	1,031,498	-
33212 33	Machinery uses . . . . .	145,240	2.5	142,573	2.7
33212 79	Other ductile iron castings (except pressure pipe and fittings):				
	For sale . . . . .	825,305	1.3	746,552	1.3
	For own use . . . . .	102,355	1.7	102,327	1.7
	Gray iron castings . . . . .	6,185,999	(NA)	6,197,216	(NA)
	For sale . . . . .	4,693,300	(NA)	4,572,555	(NA)
	For own use . . . . .	1,492,699	(NA)	1,624,661	(NA)
33216 00	Molds and stools for heavy steel ingots . . . . .	116,269	-	163,688	-
	Gray iron pressure pipe fittings: <sup>1</sup>				
	Under 14 inches (inside diameter) . . . . .	23,195	-	36,258	-
33217 44	14 inches and over (inside diameter) . . . . .	2,595	-	3,320	-
33218 00	Gray iron soil pipe . . . . .	251,461	-	218,758	-
33218 04	Gray iron soil pipe fittings <sup>1</sup> . . . . .	69,328	-	56,907	-
33219 39	Automotive uses . . . . .	1,259,320	1.0	1,270,796	1.0
33219 41	Construction and utility castings . . . . .	574,695	1.0	542,126	1.0
33219 97	All other gray iron castings, including white iron castings:				
	For sale . . . . .	2,396,438	1.8	2,280,702	1.7
	For own use . . . . .	381,904	6.0	384,012	5.1
	Malleable iron castings . . . . .	270,942	(NA)	262,292	(NA)
	For sale . . . . .	121,328	(NA)	122,874	(NA)
	For own use . . . . .	149,614	(NA)	139,418	(NA)
33221 00	Standard malleable . . . . .	190,572	-	175,118	-
33222 00	Pearlitic malleable . . . . .	80,370	-	87,174	-
	Steel castings (except investment) . . . . .	1,216,720	(NA)	1,271,014	(NA)
	For sale . . . . .	1,174,285	(NA)	1,224,624	(NA)
	For own use . . . . .	42,435	(NA)	46,390	(NA)
	Carbon steel . . . . .	821,844	(NA)	873,152	(NA)
	Railroad specialties . . . . .	589,418	(NA)	633,498	(NA)
33252 02	Side frames, bolsters, couplers, yokes, draft gear, snubbers (self-contained unit type), hopper doors and frames, and break beams . . . . .	235,820	-	275,501	-
33252 29	Other carbon steel railway and transit rolling stock castings . . . . .	353,598	-	357,997	-
33252 39	Other carbon steel castings, including rolls for rolling mills:				
	For sale . . . . .	227,329	1.0	234,759	1.0
	For own use . . . . .	5,097	9.3	4,895	9.5
	Alloy (except high alloy) steel castings . . . . .	260,806	(NA)	263,844	(NA)
33255 51	Railway specialties . . . . .	31,874	1.4	30,140	1.5
33255 57	Other alloy steel castings, including rolls for rolling mills . . . . .	228,932	1.0	233,704	1.0
33254 00	High alloy steel castings:				
	For sale . . . . .	120,599	1.4	121,124	1.1
	For own use . . . . .	13,471	1.6	12,894	2.1

See footnotes at end of table.

**Table 3. Shipments of Iron and Steel Castings by Type of Castings: 1997 and 1996—Con.**

[Quantity in short tons]

Product code	Product description	1997		1996	
		Quantity	Standard error (percent)	Quantity	Standard error (percent)
	Iron and steel castings (except investment castings)—Con.				
	Steel investment castings <sup>2</sup> .....	94,992	(NA)	89,536	(NA)
	For sale <sup>2</sup> .....	90,158	(NA)	84,595	(NA)
	For own use <sup>2</sup> .....	4,834	(NA)	4,941	(NA)
33240 63	Carbon, including low alloy <sup>2</sup> .....	32,698	1.0	30,632	1.0
33240 68	Alloy, including stainless <sup>2</sup> .....	62,294	1.0	58,904	1.0

- Represents zero. D Withheld to avoid disclosing data of individual companies. NA Not available. †Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Does not include machined, threaded, or assembled fittings.

<sup>2</sup>Shipments are in thousands of pounds.

**Table 4. Manufacturers' Shipments, Exports, and Imports of Iron and Steel Castings: 1997**

[Quantity in short tons]

Product code	Product description <sup>1</sup>	Manufacturers' shipments	Exports of domestic merchandise <sup>1 2</sup>	Imports for consumption <sup>1 3</sup>
33211 32, 33, 35	Ductile iron pressure pipe .....	1,805,334	73,457	-
33211 36, 37, 39	Ductile iron fittings.....	94,578	13,024	67,555
33216 00	Molds for heavy steel ingot .....	116,269	2,629	2,119
33217 44, 45	Gray iron pressure pipe fittings.....	25,790	37,728	24,214
33218 00	Gray iron soil pipe.....	251,461	12,944	-
33218 04	Gray iron soil pipe fittings .....	69,328	40,471	3,732
33212 22, 24, 33, 79, 33219 39, 41, 97, 33221 00, 33222 00, 33252 02, 29, 39, 33255 51, 57, 33254 00, 33240 63, 68	Iron and steel castings, n.e.c.....	9,612,626	278,303	10,888

- Represents zero. n.e.c. Not elsewhere classified.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report FT 446, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

**HISTORICAL NOTE**

Data on iron and steel castings have been collected by the Census Bureau since 1943. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal

Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Brenda Campbell, 301-457-1031.



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## STEEL MILL PRODUCTS (MA33B)

### INTRODUCTION

These data cover all known producers of steel mill products. The statistics were collected by mail on Census Bureau annual Form MA33B, Steel Mill Products. The survey panel includes all known producers of steel mill products, approximately 382 companies.

### SUMMARY OF FINDINGS

In 1997, steel mill product manufacturers had shipments of \$68.1 billion, which increased 3 percent from \$66.3 billion in 1996. Steel ingot and semifinished shapes increased 3 percent to \$4.8 billion in 1997, from \$4.6 billion in 1996. Hot-rolled sheet and strip, including tin mill products increased 1 percent to \$22.1 billion in 1997, from \$21.9 billion in 1996. Hot-rolled bar and shapes, plates, structural shapes, and piling increased by 3 percent to \$12.9 billion in 1997, from \$12.5 billion in 1996. Steel wire increased 6 percent to \$2.4 billion in 1997, from \$2.2 billion in 1996. Other wire products decreased to \$1.9 billion in 1997, from \$2.0 billion in 1996, a 3-percent decrease. Steel pipe and tube incurred a 12-percent increase to \$9.9 billion in 1997, from \$8.8 billion in 1996. Cold-rolled steel sheet and strip decreased to \$11.2 billion in 1997, from \$11.4 billion in 1996, a 1-percent decrease. Cold-finished steel bars and bar shapes increased 2 percent to \$2.3 billion in 1997, from \$2.2 billion in 1996. Other steel mill products increased 15 percent.

### EXPLANATION OF TERMS

**Net shipments.** This figure is derived by subtracting domestic receipts from total quantity shipments plus steel

consumed in producing plants. Prior to 1980, import receipts were also used in the net shipments calculation. Beginning in 1980, import receipts of steel mill products for further processing were collected separately and were no longer used in the net shipments calculation.

**Carbon steel.** All ferrous materials other than alloy and stainless that are usefully malleable and that contain, by weight, 2 percent or less of carbon (in effect, all steel other than that complying with the definition for alloy or stainless).

**Alloy steel.** Steels not complying with the definition of stainless steel and containing, by weight, one or more of the following elements, in proportion shown: 0.3 percent or more of aluminum, chromium, cobalt, or nickel; 0.0008 percent or more of boron; 0.4 percent or more of copper or lead; 1.65 percent or more of manganese; 0.08 percent or more of molybdenum; 0.06 percent or more of niobium; or 0.6 percent or more of silicon.

**Stainless steel.** Alloy steels containing, by weight, 1.2 percent or less of carbon and 10.5 percent or more of chromium, with or without other elements and a minimum of 50-percent iron. However, all tool steel and valve steel are excluded.

**Heat resisting steel.** Alloy steels containing, by weight, less than 0.3 percent of carbon and 4 percent or more, but less than 10.5 percent, of chromium.

**Table 5. Value of Shipments of Steel Mill Products by Class of Products: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description	1997	1996
	<b>Total.....</b>	<b>68,088,621</b>	<b>66,297,269</b>
33122	Steel ingot and semifinished shapes.....	4,766,974	4,626,361
33123	Hot-rolled sheet and strip, including tin mill products <sup>1</sup> .....	22,085,611	21,935,981
33124	Hot-rolled bars and shapes, plates, structural shapes, and piling.....	12,899,743	12,536,347
33155	Steel wire.....	2,374,363	2,249,646
3315-	Other wire products.....	1,965,578	2,030,278
33170	Steel pipe and tube.....	9,886,235	8,802,009
33167	Cold-rolled steel sheet and strip.....	11,246,378	11,362,661
33168	Cold-finished steel bars and bar shapes.....	2,299,176	2,263,372
3312C	Other steel mill products (except wire products).....	564,563	490,614

<sup>1</sup>Galvanized, metallic coated, and electrical sheet and strip are included in product code 33123, "Hot-rolled sheet and strip."

**Table 6. Production of Raw Steel: 1997 and 1996**

[Thousands of metric tons]

Product description	1997	1996
<b>Total.....</b>	<b>96,886</b>	<b>94,860</b>
By grade of steel:		
Carbon.....	83,692	82,825
Alloy.....	10,707	9,634
Stainless.....	2,487	2,401
By type of furnace:		
Electric.....	40,819	39,321
Basic oxygen, open hearth, and other types of furnaces.....	56,067	55,540

<sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 7. Receipts, Consumption, Shipments, and Net Shipments of Steel Mill Products: 1997**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Receipts <sup>2 3</sup> (quantity)	Steel consumed in producing plants (quantity)	Total shipments		Net shipments <sup>4</sup> (quantity)
					Quantity	Value f.o.b. plant	
	Steel .....	(NA)	27,999,715	1,536,561	115,348,729	68,088,621	88,885,576
33122 11	Carbon steel .....	277	25,571,205	1,335,065	102,594,574	54,198,608	78,358,434
	Ingots .....	5	(D)	(D)	103,620	53,357	212,758
	Semifinished products:						
33122 13	Blooms, billets, sheet bars, tin mill bars, tube rounds, and skelp .....	34	(D)	(D)	2,403,190	729,021	(D)
33122 19	Wire rods .....	19	3,088,088	195,969	4,753,550	1,925,236	1,861,431
33122 20	Slabs .....	12	853,439	1,261	851,503	237,864	(D)
	Finished products:						
33124 13	Plates, cut lengths .....	14	(D)	(D)	4,124,606	2,006,254	3,955,564
33124 14	Plates, in coils .....	5	(D)	(D)	(D)	(D)	(D)
	Sheet:						
33123 11	Hot rolled, including hot-rolled bands .....	24	12,189,853	343,924	20,084,332	7,717,380	8,238,403
33167 11	Cold rolled .....	26	1,382,827	286,489	14,211,930	7,003,745	13,115,592
	Sheet and strip:						
	Galvanized:						
33123 13	Hot dipped .....	16	(D)	(D)	8,747,774	6,011,338	8,192,243
33123 15	Electrolytic .....	13	8,682	-	2,841,697	2,037,573	2,833,015
33123 17	Electrical .....	3	(D)	(D)	(D)	(D)	(D)
33123 18	All other metallic coated, including long ternes ..	9	(D)	(D)	1,051,885	787,816	1,042,337
	Strip:						
33123 19	Hot rolled .....	16	(D)	(D)	2,375,859	945,860	1,813,544
33167 15	Cold rolled .....	21	(D)	(D)	1,228,845	1,121,427	1,110,472
	Tin mill products:						
33123 24	Blackplate .....	9	(D)	(D)	610,406	326,711	587,619
33123 26	Electrolytic and hot dipped tinplate .....	8	(D)	(D)	2,646,612	1,799,927	2,659,138
33123 28	Tin free steel .....	5	(D)	(D)	485,898	319,875	485,898
33123 29	All other tin mill products, including short ternes and foil .....	2	-	-	(D)	(D)	(D)
	Structural shapes (heavy):						
33124 15	Wide flange .....	5	-	-	(D)	(D)	(D)
33124 17	Standard heavy shapes .....	9	-	-	2,425,231	1,072,051	2,425,231
33124 18	Sheet piling and bearing piles .....	4	-	-	319,502	139,564	319,502
	Bars:						
33124 22	Hot-rolled bars (except concrete reinforcing) ....	36	1,116,427	7,651	6,549,080	3,005,627	5,440,303
33124 24	Light structurals (under 3 inches) .....	9	(D)	(D)	1,507,956	615,708	1,507,703
33124 26	Concrete reinforcing bars .....	17	-	-	5,562,491	1,891,580	5,562,491
33168 11	Cold-finished bars .....	36	(D)	(D)	1,523,004	1,209,168	1,451,935
3312C —	Rails, wheels, and track accessories <sup>5</sup> .....	9	(D)	(D)	923,119	564,563	800,379
	Pipe and tubes:						
	Line pipe:						
33170 14	16 inches outside diameter and under .....	22	-	-	1,189,785	714,860	1,189,785
33170 15	Over 16 inches outside diameter .....	8	-	-	392,540	280,862	392,540
33170 19	Oil country goods .....	14	-	-	1,504,802	1,027,380	1,504,802
	Pressure tubing:						
33170 21	Seamless .....	9	(D)	(D)	128,747	119,296	119,301
33170 22	Welded .....	15	-	-	341,246	404,933	341,246
	Mechanical tubing:						
33170 23	Seamless .....	14	(D)	(D)	122,020	143,183	120,961
33170 24	Welded .....	59	(D)	(D)	2,236,718	2,242,513	2,190,620
33170 27	Structurals .....	25	(D)	(D)	1,561,067	936,806	1,557,212
33170 29	Miscellaneous, including standard pipe .....	30	(D)	(D)	1,623,340	1,245,910	1,616,617
	Wire:						
	Plain wire:						
33155 01	Flat wire .....	9	(D)	(D)	34,821	37,371	32,594
	Round wire:						
	Thermally treated:						
33155 02	Under 1.5 mm in diameter .....	16	(D)	(D)	64,742	79,975	30,075
33155 03	1.5 mm or above in diameter .....	23	(D)	(D)	253,522	197,514	176,500
	Other round wire:						
33155 04	Under 1.5 mm in diameter .....	14	(D)	(D)	230,019	277,082	241,528
33155 05	1.5 mm or above in diameter .....	35	(D)	(D)	1,312,706	711,092	1,147,206
33155 06	Other shape wire .....	10	(D)	(D)	276,422	138,055	276,368

See footnotes at end of table.

**Table 7. Receipts, Consumption, Shipments, and Net Shipments of Steel Mill Products: 1997—Con.**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Receipts <sup>2 3</sup> (quantity)	Steel consumed in producing plants (quantity)	Total shipments		Net shipments <sup>4</sup> (quantity)
					Quantity	Value f.o.b. plant	
	Steel—Con.						
	Carbon steel—Con.						
	Finished products—Con.						
	Plated or coated with zinc:						
	Round wire:						
33155 13	Under 1.5 mm in diameter . . . . .	12	(D)	(D)	58,956	51,289	57,688
33155 14	1.5 mm or above in diameter . . . . .	21	89,841	739	252,192	174,445	163,090
33155 15	Other shape wire, including flat . . . . .	9	(D)	(D)	77,437	57,855	49,647
	Other coated wire:						
33155 17	Flat wire . . . . .	3	(D)	(D)	(D)	(D)	(D)
33155 18	Round wire . . . . .	19	(D)	(D)	117,950	123,521	115,212
33155 21	Other shape wire . . . . .	6	-	-	(D)	(D)	(D)
	Wire products: <sup>6</sup>						
33152 21	Nails and staples . . . . .	23	(D)	(D)	553,349	669,395	552,888
33159 51	Barbed and twisted wire . . . . .	8	(D)	(D)	139,131	135,526	139,108
33156 21	Wire fence, woven and welded . . . . .	12	(D)	(D)	412,102	276,013	411,573
33159 55	Bale ties . . . . .	7	-	-	32,316	21,295	32,316
33151 13	Wire rope and cable . . . . .	13	(D)	(D)	171,598	381,996	170,998
	Wire strand:						
33151 33	For prestressed concrete . . . . .	7	-	-	215,178	150,016	215,178
33151 35	Other . . . . .	12	-	-	177,231	240,328	177,231
33157 71	Woven wire netting . . . . .	9	(D)	(D)	95,501	91,009	94,405
	Alloy steel . . . . .	79	1,480,964	124,778	9,962,763	7,754,970	8,606,577
33122 31	Ingots . . . . .	13	27,103	113,677	302,876	198,773	389,451
	Semifinished products:						
33122 37	Blooms, billets, sheet bars, rounds, and skelp . . . . .	16	(D)	(D)	1,612,774	948,535	667,914
33122 39	Wire rods . . . . .	3	(D)	(D)	(D)	(D)	(D)
33122 41	Slabs . . . . .	2	(D)	(D)	(D)	(D)	(D)
	Finished products:						
33124 33	Plates, cut lengths . . . . .	8	(D)	(D)	798,932	557,814	799,105
33124 36	Plates, in coils . . . . .	2	(D)	(D)	(D)	(D)	(D)
33124 38	Structural shapes (3 inches and under) . . . . .	3	-	-	6,601	5,348	6,601
	Sheet:						
33123 31	Hot rolled . . . . .	8	22,769	-	1,540,075	677,445	1,517,306
33167 31	Cold rolled . . . . .	7	(D)	(D)	151,961	88,415	151,234
	Sheet and strip:						
	Galvanized:						
33123 35	Hot dipped . . . . .	3	(D)	(D)	127,833	87,990	124,463
33123 37	All other metallic coated, including electrolytic . . . . .	6	(D)	(D)	(D)	(D)	(D)
	Strip:						
33123 39	Hot rolled . . . . .	4	(D)	(D)	1,521	1,219	(D)
33167 35	Cold finished . . . . .	13	(D)	(D)	294,146	519,126	285,655
	Bars:						
33124 41	Hot rolled, including structural shapes under 3 inches . . . . .	17	(D)	(D)	2,475,256	1,473,394	2,213,473
33168 31	Cold finished . . . . .	24	(D)	(D)	467,344	505,421	467,261
	Tool steel:						
33124 48	High speed . . . . .	7	(D)	(D)	12,483	118,977	11,820
33124 49	Other than high speed . . . . .	7	(D)	(D)	47,386	182,722	46,635
	Pipe and tubes:						
33170 32	Oil country goods and line pipe . . . . .	7	-	-	1,195,001	1,014,558	1,195,001
33170 43	Pressure tubing . . . . .	6	(D)	(D)	9,770	28,307	9,529
33170 45	Mechanical tubing . . . . .	11	(D)	(D)	572,965	773,720	438,283
33170 48	Miscellaneous, including standard and structural . . . . .	4	(D)	(D)	(D)	(D)	(D)
33155 37	Wire (plain and coated) . . . . .	13	4,269	-	59,318	137,976	55,049

See footnotes at end of table.

**Table 7. Receipts, Consumption, Shipments, and Net Shipments of Steel Mill Products: 1997—Con.**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Receipts <sup>2 3</sup> (quantity)	Steel consumed in producing plants (quantity)	Total shipments		Net shipments <sup>4</sup> (quantity)
					Quantity	Value f.o.b. plant	
	Steel—Con.						
33122 51	Stainless steel.....	83	947,546	76,718	2,791,392	6,135,043	1,920,564
	Ingots .....	12	(D)	(D)	44,664	73,231	5,789
	Semifinished products:						
33122 56	Blooms, billets, slabs, sheet bars, tube rounds, and skelp .....	14	(D)	(D)	471,978	456,424	399,106
33122 59	Wire rods .....	5	18,749	-	33,558	103,449	14,809
	Finished products:						
33124 53	Plates and structurals .....	6	7,124	-	140,169	397,217	133,045
	Sheet and strip:						
33123 57	Hot rolled .....	6	625,954	-	562,727	821,348	(D)
33167 57	Cold rolled .....	18	(D)	(D)	1,163,430	2,513,665	1,068,359
	Bars:						
33124 61	Hot rolled .....	7	(D)	(D)	36,901	133,074	29,240
33168 51	Cold finished .....	14	(D)	(D)	131,733	584,587	130,185
	Pipe and tubes:						
	Pressure tubing:						
33170 61	Seamless .....	8	(D)	(D)	8,403	83,764	8,402
33170 62	Welded .....	11	-	-	58,881	255,134	58,881
	Mechanical tubing:						
33170 63	Seamless .....	5	(D)	(D)	(D)	(D)	(D)
33170 64	Welded .....	16	(D)	(D)	69,032	301,017	69,030
33170 65	Other pipe and tube .....	7	(D)	(D)	7,179	39,030	7,239
	Wire:						
	Round wire:						
33155 52	Under 0.75 mm in diameter .....	13	(D)	(D)	15,785	109,733	15,396
33155 53	0.75 mm to under 1.5 mm in diameter .....	13	327	-	5,290	32,787	4,963
33155 54	1.5 mm and above in diameter .....	15	(D)	(D)	33,895	147,127	32,741
33155 57	Other shape wire, including flat wire .....	10	(D)	(D)	4,969	25,672	4,838

- Represents zero. D Withheld to avoid disclosing data for individual companies. In some cases, data that are otherwise publishable are withheld to avoid disclosing by subtraction from higher-level totals or from related data. NA Not available.

<sup>1</sup>Product codes in 33155 series also include products in 33125 series; same applies for 33167 and 33127; 33168 and 33128; and 33170 and 33126.

<sup>2</sup>Excludes receipts and shipments of steel processed on a conversion basis for nonsteel producing companies. Receipts data represent receipts at producing mills only and include receipts from domestic sources.

<sup>3</sup>Import receipts of steel mill products for 1997 are as follows: total, 6,281,449 metric tons; carbon, 6,096,930 metric tons; alloy, 56,844 metric tons; stainless 127,675 metric tons.

<sup>4</sup>Net shipments are derived by subtracting domestic receipts from total quantity shipments, plus steel consumed in producing plants.

<sup>5</sup>Product code 3312C combines product codes 3312C 11, 3312C 13, 3312C 15, 3312C 17, 3312C 19, 3312C 21, and 3312C 23.

<sup>6</sup>Represents wire products produced within steel works and wire drawing establishments. See the 1992 Census of Manufactures, MC92-I-33A, Tables 6A-1 and 6A-2 for detailed information.

Note: Quantity data converted to metric tons; therefore, detail may not add to total because of rounding.

**Table 8. Receipts, Consumption, Shipments, and Net Shipments of Steel Mill Products: 1996**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Receipts <sup>2 3</sup> (quantity)	Steel consumed in producing plants (quantity)	Total shipments		Net shipments <sup>4</sup> (quantity)
					Quantity	Value f.o.b. plant	
	Steel .....	(NA)	26,926,571	1,785,977	112,797,211	66,297,269	87,656,617
	Carbon steel .....	280	24,437,873	'1,582,593	100,790,365	52,576,616	77,935,086
33122 11	Ingots .....	5	(D)	(D)	131,376	58,002	257,855
	Semifinished products:						
33122 13	Blooms, billets, sheet bars, tin mill bars, tube rounds, and skelp .....	34	(D)	(D)	2,607,097	844,182	(D)
33122 19	Wire rods .....	18	'3,083,667	'170,341	'4,579,141	1,749,922	'1,665,815
33122 20	Slabs .....	12	676,259	1,703	848,391	235,128	173,835
	Finished products:						
33124 13	Plates, cut lengths .....	16	(D)	(D)	4,048,323	2,003,236	3,851,164
33124 14	Plates, in coils .....	6	(D)	(D)	'295,503	'117,503	'228,911
	Sheet:						
33123 11	Hot rolled, including hot rolled bands .....	24	11,603,516	'495,281	20,622,231	7,642,220	'9,513,996
33167 11	Cold rolled .....	24	'1,466,473	'421,508	14,189,301	'6,970,403	13,144,335
	Sheet and strip:						
	Galvanized:						
33123 13	Hot dipped .....	16	(D)	(D)	8,693,144	'5,869,891	8,140,724
33123 15	Electrolytic .....	13	7,335	-	2,819,164	2,100,957	2,811,829
33123 17	Electrical .....	3	(D)	(D)	(D)	(D)	(D)
33123 18	All other metallic coated, including long ternes. .	11	(D)	(D)	1,041,815	780,294	1,033,137
	Strip:						
33123 19	Hot rolled .....	17	(D)	(D)	'2,448,674	958,010	1,880,841
33167 15	Cold rolled .....	21	(D)	(D)	'1,211,328	1,086,307	1,056,964
	Tin mill products:						
33123 24	Blackplate .....	9	(D)	(D)	519,127	278,580	500,463
33123 26	Electrolytic and hot dipped tin plate .....	8	(D)	(D)	2,680,628	1,811,917	2,692,527
33123 28	Tin free steel .....	5	(D)	(D)	469,111	303,740	469,111
33123 29	All other tin mill products, including short ternes and foil .....	2	-	-	(D)	(D)	(D)
	Structural shapes (heavy):						
33124 15	Wide flange .....	5	-	-	(D)	(D)	(D)
33124 17	Standard heavy shapes .....	10	-	-	2,230,822	1,033,386	2,230,822
33124 18	Sheet piling and bearing piles .....	3	-	-	(D)	(D)	(D)
	Bars:						
33124 22	Hot-rolled bars (except concrete reinforcing) . . .	35	979,065	7,481	6,152,814	2,835,567	5,181,231
33124 24	Light structurals (under 3 inches) .....	9	(D)	(D)	1,355,087	533,829	1,354,906
33124 26	Concrete reinforcing bars .....	19	(D)	(D)	'5,251,771	'1,736,803	'5,278,502
33168 11	Cold-finished bars .....	35	(D)	(D)	'1,385,977	1,139,238	'1,320,732
3312C —	Rails, wheels, and track accessories <sup>5</sup> .....	10	(D)	(D)	755,988	490,614	666,087
	Pipe and tubes:						
	Line pipe:						
33170 14	16 inches outside diameter and under .....	23	-	-	1,132,196	658,046	1,132,196
33170 15	Over 16 inches outside diameter .....	8	-	-	479,011	325,633	479,011
33170 19	Oil country goods .....	15	-	-	1,184,019	793,064	1,184,019
	Pressure tubing:						
33170 21	Seamless .....	9	(D)	(D)	'125,353	'114,411	'118,646
33170 22	Welded .....	15	-	-	334,913	399,179	334,913
	Mechanical tubing:						
33170 23	Seamless .....	13	(D)	(D)	108,657	130,790	106,850
33170 24	Welded .....	60	(D)	(D)	2,086,233	'2,097,424	2,064,648
33170 27	Structurals .....	26	(D)	(D)	'1,299,164	'802,195	'1,295,535
33170 29	Miscellaneous, including standard pipe .....	30	(D)	(D)	1,473,878	1,008,029	1,470,123
	Wire:						
	Plain wire:						
33155 01	Flat wire .....	9	(D)	(D)	30,744	34,714	28,726
	Round wire:						
	Thermally treated:						
33155 02	Under 1.5 mm in diameter .....	16	(D)	(D)	'57,752	'74,359	'24,883
33155 03	1.5 mm or above in diameter .....	23	(D)	(D)	230,942	183,698	'158,152
	Other round wire:						
33155 04	Under 1.5 mm in diameter .....	13	(D)	(D)	222,457	268,222	'234,578
33155 05	1.5 mm or above in diameter .....	38	(D)	(D)	1,191,821	652,252	'1,033,423
33155 06	Other shape wire .....	10	(D)	(D)	274,505	134,489	274,381

See footnotes at end of table.

**Table 8. Receipts, Consumption, Shipments, and Net Shipments of Steel Mill Products: 1996—Con.**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Receipts <sup>2 3</sup> (quantity)	Steel consumed in producing plants (quantity)	Total shipments		Net shipments <sup>4</sup> (quantity)
					Quantity	Value f.o.b. plant	
	Steel—Con.						
	Carbon steel—Con.						
	Finished products—Con.						
	Plated or coated with zinc:						
	Round wire:						
33155 13	Under 1.5 mm in diameter . . . . .	12	(D)	(D)	56,074	49,480	'53,193
33155 14	1.5 mm or above in diameter . . . . .	22	(D)	(D)	'254,490	'174,240	'171,226
33155 15	Other shape wire, including flat . . . . .	9	(D)	(D)	76,708	55,370	'54,817
	Other coated wire:						
33155 17	Flat wire . . . . .	3	(D)	(D)	3,510	4,523	2,722
33155 18	Round wire . . . . .	18	(D)	(D)	121,835	132,654	'118,952
33155 21	Other shape wire . . . . .	6	(D)	(D)	48,844	59,497	48,834
	Wire products <sup>6</sup> :						
33152 21	Nails and staples . . . . .	24	(D)	(D)	581,078	706,329	580,066
33159 51	Barbed and twisted wire . . . . .	8	(D)	(D)	151,531	164,338	151,528
33156 21	Wire fence, woven and welded . . . . .	12	(D)	(D)	415,705	280,656	414,844
33159 55	Bale ties . . . . .	7	-	-	31,679	'22,474	31,679
33151 13	Wire rope and cable . . . . .	15	(D)	(D)	173,417	'382,889	172,914
	Wire strand:						
33151 33	For prestressed concrete . . . . .	8	-	-	'204,369	'146,094	'204,369
33151 35	Other . . . . .	14	-	-	'171,019	'237,015	'171,019
33157 71	Woven wire netting . . . . .	10	(D)	(D)	97,251	90,483	95,782
	Alloy steel . . . . .	81	1,570,668	'136,933	9,505,513	7,250,124	8,071,778
33122 31	Ingots . . . . .	12	(D)	(D)	315,877	205,463	393,100
	Semifinished products:						
33122 37	Blooms, billets, sheet bars, rounds, and skelp . . . . .	18	(D)	(D)	1,604,720	898,711	'539,877
33122 39	Wire rods . . . . .	4	(D)	(D)	(D)	(D)	(D)
33122 41	Slabs . . . . .	5	19,248	-	(D)	(D)	(D)
	Finished products:						
33124 33	Plates, cut lengths . . . . .	8	(D)	(D)	(D)	(D)	(D)
33124 36	Plates, in coils . . . . .	3	(D)	(D)	(D)	(D)	(D)
33124 38	Structural shapes (3 inches and under) . . . . .	3	-	-	(D)	(D)	(D)
	Sheet:						
33123 31	Hot rolled . . . . .	9	'21,654	-	'1,432,305	638,478	'1,410,651
33167 31	Cold rolled . . . . .	7	(D)	(D)	(D)	(D)	(D)
	Sheet and strip:						
	Galvanized:						
33123 35	Hot dipped . . . . .	3	-	-	125,674	88,744	125,674
33123 37	All other metallic coated, including electrolytic . . . . .	6	(D)	(D)	(D)	(D)	(D)
	Strip:						
33123 39	Hot rolled . . . . .	4	(D)	(D)	'1,709	'861	(D)
33167 35	Cold finished . . . . .	14	(D)	(D)	(D)	(D)	(D)
	Bars:						
33124 41	Hot rolled, including structural shapes under 3 inches . . . . .	17	(D)	(D)	2,305,411	1,413,716	2,090,916
33168 31	Cold finished . . . . .	25	(D)	(D)	423,182	'504,391	423,124
	Tool steel:						
33124 48	High speed . . . . .	7	(D)	(D)	12,434	112,385	11,309
33124 49	Other than high speed . . . . .	7	(D)	(D)	47,164	180,804	46,259
	Pipe and tubes:						
33170 32	Oil country goods and line pipe . . . . .	7	-	-	869,290	'721,820	869,290
33170 43	Pressure tubing . . . . .	7	(D)	(D)	9,285	30,146	8,812
33170 45	Mechanical tubing . . . . .	11	(D)	(D)	629,362	779,703	504,464
33170 48	Miscellaneous, including standard and structural . . . . .	5	(D)	(D)	(D)	(D)	(D)
33155 37	Wire (plain and coated) . . . . .	14	4,233	-	51,684	126,540	47,451

See footnotes at end of table.

**Table 8. Receipts, Consumption, Shipments, and Net Shipments of Steel Mill Products: 1996—Con.**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Receipts <sup>2 3</sup> (quantity)	Steel consumed in producing plants (quantity)	Total shipments		Net shipments <sup>4</sup> (quantity)
					Quantity	Value f.o.b. plant	
	Steel—Con.						
33122 51	Stainless steel .....	86	918,030	'66,451	'2,501,333	6,470,529	'1,649,753
	Ingots .....	13	(D)	(D)	'41,306	'76,716	(D)
	Semifinished products:						
33122 56	Blooms, billets, slabs, sheet bars, tube rounds, and skelp .....	16	(D)	(D)	262,086	414,706	'147,136
33122 59	Wire rods .....	5	15,758	-	34,068	106,309	'18,310
	Finished products:						
33124 53	Plates and structurals .....	6	6,823	-	'136,578	'433,762	'129,755
	Sheet and strip:						
33123 57	Hot rolled .....	6	562,734	-	513,807	876,590	(D)
33167 57	Cold rolled .....	16	(D)	(D)	'1,131,362	'2,619,197	'1,047,650
	Bars:						
33124 61	Hot rolled .....	7	(D)	(D)	57,652	200,120	35,903
33168 51	Cold finished .....	15	(D)	(D)	126,238	619,743	125,054
	Pipe and tubes:						
	Pressure tubing:						
33170 61	Seamless .....	8	-	-	10,062	108,855	10,062
33170 62	Welded .....	12	-	-	54,686	278,108	54,686
	Mechanical tubing:						
33170 63	Seamless .....	6	(D)	(D)	(D)	(D)	(D)
33170 64	Welded .....	18	(D)	(D)	66,894	316,650	66,893
33170 65	Other pipe and tube .....	7	(D)	(D)	'6,393	'37,672	'6,434
	Wire:						
	Round wire:						
33155 52	Under 0.75 mm in diameter .....	13	(D)	(D)	'13,699	'96,020	'13,204
33155 53	0.75 mm to under 1.5 mm in diameter .....	12	'275	-	'5,263	32,536	4,989
33155 54	1.5 mm and above in diameter .....	15	(D)	(D)	32,132	140,385	31,121
33155 57	Other shape wire, including flat wire .....	9	(D)	(D)	4,994	30,667	4,838

- Represents zero. D Withheld to avoid disclosing data for individual companies. In some cases, data that are otherwise publishable are withheld to avoid disclosing by subtraction from higher-level totals or from related data. NA Not available. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>Product codes in 33155 series also include products in 33125 series; same applies for 33167 and 33127; 33168 and 33128; and 33170 and 33126.

<sup>2</sup>Excludes receipts and shipments of steel processed on a conversion basis for nonsteel producing companies. Receipts data represent receipts at producing mills only and include receipts from domestic sources.

<sup>3</sup>Import receipts of steel mill products for 1996 are as follows: total, 6,595,762 metric tons; carbon, 6,352,642 metric tons; alloy, 87,977 metric tons; stainless 155,142 metric tons.

<sup>4</sup>Net shipments are derived from subtracting domestic receipts from total quantity shipments, plus steel consumed in producing plants.

<sup>5</sup>Product code 3312C — combines product codes 3312C 11, 3312C 13, 3312C 15, 3312C 17, 3312C 19, 3312C 21, and 3312C 23.

<sup>6</sup>Represents wire products produced within steel works and wire drawing establishments. See the 1992 Census of Manufactures, MC92-I-33A, Tables 6A-1 and 6A-2 for detailed information.

Note: Quantity data converted to metric tons; therefore, detail may not add to total because of rounding.



**Table 9. Minimill Shipments of Selected Steel Mill Products: 1997 and 1996**

[Quantity in metric tons]

Product code <sup>1</sup>	Product description	1997				1996			
		Number of minimill companies	Industry	Minimills	Percent of minimills	Number of minimill companies	Industry	Minimills	Percent of minimills
33122 11	Carbon steel <sup>2</sup> .....	27	46,880,087	16,447,981	35.1	27	44,847,716	15,682,565	35.0
	Ingots .....	1	103,620	(D)	(D)	1	131,376	(D)	(D)
	Semifinished products:								
33122 13, 20	Blooms, billets, slabs, sheet bars, tin mill bars, tube rounds, and skelp .....	18	3,254,693	1,104,815	33.9	19	3,455,488	1,276,168	36.9
33122 19	Wire rods .....	6	4,753,550	1,919,832	40.4	4	4,579,141	1,794,709	39.2
	Finished products:								
33124 13, 14	Plates, all lengths .....	4	(D)	908,006	(D)	4	4,343,826	862,069	19.8
33123 19	Hot-rolled strip .....	4	2,375,859	94,717	4.0	4	2,448,674	102,137	4.2
	Structural shapes (heavy):								
33124 15	Wide flange .....	3	(D)	830,576	(D)	3	(D)	979,416	(D)
33124 17	Standard heavy shapes .....	6	2,425,231	2,115,958	87.2	6	2,230,822	1,876,695	84.1
33124 18	Sheet piling and bearing piles .....	1	319,502	(D)	(D)	-	(D)	(D)	(D)
	Bars:								
33124 22	Hot-rolled bars (except concrete reinforcing) .....	16	6,549,080	3,559,558	54.4	16	6,152,814	3,497,328	56.8
33124 24	Light structurals (under 3 inches) .....	7	1,507,956	1,109,857	73.6	7	1,355,087	979,213	72.3
33124 26	Concrete reinforcing bars .....	11	5,562,491	3,765,259	67.7	11	5,251,771	3,350,523	63.8
33168 11	Cold-finished bars .....	2	1,523,004	(D)	(D)	2	1,385,977	(D)	(D)
3312C —	Rails, wheels, and track accessories <sup>3</sup> .....	2	923,119	(D)	(D)	2	755,988	(D)	(D)
	Pipe and tubes:								
33170 14	Line pipe, 16 inches outside diameter and under .....	2	1,189,785	(D)	(D)	2	1,132,196	(D)	(D)
33170 19	Oil country goods .....	2	1,504,802	(D)	(D)	2	1,184,019	(D)	(D)
33170 23	Mechanical tubing, seamless .....	1	122,020	(D)	(D)	1	108,657	(D)	(D)
33170 27	Structurals .....	2	1,561,067	(D)	(D)	2	1,299,164	(D)	(D)
33170 29	Miscellaneous, including standard pipe .....	2	1,623,340	(D)	(D)	2	1,473,878	(D)	(D)
33155 00	Wire <sup>4</sup> .....	2	(D)	(D)	(D)	2	2,569,682	(D)	(D)
3315- 00	Wire products <sup>5</sup> .....	1	1,796,406	(D)	(D)	1	1,826,049	(D)	(D)

- Represents zero.      D Withheld to avoid disclosing data for individual companies.      <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Product codes in 33155 series also include products in 33125 series, same applies for 33167 and 33127; 33168 and 33128; and 33170 and 33126.

<sup>2</sup>Total data are for selected product codes only.

<sup>3</sup>Product code 3312C — combines product codes 3312C 11, 3312C 13, 3312C 15, 3312C 17, 3312C 19, 3312C 21, and 3312C 23.

<sup>4</sup>Product code 33155 00 combines product codes 33155 01 through 33155 21.

<sup>5</sup>Product code 3315- 00 combines product codes 33152 21, 33159 51, 33156 21, 33159 55, 33151 13, 33151 33, 33151 35, and 33157 71.

Note: Quantity data converted to metric tons; therefore, detail may not add to total because of rounding.

**Table 10. Net Shipments, Exports, Imports, and Apparent Consumption of Steel Mill Products: 1997**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>3</sup>		Imports for consumption <sup>1 4</sup>		Apparent consumption <sup>6</sup>	
		Net (quantity) <sup>2</sup>	Total value f.o.b. plant	Quantity	Value at port	Quantity	Value c.i.f. <sup>5</sup>	Quantity	Value
	Total .....	88,885,576	68,088,621	3,840,840	3,793,360	14,209,094	194,661,712	99,253,830	258,956,973
	Carbon steel:								
33122 11	Ingots .....	212,758	53,357	32,546	29,793	22,463	18,643	202,675	42,207
33122 13, 20	Semifinished blooms, billets, sheet bars, tin mill bars, tube rounds, skelp, and slabs .....	(D)	966,885	88,486	37,793	5,426,395	38,701,453	(D)	39,630,545
33122 19	Semifinished wire rods .....	1,861,431	1,925,236	-	-	-	-	1,861,431	1,925,236
33124 13, 14	Finished plates, both cut in lengths and in coils .....	(D)	(D)	-	-	-	-	(D)	(D)
33123 11, 19	Finished sheet and strip, hot rolled including hot rolled bands .....	10,051,947	8,663,240	48,223	44,885	32,454	501,816	10,036,178	9,120,171
33167 11	Finished sheet, cold rolled .....	13,115,592	7,003,745	320,014	176,355	19,085	327,677	12,814,663	7,155,067
33123 13	Finished sheet and strip, galvanized, hot dipped .....	8,192,243	6,011,338	19,185	17,057	1,049,699	18,771,545	9,222,757	24,765,826
33123 15	Finished sheet and strip, galvanized, electrolytic .....	2,833,015	2,037,573	149,135	123,341	-	-	2,683,880	1,914,232
33123 17, 18	Finished sheet and strip, electrical and other metallic coating, including long ternes. ....	(D)	(D)	138,924	156,458	240,483	6,980,826	(D)	(D)
33167 15	Finished strip, cold rolled .....	1,110,472	1,121,427	20,794	25,322	6,482	696,305	1,096,160	1,792,410
	Finished tin mill products:								
33123 24	Blackplate .....	587,619	326,711	7,354	3,203	-	-	580,265	323,508
33123 26	Electrolytic and hot dipped tinplate .....	2,659,138	1,799,927	325,106	185,404	261,029	3,426,496	2,595,061	5,041,019
33123 28, 29	Tin free steel and other tin mill products, including short ternes and foil .....	(D)	(D)	(NA)	(NA)	(NA)	(NA)	(D)	(D)
33124 15, 17	Finished structural shapes (heavy), both wide flange and standard heavy shapes. ....	(D)	(D)	359,421	170,414	803,711	1,682,140	(D)	(D)
33124 18	Finished sheet piling and bearing piles .....	319,502	139,564	19,014	19,374	102,014	340,612	402,502	460,802
	Finished bars:								
33124 22	Hot-rolled bars (except concrete reinforcing) .....	5,440,303	3,005,627	109,694	67,612	132,979	1,437,339	5,463,588	4,375,354
33124 24	Light structurals (under 3 inches) .....	1,507,703	615,708	108,329	59,207	158,261	204,548	1,557,636	761,049
33124 26	Concrete reinforcing .....	5,562,491	1,891,580	163,019	60,919	637,661	5,509,926	6,037,133	7,340,587
33168 11	Cold finished .....	1,451,935	1,209,168	30,226	28,769	85,937	2,042,320	1,507,646	3,222,719
3312C —	Finished rails, wheels, and track accessories <sup>7</sup> .....	800,379	564,563	73,826	51,292	213,693	330,970	940,247	844,241
33170 14, 15	Finished line pipe, all diameters .....	1,582,325	995,722	405,671	382,328	802,621	10,677,859	1,979,275	11,291,253
33170 19	Finished pipe and tubes, oil country goods ..	1,504,802	1,027,380	179,197	207,685	116,589	592,385	1,442,194	1,412,080
33170 27	Finished pipe and tubes, structurals .....	1,557,212	936,806	108,292	88,425	521,283	2,631,038	1,970,203	3,479,419
33170 21-24, 29	Finished pipe and tubes, (except line pipe, oil country goods, and structurals) .....	4,388,745	4,155,835	114,058	164,785	830,495	10,877,987	5,105,183	14,869,037
33155 01-06	Finished plain wire .....	1,904,271	1,441,089	36,467	40,630	-	-	1,867,804	1,400,459
33155 13-15	Finished wire, plated or coated with zinc ...	270,425	283,589	10,070	12,558	-	-	260,355	271,031
33155 17-18, 21	Finished wire, plated or coated, other than with zinc .....	(D)	(D)	24,774	37,785	-	-	(D)	(D)
33152 21	Finished wire nails and staples .....	552,888	669,395	24,309	49,386	353,291	1,351,201	881,871	1,971,210
33159 51	Finished barbed and twisted wire .....	139,108	135,526	2,391	4,209	15,094	11,309	151,812	142,626
33156 21, 33157 71	Finished wire fence (woven and welded) and woven wire netting .....	505,978	367,022	9,542	17,279	52,161	290,590	548,598	640,333
33159 55	Finished wire bale ties .....	32,316	21,295	(NA)	(NA)	(NA)	(NA)	32,316	21,295
33151 13	Finished wire rope and cable .....	170,998	381,996	14,930	46,360	100,267	4,210,412	256,335	4,546,048
33151 33	Finished wire strand for prestressed concrete .....	215,178	150,016	3,785	4,172	71,598	1,202,316	282,992	1,348,160
33151 35	Finished wire strand (except for prestressed concrete) .....	177,231	240,328	(NA)	(NA)	(NA)	(NA)	177,231	240,328
	Alloy steel:								
33122 31	Ingots .....	389,451	198,773	30,469	29,448	8,740	226,170	367,722	395,495
33122 37, 41	Semifinished blooms, billets, sheet bars, tube rounds, skelp and slabs .....	(D)	(D)	28,750	44,270	252,437	3,054,156	(D)	(D)
33123 31, 35, 37, 39	Finished plate, sheet or strip, both hot and cold rolled or cold finished .....	(D)	(D)	191,687	159,280	495,652	11,097,463	(D)	(D)
33124 33, 36, 33167 31, 35	Semifinished wire rods, finished structural shapes (3 inches and under) and bars, hot rolled including structural shapes under 3 inches and cold finished .....	(D)	(D)	200,681	187,121	804,084	10,722,759	(D)	(D)
33124 48	Finished tool steel, high-speed .....	11,820	118,977	1,322	10,508	1,903	1,047,246	12,402	1,155,715
33124 49	Finished tool steel (except high speed) .....	46,635	182,722	10,463	32,157	49,500	3,818,440	85,672	3,969,005
33170 32	Finished oil country goods and line pipe .....	1,195,001	1,014,558	130,207	189,073	33,348	646,669	1,098,142	1,472,154
33155 37	Finished wire, plain or coated .....	55,049	137,976	34,025	75,545	58,473	4,282,849	79,497	4,345,280

See footnotes at end of table.

**Table 10. Net Shipments, Exports, Imports, and Apparent Consumption of Steel Mill Products: 1997—Con.**

[Quantity in metric tons. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>3</sup>		Imports for consumption <sup>1 4</sup>		Apparent consumption <sup>6</sup>	
		Net (quantity) <sup>2</sup>	Total value f.o.b. plant	Quantity	Value at port	Quantity	Value c.i.f. <sup>5</sup>	Quantity	Value
	Total—Con.								
	Stainless steel:								
33122 51	Ingots . . . . .	5,789	73,231	4,376	17,871	5,459	153,025	6,871	208,385
33122 56	Semifinished blooms, billets, slabs, sheet bars, tube rounds, and skelp. . . . .	399,106	456,424	-	-	-	-	399,106	456,424
33122 59, 33124 61	Semifinished wire rods and finished bars, hot rolled. . . . .	44,049	236,523	3,525	10,878	73,500	5,348,817	114,024	5,574,462
33124 53	Finished plates and structurals . . . . .	133,045	397,217	33,499	93,700	78,406	8,066,010	177,951	8,369,527
33123 57	Finished sheet and strip, hot rolled . . . . .	(D)	821,348	27,552	60,031	24,390	2,509,421	(D)	3,270,738
33167 57	Finished sheet and strip, cold rolled . . . . .	1,068,359	65,871	66,558	182,653	11,868	1,412,158	1,013,669	1,295,376
33168 51	Finished bars, cold finished. . . . .	130,185	584,587	6,579	37,600	64,298	10,931,458	187,904	11,478,445
33155 52-54, 57	Finished wire. . . . .	57,938	57,938	7,395	45,193	27,196	6,556,135	77,739	6,568,880
33170 43, 45, 48, 61-65	Alloy steel, including stainless, pipe and tubes, n.e.c. . . . .	(D)	(D)	116,972	305,232	164,091	11,971,223	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Includes quantities of steel consumed in steel producing plants in manufacture of fabricated products and maintenance, repair, and operating supplies (MRO), while excluding receipts. Refer to Table 7 for net shipments detail.

<sup>3</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>4</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>5</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>6</sup>Apparent consumption is derived by subtracting exports from total manufacturers' shipments plus imports.

<sup>7</sup>Data for manufacturers' shipments, product code 3312C— combines product codes 3312C 11, 3312C 13, 3312C 15, 3312C 17, 3312C 19, 3312C 21, and 3312C 23; for exports and imports, product code 3312C — combines product codes 3312C 11, 3312C 13, 3312C 15, and 3312C 17 (product codes 3312C 19, 3312C 21, and 3312C 23 are not applicable).

Note: Quantity data converted to metric tons; therefore, detail may not add to total because of rounding.

**HISTORICAL NOTE**

Data on steel mill products have been collected by the Census Bureau since 1921. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal

Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Renee Coley, 301-457-4742.

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## ALUMINUM INGOT AND MILL PRODUCTS (M33D)

### INTRODUCTION

These data cover companies engaged in the production, in the continental United States, of aluminum ingot and/or mill products. Master alloys are included. Receipts of imported aluminum products are also included. Companies engaged in tolling operations are also surveyed.

The statistics were collected by mail on Census Bureau monthly Form M33D, Aluminum Producers and Importers Report (Receipt, Shipments, and Stocks). The panel for this survey consists of all known producers of aluminum ingot and mill products shipping 10,000 pounds or more of aluminum ingot and mill products per month, approximately 250 companies. Based on an earlier study, small producers shipping less than 10,000 pounds per month would not significantly affect the survey results.

### SUMMARY OF FINDINGS

Net shipments of aluminum ingot and mill products totaled 14,992 million pounds in 1997, a 5-percent increase from the 14,244 million pounds in 1996.

### EXPLANATION OF TERMS

**Gross shipments.** Represents the quantity of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

**Receipts.** Represents metal physically received, both from imports and from domestic sources. Metal received under toll arrangements, even though title or ownership of the metal may remain with the shipper, is also included. Scrap receipts are not included.

**Inventories.** Includes all forms of scrap, ingot, metal in process, and finished products listed in this report. All metal physically in plant inventories at the end of the month, whether or not title or ownership of the metal may have been transferred, including toll arrangements.

**Ingot inventory.** All metal that is in the form of extrusion billets or other ingot and molten metal, primary and secondary.

**Scrap inventory.** Purchased and toll-treated aluminum-base scrap and sweated pig in all forms, as well as home or runaround scrap. Also includes remelt scrap ingot (RSI).

**All other inventory.** Includes all mill products that are in a finished state or are in the process of being finished.

**Integrated producers.** Companies in the United States that produce primary aluminum ingot (from alumina) and may also produce mill products.

**Nonintegrated producers.** Companies that produce mill products in the United States and that are not affiliated with a domestic primary ingot producer.

**Smelters.** Companies whose aluminum facilities are exclusively devoted to producing specification ingot from scrap.

**Ingot (billet), extrusion.** A solid or hollow cast form, usually cylindrical, suitable for extruding.

**Other ingot and molten metal, primary and secondary.** Molten aluminum or a solid form (other than extrusion ingot) suitable for remelting or fabricating, produced either from alumina or from scrap; excludes RSI, which is considered scrap until remelted and cast into specification ingot.

**Foil.** A flat rolled product, rectangular in cross-section, and less than 0.006 inch.

**Sheet.** A rolled product, flat or coiled, rectangular in cross-section, and 0.006 inch in thickness but under 0.250 inches in thickness.

**Plate.** A flat rolled product, rectangular in cross-section, and 0.250 inch or greater in thickness.

**Wire.** A solid wrought product that is long in relation to cross-section, which is square, round, rectangular, hexagonal, or octagonal in shape and whose diameter or greatest perpendicular distance between parallel faces (except for flattened wire) is less than 0.375 inch.

**Drawing stock (redraw rod) (continuous cast or rolled).** A solid round product that is long in relation to cross-section, 0.375 inch or greater in diameter, produced by continuous casting followed by size-rolling or by rolling from D.C. cast ingot, suitable for drawing into wire.

**Rod and bar (rolled and/or extruded).** A solid round, square, rectangular, hexagon, or octagonal-shaped product that is long in relation to cross-section, 0.375 inch or greater in diameter or in at least one perpendicular distance between parallel faces, produced by continuous casting or rolling or by extruding; other than drawing stock and D.C. cast ingot.

**Pipe and tube (extruded and drawn).** A hollow wrought product with a uniform wall thickness (except as affected by corner radii) that is long in relation to its cross-section, round, square, rectangular, hexagonal, octagonal, or elliptical in shape, produced either by hot extruding and/or brought to final dimensions by cold drawing through a die.

**Extruded shapes.** A product produced by extruding, that is long in relation to its cross-sectional dimension and has a cross-section other than that of rod and bar or pipe and tube.

**Cable, ACSR, and aluminum (bare).** Aluminum stranded conductor reinforced by a core of steel (ACSR); or any other bare stranded aluminum conductor.

**Powder, atomized.** Powder produced by blowing or aspirating molten metal through an orifice.

**Other flake, powder, and paste.** Includes the following products:

*Powder.* An aggregate of discrete particles of aluminum, substantially all of which are finer than 1,000 microns (minus 18 mesh).

*Paste.* A blend of powder or flake with a thinner or plasticizer.

*Powder, flaked.* Powder consisting of flat or scale-like particles of a thickness that is small compared with other dimensions, and is produced by milling in the presence of a lubricant.

**Forgings (excluding impact extrusions).** A product worked to a predetermined shape by one or more processes such as hammering, upsetting, pressing, and rolling.

**Impacts (excluding collapsible tubes and cans).** A product formed in a confining die from a metal slug, usually cold, by a rapid simple stroke application of force through a punch, causing the metal to flow around the punch, and/or through an opening in the punch or die.

Table 11. **Net Shipments and Inventories of Aluminum Ingot and Mill Products: 1997 and 1996**

[Thousands of pounds]

Month and year	Mill products	Month-end aluminum inventories <sup>1</sup>
<b>1997</b>		
<b>Total</b> .....	<b>14,991,777</b>	<b>4,109,234</b>
January .....	1,185,200	4,072,758
February .....	1,165,040	4,070,731
March .....	1,281,758	4,038,302
April .....	1,307,476	4,031,946
May .....	1,313,099	4,007,062
June .....	1,303,268	4,022,980
July .....	1,253,911	3,991,731
August .....	1,288,239	4,051,186
September .....	1,306,601	4,022,836
October .....	1,285,647	4,016,696
November .....	1,147,308	4,074,411
December .....	1,154,230	4,109,234
<b>1996</b>		
<b>Total</b> .....	<b>14,243,566</b>	<b>4,105,147</b>
January .....	1,074,958	4,407,205
February .....	1,092,671	4,500,904
March .....	1,251,728	4,458,880
April .....	1,219,592	4,479,322
May .....	1,309,289	4,366,330
June .....	1,153,132	4,395,034
July .....	1,164,012	4,356,657
August .....	1,263,251	4,256,482
September .....	1,183,077	4,222,933
October .....	1,251,857	4,120,789
November .....	1,156,552	4,085,255
December .....	1,123,447	4,105,147

<sup>1</sup>Use December inventory data for annual total inventory.

**Table 12. Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1997**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>
			Total			January			February		
	Aluminum mill products	(NA)	16,310,157	1,318,380	14,991,777	1,279,389	94,188	1,185,200	1,269,602	104,562	1,165,040
	Sheet, plate, and foil	(NA)	11,165,873	775,049	10,390,824	887,634	51,093	836,541	877,125	60,248	816,877
	Sheet	(NA)	9,624,299	775,049	8,849,250	764,035	51,093	712,942	753,853	60,248	693,605
33532 22	Nonheat-treatable <sup>2</sup>	21	9,344,069	775,049	8,569,020	740,642	51,093	689,549	730,506	60,248	670,258
33532 24	Heat-treatable	10	280,230	-	280,230	23,393	-	23,393	23,347	-	23,347
	Plate	(NA)	402,487	-	402,487	31,914	-	31,914	31,621	-	31,621
33531 15	Nonheat-treatable	6	112,867	-	112,867	9,462	-	9,462	9,994	-	9,994
33531 13	Heat-treatable	4	289,620	-	289,620	22,452	-	22,452	21,627	-	21,627
33533 00	Foil	13	1,139,087	-	1,139,087	91,685	-	91,685	91,651	-	91,651
	Rod, wire, and cable	(NA)	1,140,801	446,275	694,526	90,736	33,158	57,577	87,327	34,476	52,851
	Rod and bare wire	(NA)	504,370	446,275	58,095	40,419	33,158	7,261	41,839	34,476	7,363
33552 20	Drawing stock (redraw rod) <sup>3</sup>	5	373,191	446,275	(73,084)	28,676	33,158	(4,482)	31,148	34,476	(3,328)
33501 31	Bare wire	13	131,179	-	131,179	11,743	-	11,743	10,691	-	10,691
	Cable and insulated wire	(NA)	636,431	-	636,431	50,316	-	50,316	45,488	-	45,488
33501 63	ACSR and aluminum cable, bare	3	203,807	-	203,807	15,740	-	15,740	14,498	-	14,498
33570 99	Wire and cable, insulated or covered	9	432,624	-	432,624	34,576	-	34,576	30,990	-	30,990
	Rod, bar, pipe, tube, and shapes	(NA)	3,647,502	97,056	3,550,446	272,707	9,937	262,770	276,462	9,838	266,624
	Rod and bar (rolled and extruded)	(NA)	471,559	97,056	374,503	37,945	9,937	28,008	39,511	9,838	29,673
33500 20	Alloys other than 2,000 and 7,000 series	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33541 18	Alloys in 2,000 and 7,000 series	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Pipe and tube (extruded and drawn)	(NA)	341,436	(D)	341,436	27,379	(D)	27,379	27,033	(D)	27,033
33542 63	Alloys other than 2,000 and 7,000 series	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33542 61	Alloys in 2,000 and 7,000 series	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Extruded shapes	(NA)	2,834,507	-	2,834,507	207,383	-	207,383	209,918	-	209,918
33541 25	Alloys other than 2,000 and 7,000 series	84	2,723,979	-	2,723,979	199,193	-	199,193	201,296	-	201,296
33541 28	Alloys in 2,000 and 7,000 series	12	110,528	-	110,528	8,190	-	8,190	8,622	-	8,622
	All other	(NA)	355,981	-	355,981	28,312	-	28,312	28,688	-	28,688
	Powder and paste	(NA)	141,980	-	141,980	9,850	-	9,850	10,508	-	10,508
33991 13	Atomized	5	88,351	-	88,351	6,605	-	6,605	6,811	-	6,811
33991 16	Other flake, powder and paste	9	53,629	-	53,629	3,245	-	3,245	3,697	-	3,697
	Forgings and impacts	(NA)	214,001	-	214,001	18,462	-	18,462	18,180	-	18,180
34635 21	Forgings	20	157,169	-	157,169	13,865	-	13,865	13,697	-	13,697
34635 41	Impacts	7	56,832	-	56,832	4,597	-	4,597	4,483	-	4,483
19002 00	Scrap receipts <sup>4</sup>	(NA)	(NA)	6,961,058	(NA)	(NA)	586,612	(NA)	(NA)	589,388	(NA)
			March			April			May		
	Aluminum mill products	(NA)	1,396,514	114,756	1,281,758	1,428,726	121,250	1,307,476	1,432,429	119,330	1,313,099
	Sheet, plate, and foil	(NA)	954,200	68,243	885,957	987,611	69,258	918,353	999,456	76,531	922,925
	Sheet	(NA)	826,282	68,243	758,039	849,310	69,258	780,052	863,143	76,531	786,612
33532 22	Nonheat-treatable <sup>2</sup>	21	803,685	68,243	735,442	824,272	69,258	755,014	837,946	76,531	761,415
33532 24	Heat-treatable	10	22,597	-	22,597	25,038	-	25,038	25,197	-	25,197
	Plate	(NA)	31,096	-	31,096	31,607	-	31,607	33,624	-	33,624
33531 15	Nonheat-treatable	6	9,634	-	9,634	10,497	-	10,497	9,829	-	9,829
33531 13	Heat-treatable	4	21,462	-	21,462	21,110	-	21,110	23,795	-	23,795
33533 00	Foil	13	96,822	-	96,822	106,694	-	106,694	102,689	-	102,689

See footnotes at end of table.

Table 12. **Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1997—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	March			April			May		
			Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>
	Aluminum mill products—Con.										
	Rod, wire, and cable . . . . .	(NA)	97,021	37,239	59,782	104,438	42,943	61,495	98,179	35,852	62,327
33552 20	Rod and bare wire . . . . .	(NA)	43,547	37,239	6,308	44,921	42,943	1,978	45,267	35,852	9,415
	Drawing stock (redraw rod) <sup>3</sup> . . . . .	5	32,714	37,239	(4,525)	34,264	42,943	(8,679)	35,092	35,852	(760)
33501 31	Bare wire . . . . .	13	10,833	-	10,833	10,657	-	10,657	10,175	-	10,175
33501 63	Cable and insulated wire . . . . .	(NA)	53,474	-	53,474	59,517	-	59,517	52,912	-	52,912
	ACSR and aluminum cable, bare . . . . .	3	18,447	-	18,447	19,200	-	19,200	18,577	-	18,577
33570 99	Wire and cable, insulated or covered . . . . .	9	35,027	-	35,027	40,317	-	40,317	34,335	-	34,335
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	315,658	9,274	306,384	304,924	9,049	295,875	305,146	6,947	298,199
	Rod and bar (rolled and extruded) . . . . .	(NA)	43,072	9,274	33,798	39,948	9,049	30,899	38,898	6,947	31,951
33500 20	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33541 18	Alloys in 2,000 and 7,000 series . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Pipe and tube (extruded and drawn) . . . . .	(NA)	28,297	(D)	28,297	31,529	(D)	31,529	27,447	(D)	27,447
33542 63	Alloys other than 2,000 and 7,000 series . . . . .	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33542 61	Alloys in 2,000 and 7,000 series . . . . .	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Extruded shapes . . . . .	(NA)	244,289	-	244,289	233,447	-	233,447	238,801	-	238,801
33541 25	Alloys other than 2,000 and 7,000 series . . . . .	84	235,022	-	235,022	224,260	-	224,260	229,250	-	229,250
33541 28	Alloys in 2,000 and 7,000 series . . . . .	12	9,267	-	9,267	9,187	-	9,187	9,551	-	9,551
	All other . . . . .	(NA)	29,635	-	29,635	31,753	-	31,753	29,648	-	29,648
	Powder and paste . . . . .	(NA)	11,239	-	11,239	11,394	-	11,394	12,260	-	12,260
33991 13	Atomized . . . . .	5	7,160	-	7,160	7,094	-	7,094	8,313	-	8,313
33991 16	Other flake, powder and paste . . . . .	9	4,079	-	4,079	4,300	-	4,300	3,947	-	3,947
	Forgings and impacts . . . . .	(NA)	18,396	-	18,396	20,359	-	20,359	17,388	-	17,388
34635 21	Forgings . . . . .	20	13,706	-	13,706	15,251	-	15,251	12,612	-	12,612
34635 41	Impacts . . . . .	7	4,690	-	4,690	5,108	-	5,108	4,776	-	4,776
19002 00	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	649,155	(NA)	(NA)	648,132	(NA)	(NA)	654,998	(NA)
			June			July			August		
	Aluminum mill products . . . . .	(NA)	1,413,944	110,676	1,303,268	1,372,435	118,524	1,253,911	1,400,354	112,115	1,288,239
	Sheet, plate, and foil . . . . .	(NA)	958,222	65,444	892,778	942,988	75,079	867,909	954,417	69,798	884,619
	Sheet . . . . .	(NA)	825,050	65,444	759,606	795,864	75,079	720,785	830,037	69,798	760,239
33532 22	Nonheat-treatable <sup>2</sup> . . . . .	21	801,749	65,444	736,305	772,838	75,079	697,759	806,441	69,798	736,643
33532 24	Heat-treatable . . . . .	10	23,301	-	23,301	23,026	-	23,026	23,596	-	23,596
	Plate . . . . .	(NA)	34,786	-	34,786	33,607	-	33,607	34,470	-	34,470
33531 15	Nonheat-treatable . . . . .	6	10,671	-	10,671	10,662	-	10,662	8,987	-	8,987
33531 13	Heat-treatable . . . . .	4	24,115	-	24,115	22,945	-	22,945	25,483	-	25,483
33533 00	Foil . . . . .	13	98,386	-	98,386	113,517	-	113,517	89,910	-	89,910
	Rod, wire, and cable . . . . .	(NA)	100,522	35,966	64,556	94,983	36,229	58,754	98,968	36,236	62,732
33552 20	Rod and bare wire . . . . .	(NA)	44,875	35,966	8,909	40,340	36,229	4,111	42,435	36,236	6,199
	Drawing stock (redraw rod) <sup>3</sup> . . . . .	5	33,410	35,966	(2,556)	29,559	36,229	(6,670)	31,613	36,236	(4,623)
33501 31	Bare wire . . . . .	13	11,465	-	11,465	10,781	-	10,781	10,822	-	10,822
33501 63	Cable and insulated wire . . . . .	(NA)	55,647	-	55,647	54,643	-	54,643	56,533	-	56,533
	ACSR and aluminum cable, bare . . . . .	3	19,676	-	19,676	19,176	-	19,176	17,769	-	17,769
33570 99	Wire and cable, insulated or covered . . . . .	9	35,971	-	35,971	35,467	-	35,467	38,764	-	38,764

See footnotes at end of table.

**Table 12. Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1997—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	June			July			August			
			Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	
	Aluminum mill products—Con.											
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	326,654	9,266	317,388	304,367	7,216	297,151	315,980	6,081	309,899	
33500 20	Rod and bar (rolled and extruded) . . . . .	(NA)	42,952	9,266	33,686	34,805	7,216	27,589	34,946	6,081	28,865	
33541 18	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
	Alloys in 2,000 and 7,000 series . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
33542 63	Pipe and tube (extruded and drawn) . . . . .	(NA)	29,852	(D)	29,852	26,738	(D)	26,738	29,244	(D)	29,244	
33542 61	Alloys other than 2,000 and 7,000 series . . . . .	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
	Alloys in 2,000 and 7,000 series . . . . .	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
33541 25	Extruded shapes . . . . .	(NA)	253,850	-	253,850	242,824	-	242,824	251,790	-	251,790	
33541 28	Alloys other than 2,000 and 7,000 series . . . . .	84	244,047	-	244,047	233,876	-	233,876	242,541	-	242,541	
	Alloys in 2,000 and 7,000 series . . . . .	12	9,803	-	9,803	8,948	-	8,948	9,249	-	9,249	
	All other . . . . .	(NA)	28,546	-	28,546	30,097	-	30,097	30,989	-	30,989	
33991 13	Powder and paste . . . . .	(NA)	11,129	-	11,129	12,059	-	12,059	12,224	-	12,224	
33991 16	Atomized . . . . .	5	7,564	-	7,564	7,333	-	7,333	7,486	-	7,486	
	Other flake, powder and paste . . . . .	9	3,565	-	3,565	4,726	-	4,726	4,738	-	4,738	
34635 21	Forgings and impacts . . . . .	(NA)	17,417	-	17,417	18,038	-	18,038	18,765	-	18,765	
34635 41	Forgings . . . . .	20	11,337	-	11,337	13,717	-	13,717	13,625	-	13,625	
19002 00	Impacts . . . . .	7	6,080	-	6,080	4,321	-	4,321	5,140	-	5,140	
	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	556,436	(NA)	(NA)	570,910	(NA)	(NA)	558,578	(NA)	
			Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	
			September			October						
	Aluminum mill products . . . . .	(NA)	1,419,089	112,488	1,306,601	1,402,129			116,482		1,285,647	
	Sheet, plate, and foil . . . . .	(NA)	960,182	63,444	896,738	941,442			64,556		876,886	
33532 22	Sheet . . . . .	(NA)	833,078	63,444	769,634	810,731			64,556		746,175	
33532 24	Nonheat-treatable <sup>2</sup> . . . . .	21	808,428	63,444	744,984	786,071			64,556		721,515	
	Heat-treatable . . . . .	10	24,650	-	24,650	24,660			-		24,660	
33531 15	Plate . . . . .	(NA)	35,719	-	35,719	37,180			-		37,180	
33531 13	Nonheat-treatable . . . . .	6	8,838	-	8,838	8,397			-		8,397	
33533 00	Heat-treatable . . . . .	4	26,881	-	26,881	28,783			-		28,783	
	Foil . . . . .	13	91,385	-	91,385	93,531			-		93,531	
	Rod, wire, and cable . . . . .	(NA)	97,299	40,470	56,829	100,465			44,610		55,855	
33552 20	Rod and bare wire . . . . .	(NA)	42,586	40,470	2,116	39,058			44,610		(5,552)	
	Drawing stock (redraw rod) <sup>3</sup> . . . . .	5	31,505	40,470	(8,965)	27,749			44,610		(16,861)	
33501 31	Bare wire . . . . .	13	11,081	-	11,081	11,309			-		11,309	
33501 63	Cable and insulated wire . . . . .	(NA)	54,713	-	54,713	61,407			-		61,407	
33570 99	ACSR and aluminum cable, bare . . . . .	3	15,906	-	15,906	18,128			-		18,128	
	Wire and cable, insulated or covered . . . . .	9	38,807	-	38,807	43,279			-		43,279	

See footnotes at end of table.



**Table 12. Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1997—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>
	Aluminum mill products—Con.							
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	331,051	8,574	322,477	327,153	7,316	319,837
33500 20	Rod and bar (rolled and extruded) . . . . .	(NA)	40,579	8,574	32,005	39,009	7,316	31,693
33541 18	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)
	Alloys in 2,000 and 7,000 series . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)
33542 63	Pipe and tube (extruded and drawn) . . . . .	(NA)	29,726	(D)	29,726	31,742	(D)	31,742
33542 61	Alloys other than 2,000 and 7,000 series . . . . .	22	(D)	(D)	(D)	(D)	(D)	(D)
	Alloys in 2,000 and 7,000 series . . . . .	9	(D)	(D)	(D)	(D)	(D)	(D)
33541 25	Extruded shapes . . . . .	(NA)	260,746	-	260,746	256,402	-	256,402
33541 28	Alloys other than 2,000 and 7,000 series . . . . .	84	250,892	-	250,892	246,300	-	246,300
	Alloys in 2,000 and 7,000 series . . . . .	12	9,854	-	9,854	10,102	-	10,102
	All other . . . . .	(NA)	30,557	-	30,557	33,069	-	33,069
33991 13	Powder and paste . . . . .	(NA)	13,254	-	13,254	13,273	-	13,273
33991 16	Atomized . . . . .	5	7,986	-	7,986	7,315	-	7,315
	Other flake, powder and paste . . . . .	9	5,268	-	5,268	5,958	-	5,958
34635 21	Forgings and impacts . . . . .	(NA)	17,303	-	17,303	19,796	-	19,796
34635 41	Forgings . . . . .	20	12,445	-	12,445	15,043	-	15,043
19002 00	Impacts . . . . .	7	4,858	-	4,858	4,753	-	4,753
	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	580,899	(NA)	(NA)	513,520	(NA)
			November	December				
	Aluminum mill products . . . . .	(NA)	1,247,979	100,671	1,147,308	1,247,568	93,338	1,154,230
	Sheet, plate, and foil . . . . .	(NA)	844,430	56,060	788,370	858,166	55,295	802,871
33532 22	Sheet . . . . .	(NA)	727,404	56,060	671,344	745,512	55,295	690,217
33532 24	Nonheat-treatable <sup>2</sup> . . . . .	21	707,862	56,060	651,802	723,629	55,295	668,334
	Heat-treatable . . . . .	10	19,542	-	19,542	21,883	-	21,883
33531 15	Plate . . . . .	(NA)	31,565	-	31,565	35,298	-	35,298
33531 13	Nonheat-treatable . . . . .	6	6,900	-	6,900	8,996	-	8,996
33533 00	Heat-treatable . . . . .	4	24,665	-	24,665	26,302	-	26,302
	Foil . . . . .	13	85,461	-	85,461	77,356	-	77,356
	Rod, wire, and cable . . . . .	(NA)	84,761	37,937	46,824	86,103	31,159	54,944
33552 20	Rod and bare wire . . . . .	(NA)	38,824	37,937	887	40,259	31,159	9,100
	Drawing stock (redraw rod) <sup>3</sup> . . . . .	5	29,020	37,937	(8,917)	28,441	31,159	(2,718)
33501 31	Bare wire . . . . .	13	9,804	-	9,804	11,818	-	11,818
33501 63	Cable and insulated wire . . . . .	(NA)	45,937	-	45,937	45,844	-	45,844
33570 99	ACSR and aluminum cable, bare . . . . .	3	13,134	-	13,134	13,556	-	13,556
	Wire and cable, insulated or covered . . . . .	9	32,803	-	32,803	32,288	-	32,288

See footnotes at end of table.

Table 12. **Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1997—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	November		December	
						Gross shipments	Total receipts	Gross shipments	Total receipts
	Aluminum mill products—Con.								
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	293,142	6,674	286,468	274,258	6,884	267,374	
	Rod and bar (rolled and extruded) . . . . .	(NA)	38,880	6,674	32,206	41,014	6,884	34,130	
33500 20	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)	
33541 18	Alloys in 2,000 and 7,000 series . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	
	Pipe and tube (extruded and drawn) . . . . .	(NA)	26,220	(D)	26,220	26,229	(D)	26,229	
33542 63	Alloys other than 2,000 and 7,000 series . . . . .	22	(D)	(D)	(D)	(D)	(D)	(D)	
33542 61	Alloys in 2,000 and 7,000 series . . . . .	9	(D)	(D)	(D)	(D)	(D)	(D)	
	Extruded shapes . . . . .	(NA)	228,042	-	228,042	207,015	-	207,015	
33541 25	Alloys other than 2,000 and 7,000 series . . . . .	84	219,091	-	219,091	198,211	-	198,211	
33541 28	Alloys in 2,000 and 7,000 series . . . . .	12	8,951	-	8,951	8,804	-	8,804	
	All other . . . . .	(NA)	25,646	-	25,646	29,041	-	29,041	
	Powder and paste . . . . .	(NA)	10,766	-	10,766	14,024	-	14,024	
33991 13	Atomized . . . . .	5	6,415	-	6,415	8,269	-	8,269	
33991 16	Other flake, powder and paste . . . . .	9	4,351	-	4,351	5,755	-	5,755	
	Forgings and impacts . . . . .	(NA)	14,880	-	14,880	15,017	-	15,017	
34635 21	Forgings . . . . .	20	11,045	-	11,045	10,826	-	10,826	
34635 41	Impacts . . . . .	7	3,835	-	3,835	4,191	-	4,191	
19002 00	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	534,704	(NA)	(NA)	517,726	(NA)	

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>Net shipments are derived by subtracting total receipts from gross shipments.

<sup>2</sup>Receipts from "Heat-treatment sheet" are combined with "Nonheat-treatable sheet" to avoid disclosing data for individual companies.

<sup>3</sup>Receipts for "Bare wire" and "Cable and insulated wire" are included in "Drawing stock" to avoid disclosing data for individual companies.

<sup>4</sup>Data for "Scrap" are included in total aluminum mill products receipts or net shipments.

Note: Total receipts includes domestic and import receipts data.

**Table 13. Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1996**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>
			Total			January			February		
	Aluminum mill products .....	(NA)	15,564,845	1,321,279	14,243,566	1,175,186	100,228	1,074,958	1,195,499	102,828	1,092,671
	Sheet, plate, and foil .....	(NA)	10,630,761	788,995	9,841,766	805,528	57,143	748,385	823,365	60,344	763,021
	Sheet .....	(NA)	9,216,339	788,995	8,427,344	690,241	57,143	633,098	707,711	60,344	647,367
33532 22	Nonheat-treatable <sup>2</sup> .....	21	8,904,160	788,995	8,115,165	660,878	57,143	603,735	680,207	60,344	619,863
33532 24	Heat-treatable .....	10	312,179	-	312,179	29,363	-	29,363	27,504	-	27,504
	Plate .....	(NA)	302,005	-	302,005	27,458	-	27,458	24,679	-	24,679
33531 15	Nonheat-treatable .....	6	82,379	-	82,379	7,737	-	7,737	7,567	-	7,567
33531 13	Heat-treatable .....	4	219,626	-	219,626	19,721	-	19,721	17,112	-	17,112
33533 00	Foil .....	12	1,112,417	-	1,112,417	87,829	-	87,829	90,975	-	90,975
	Rod, wire, and cable .....	(NA)	1,108,194	438,015	670,179	89,111	35,466	53,645	89,995	35,477	54,518
	Rod and bare wire .....	(NA)	483,783	438,015	45,768	39,346	35,466	3,880	40,222	35,477	4,745
33552 20	Drawing stock (redraw rod) <sup>3</sup> .....	6	369,499	438,015	(68,516)	29,669	35,466	(5,797)	30,352	35,477	(5,125)
33501 31	Bare wire .....	12	114,284	-	114,284	9,677	-	9,677	9,870	-	9,870
	Cable and insulated wire .....	(NA)	624,411	-	624,411	49,765	-	49,765	49,773	-	49,773
33501 63	ACSR and aluminum cable, bare .....	5	230,842	-	230,842	18,717	-	18,717	20,874	-	20,874
33570 99	Wire and cable, insulated or covered .....	12	393,569	-	393,569	31,048	-	31,048	28,899	-	28,899
	Rod, bar, pipe, tube, and shapes .....	(NA)	3,492,033	94,269	3,397,764	251,330	7,619	243,711	254,724	7,007	247,717
	Rod and bar (rolled and extruded) .....	(NA)	432,676	94,269	338,407	37,692	7,619	30,073	34,644	7,007	27,637
33500 20	Alloys other than 2,000 and 7,000 series .....	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33541 18	Alloys in 2,000 and 7,000 series .....	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Pipe and tube (extruded and drawn) .....	(NA)	328,540	(D)	328,540	26,505	(D)	26,505	25,823	(D)	25,823
33542 63	Alloys other than 2,000 and 7,000 series .....	23	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33542 61	Alloys in 2,000 and 7,000 series .....	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Extruded shapes .....	(NA)	2,730,817	-	2,730,817	187,133	-	187,133	194,257	-	194,257
33541 25	Alloys other than 2,000 and 7,000 series .....	88	2,639,769	-	2,639,769	179,711	-	179,711	186,610	-	186,610
33541 28	Alloys in 2,000 and 7,000 series .....	11	91,048	-	91,048	7,422	-	7,422	7,647	-	7,647
	All other .....	(NA)	333,857	-	333,857	29,217	-	29,217	27,415	-	27,415
	Powder and paste .....	(NA)	115,657	-	115,657	9,313	-	9,313	8,772	-	8,772
33991 13	Atomized .....	5	79,161	-	79,161	7,131	-	7,131	6,543	-	6,543
33991 16	Other flake, powder and paste .....	8	36,496	-	36,496	2,182	-	2,182	2,229	-	2,229
	Forgings and impacts .....	(NA)	218,200	-	218,200	19,904	-	19,904	18,643	-	18,643
34635 21	Forgings .....	20	160,480	-	160,480	15,206	-	15,206	14,361	-	14,361
34635 41	Impacts .....	9	57,720	-	57,720	4,698	-	4,698	4,282	-	4,282
19002 00	Scrap receipts <sup>4</sup> .....	(NA)	(NA)	7,139,481	(NA)	(NA)	542,587	(NA)	(NA)	508,470	(NA)
			March			April			May		
	Aluminum mill products .....	(NA)	1,363,750	112,022	1,251,728	1,334,972	115,380	1,219,592	1,420,861	111,572	1,309,289
	Sheet, plate, and foil .....	(NA)	911,070	68,627	842,443	918,908	64,706	854,202	981,165	66,894	914,271
	Sheet .....	(NA)	794,939	68,627	726,312	795,327	64,706	730,621	854,809	66,894	787,915
33532 22	Nonheat-treatable <sup>2</sup> .....	21	768,300	68,627	699,673	770,303	64,706	705,597	824,982	66,894	758,088
33532 24	Heat-treatable .....	10	26,639	-	26,639	25,024	-	25,024	29,827	-	29,827
	Plate .....	(NA)	24,805	-	24,805	24,756	-	24,756	26,527	-	26,527
33531 15	Nonheat-treatable .....	6	6,451	-	6,451	6,014	-	6,014	7,363	-	7,363
33531 13	Heat-treatable .....	4	18,354	-	18,354	18,742	-	18,742	19,164	-	19,164
33533 00	Foil .....	12	91,326	-	91,326	98,825	-	98,825	99,829	-	99,829

See footnotes at end of table.

**Table 13. Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1996—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	March			April			May		
			Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>
	Aluminum mill products—Con.										
	Rod, wire, and cable . . . . .	(NA)	98,276	35,708	62,568	100,600	43,958	56,642	95,737	38,400	57,337
33552 20	Rod and bare wire . . . . .	(NA)	41,981	35,708	6,273	43,919	43,958	(39)	41,728	38,400	3,328
	Drawing stock (redraw rod) <sup>3</sup> . . . . .	6	31,845	35,708	(3,863)	34,400	43,958	(9,558)	32,493	38,400	(5,907)
33501 31	Bare wire . . . . .	12	10,136	-	10,136	9,519	-	9,519	9,235	-	9,235
33501 63	Cable and insulated wire . . . . .	(NA)	56,295	-	56,295	56,681	-	56,681	54,009	-	54,009
	ACSR and aluminum cable, bare . . . . .	5	24,441	-	24,441	22,949	-	22,949	21,849	-	21,849
33570 99	Wire and cable, insulated or covered . . . . .	12	31,854	-	31,854	33,732	-	33,732	32,160	-	32,160
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	326,155	7,687	318,468	286,691	6,716	279,975	315,122	6,278	308,844
	Rod and bar (rolled and extruded) . . . . .	(NA)	39,516	7,687	31,829	36,203	6,716	29,487	37,013	6,278	30,735
33500 20	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33541 18	Alloys in 2,000 and 7,000 series . . . . .	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Pipe and tube (extruded and drawn) . . . . .	(NA)	29,974	(D)	29,974	28,565	(D)	28,565	29,156	(D)	29,156
33542 63	Alloys other than 2,000 and 7,000 series . . . . .	23	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33542 61	Alloys in 2,000 and 7,000 series . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Extruded shapes . . . . .	(NA)	256,665	-	256,665	221,923	-	221,923	248,953	-	248,953
33541 25	Alloys other than 2,000 and 7,000 series . . . . .	88	248,719	-	248,719	214,504	-	214,504	241,240	-	241,240
33541 28	Alloys in 2,000 and 7,000 series . . . . .	11	7,946	-	7,946	7,419	-	7,419	7,713	-	7,713
	All other . . . . .	(NA)	28,249	-	28,249	28,773	-	28,773	28,837	-	28,837
	Powder and paste . . . . .	(NA)	9,489	-	9,489	9,284	-	9,284	10,205	-	10,205
33991 13	Atomized . . . . .	5	7,093	-	7,093	6,875	-	6,875	7,304	-	7,304
33991 16	Other flake, powder and paste . . . . .	8	2,396	-	2,396	2,409	-	2,409	2,901	-	2,901
	Forgings and impacts . . . . .	(NA)	18,760	-	18,760	19,489	-	19,489	18,632	-	18,632
34635 21	Forgings . . . . .	20	13,685	-	13,685	14,534	-	14,534	13,517	-	13,517
34635 41	Impacts . . . . .	9	5,075	-	5,075	4,955	-	4,955	5,115	-	5,115
19002 00	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	588,751	(NA)	(NA)	643,699	(NA)	(NA)	651,327	(NA)
			June			July			August		
	Aluminum mill products . . . . .	(NA)	1,265,246	112,114	1,153,132	1,270,190	106,178	1,164,012	1,379,074	115,823	1,263,251
	Sheet, plate, and foil . . . . .	(NA)	840,639	68,881	771,758	881,473	65,052	816,421	933,003	70,214	862,789
	Sheet . . . . .	(NA)	729,350	68,881	660,469	768,560	65,052	703,508	811,029	70,214	740,815
33532 22	Nonheat-treatable <sup>2</sup> . . . . .	21	705,825	68,881	636,944	745,567	65,052	680,515	786,614	70,214	716,400
33532 24	Heat-treatable . . . . .	10	23,525	-	23,525	22,993	-	22,993	24,415	-	24,415
	Plate . . . . .	(NA)	21,068	-	21,068	22,568	-	22,568	25,080	-	25,080
33531 15	Nonheat-treatable . . . . .	6	5,679	-	5,679	6,402	-	6,402	6,371	-	6,371
33531 13	Heat-treatable . . . . .	4	15,389	-	15,389	16,166	-	16,166	18,709	-	18,709
33533 00	Foil . . . . .	12	90,221	-	90,221	90,345	-	90,345	96,894	-	96,894
	Rod, wire, and cable . . . . .	(NA)	88,796	36,211	52,585	90,476	35,081	55,395	96,420	38,111	58,309
33552 20	Rod and bare wire . . . . .	(NA)	36,802	36,211	591	37,132	35,081	2,051	41,273	38,111	3,162
	Drawing stock (redraw rod) <sup>3</sup> . . . . .	6	27,955	36,211	(8,256)	28,220	35,081	(6,861)	31,521	38,111	(6,590)
33501 31	Bare wire . . . . .	12	8,847	-	8,847	8,912	-	8,912	9,752	-	9,752
33501 63	Cable and insulated wire . . . . .	(NA)	51,994	-	51,994	53,344	-	53,344	55,147	-	55,147
	ACSR and aluminum cable, bare . . . . .	5	18,760	-	18,760	17,650	-	17,650	19,831	-	19,831
33570 99	Wire and cable, insulated or covered . . . . .	12	33,234	-	33,234	35,694	-	35,694	35,316	-	35,316

See footnotes at end of table.

**Table 13. Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1996—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	
												June
	Aluminum mill products—Con.											
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	309,899	7,022	302,877	270,672	6,045	264,627	322,498	7,498	315,000	
	Rod and bar (rolled and extruded) . . . . .	(NA)	36,802	7,022	29,780	31,526	6,045	25,481	35,973	7,498	28,475	
33500 20	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
33541 18	Alloys in 2,000 and 7,000 series . . . . .	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
	Pipe and tube (extruded and drawn) . . . . .	(NA)	28,106	(D)	28,106	24,060	(D)	24,060	27,416	(D)	27,416	
33542 63	Alloys other than 2,000 and 7,000 series . . . . .	23	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
33542 61	Alloys in 2,000 and 7,000 series . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
	Extruded shapes . . . . .	(NA)	244,991	-	244,991	215,086	-	215,086	259,109	-	259,109	
33541 25	Alloys other than 2,000 and 7,000 series . . . . .	88	237,219	-	237,219	208,576	-	208,576	251,899	-	251,899	
33541 28	Alloys in 2,000 and 7,000 series . . . . .	11	7,772	-	7,772	6,510	-	6,510	7,210	-	7,210	
	All other . . . . .	(NA)	25,912	-	25,912	27,569	-	27,569	27,153	-	27,153	
	Powder and paste . . . . .	(NA)	9,197	-	9,197	11,218	-	11,218	9,209	-	9,209	
33991 13	Atomized . . . . .	5	6,453	-	6,453	7,325	-	7,325	5,751	-	5,751	
33991 16	Other flake, powder and paste . . . . .	8	2,744	-	2,744	3,893	-	3,893	3,458	-	3,458	
	Forgings and impacts . . . . .	(NA)	16,715	-	16,715	16,351	-	16,351	17,944	-	17,944	
34635 21	Forgings . . . . .	20	11,849	-	11,849	12,002	-	12,002	13,340	-	13,340	
34635 41	Impacts . . . . .	9	4,866	-	4,866	4,349	-	4,349	4,604	-	4,604	
19002 00	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	541,371	(NA)	(NA)	609,048	(NA)	(NA)	636,142	(NA)	
			Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>	
			September			October						
	Aluminum mill products . . . . .	(NA)	1,297,479	114,402	1,183,077	1,372,718	120,861	1,251,857				
	Sheet, plate, and foil . . . . .	(NA)	864,014	67,285	796,729	937,180	70,675	866,505				
	Sheet . . . . .	(NA)	745,900	67,285	678,615	807,307	70,675	736,632				
33532 22	Nonheat-treatable <sup>2</sup> . . . . .	21	720,418	67,285	653,133	779,843	70,675	709,168				
33532 24	Heat-treatable . . . . .	10	25,482	-	25,482	27,464	-	27,464				
	Plate . . . . .	(NA)	25,527	-	25,527	26,103	-	26,103				
33531 15	Nonheat-treatable . . . . .	6	6,887	-	6,887	7,497	-	7,497				
33531 13	Heat-treatable . . . . .	4	18,640	-	18,640	18,606	-	18,606				
33533 00	Foil . . . . .	12	92,587	-	92,587	103,770	-	103,770				
	Rod, wire, and cable . . . . .	(NA)	95,274	37,746	57,528	100,317	41,632	58,685				
	Rod and bare wire . . . . .	(NA)	41,478	37,746	3,732	45,006	41,632	3,374				
33552 20	Drawing stock (redraw rod) <sup>5</sup> . . . . .	6	32,162	37,746	(5,584)	34,221	41,632	(7,411)				
33501 31	Bare wire . . . . .	12	9,316	-	9,316	10,785	-	10,785				
33501 63	Cable and insulated wire . . . . .	(NA)	53,796	-	53,796	55,311	-	55,311				
	ACSR and aluminum cable, bare . . . . .	5	18,730	-	18,730	18,360	-	18,360				
33570 99	Wire and cable, insulated or covered . . . . .	12	35,066	-	35,066	36,951	-	36,951				

See footnotes at end of table.

Table 13. **Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1996—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	September		Net shipments <sup>1</sup>
						Gross shipments	Total receipts	
	Aluminum mill products—Con.							
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	313,109	9,371	303,738	306,862	8,554	298,308
33500 20	Rod and bar (rolled and extruded) . . . . .	(NA)	37,671	9,371	28,300	36,802	8,554	28,248
33541 18	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)
	Alloys in 2,000 and 7,000 series . . . . .	7	(D)	(D)	(D)	(D)	(D)	(D)
33542 63	Pipe and tube (extruded and drawn) . . . . .	(NA)	28,634	(D)	28,634	30,103	(D)	30,103
33542 61	Alloys other than 2,000 and 7,000 series . . . . .	23	(D)	(D)	(D)	(D)	(D)	(D)
	Alloys in 2,000 and 7,000 series . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)
33541 25	Extruded shapes . . . . .	(NA)	246,804	-	246,804	239,957	-	239,957
33541 28	Alloys other than 2,000 and 7,000 series . . . . .	88	238,803	-	238,803	231,919	-	231,919
	Alloys in 2,000 and 7,000 series . . . . .	11	8,001	-	8,001	8,038	-	8,038
	All other . . . . .	(NA)	25,082	-	25,082	28,359	-	28,359
33991 13	Powder and paste . . . . .	(NA)	9,739	-	9,739	9,951	-	9,951
33991 16	Atomized . . . . .	5	5,956	-	5,956	5,814	-	5,814
	Other flake, powder and paste . . . . .	8	3,783	-	3,783	4,137	-	4,137
34635 21	Forgings and impacts . . . . .	(NA)	15,343	-	15,343	18,408	-	18,408
34635 41	Forgings . . . . .	20	10,296	-	10,296	13,445	-	13,445
19002 00	Impacts . . . . .	9	5,047	-	5,047	4,963	-	4,963
	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	615,585	(NA)	(NA)	653,090	(NA)
			November		December			
	Aluminum mill products . . . . .	(NA)	1,263,950	107,398	1,156,552	1,225,920	102,473	1,123,447
	Sheet, plate, and foil . . . . .	(NA)	860,846	67,435	793,411	873,570	61,739	811,831
33532 22	Sheet . . . . .	(NA)	742,499	67,435	675,064	768,667	61,739	706,928
33532 24	Nonheat-treatable <sup>2</sup> . . . . .	21	716,829	67,435	649,394	744,394	61,739	682,655
	Heat-treatable . . . . .	10	25,670	-	25,670	24,273	-	24,273
33531 15	Plate . . . . .	(NA)	27,192	-	27,192	26,242	-	26,242
33531 13	Nonheat-treatable . . . . .	6	7,848	-	7,848	6,563	-	6,563
33533 00	Heat-treatable . . . . .	4	19,344	-	19,344	19,679	-	19,679
	Foil . . . . .	12	91,155	-	91,155	78,661	-	78,661
33552 20	Rod, wire, and cable . . . . .	(NA)	85,631	31,479	54,152	77,561	28,746	48,815
	Rod and bare wire . . . . .	(NA)	40,246	31,479	8,767	34,650	28,746	5,904
33501 31	Drawing stock (redraw rod) <sup>3</sup> . . . . .	6	31,089	31,479	(390)	25,572	28,746	(3,174)
33501 63	Bare wire . . . . .	12	9,157	-	9,157	9,078	-	9,078
33570 99	Cable and insulated wire . . . . .	(NA)	45,385	-	45,385	42,911	-	42,911
	ACSR and aluminum cable, bare . . . . .	5	13,629	-	13,629	15,052	-	15,052
	Wire and cable, insulated or covered . . . . .	12	31,756	-	31,756	27,859	-	27,859

See footnotes at end of table.

Table 13. **Shipments and Receipts of Aluminum Ingot and Mill Products by Type of Producer: 1996—Con.**

[Thousands of pounds]

Product code	Product description	Number of companies	Gross shipments	Total receipts	Net shipments <sup>1</sup>	Gross shipments	Total receipts	Net shipments <sup>1</sup>
	Aluminum mill products—Con.							
	Rod, bar, pipe, tube, and shapes . . . . .	(NA)	287,084	8,484	278,600	247,887	11,988	235,899
33500 20	Rod and bar (rolled and extruded) . . . . .	(NA)	36,039	8,484	27,555	32,795	11,988	20,807
33541 18	Alloys other than 2,000 and 7,000 series . . . . .	16	(D)	(D)	(D)	(D)	(D)	(D)
	Alloys in 2,000 and 7,000 series . . . . .	7	(D)	(D)	(D)	(D)	(D)	(D)
33542 63	Pipe and tube (extruded and drawn) . . . . .	(NA)	26,470	(D)	26,470	23,728	(D)	23,728
33542 61	Alloys other than 2,000 and 7,000 series . . . . .	23	(D)	(D)	(D)	(D)	(D)	(D)
	Alloys in 2,000 and 7,000 series . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)
33541 25	Extruded shapes . . . . .	(NA)	224,575	-	224,575	191,364	-	191,364
33541 28	Alloys other than 2,000 and 7,000 series . . . . .	88	216,305	-	216,305	184,264	-	184,264
	Alloys in 2,000 and 7,000 series . . . . .	11	8,270	-	8,270	7,100	-	7,100
	All other . . . . .	(NA)	30,389	-	30,389	26,902	-	26,902
33991 13	Powder and paste . . . . .	(NA)	10,162	-	10,162	9,118	-	9,118
33991 16	Atomized . . . . .	5	7,055	-	7,055	5,861	-	5,861
	Other flake, powder and paste . . . . .	8	3,107	-	3,107	3,257	-	3,257
34635 21	Forgings and impacts . . . . .	(NA)	20,227	-	20,227	17,784	-	17,784
34635 41	Forgings . . . . .	20	14,321	-	14,321	13,924	-	13,924
19002 00	Impacts . . . . .	9	5,906	-	5,906	3,860	-	3,860
	Scrap receipts <sup>4</sup> . . . . .	(NA)	(NA)	573,803	(NA)	(NA)	575,608	(NA)

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available.

<sup>1</sup>Net shipments are derived by subtracting total receipts from gross shipments.

<sup>2</sup>Receipts from "Heat-treatment sheet" are combined with "Nonheat-treatable sheet" to avoid disclosing data for individual companies.

<sup>3</sup>Receipts for "Bare wire" and "Cable and insulated wire" are included in "Drawing stock" to avoid disclosing data for individual companies.

<sup>4</sup>Data for "Scrap" are included in total aluminum mill products receipts or net shipments.

Note: Total receipts includes domestic and import receipts data.

**Table 14. Inventories of Aluminum Ingot, Mill Products, and Scrap by Type of Producer: 1997 and 1996**

[Thousands of pounds]

Type of inventory	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
<b>1997</b>												
<b>Total</b> . . . . .	<b>4,072,758</b>	<b>4,070,731</b>	<b>4,038,302</b>	<b>4,031,946</b>	<b>4,007,062</b>	<b>4,022,980</b>	<b>3,991,731</b>	<b>4,051,186</b>	<b>4,022,836</b>	<b>4,016,696</b>	<b>4,074,411</b>	<b>4,109,234</b>
Integrated . . . . .	2,823,332	2,861,248	2,847,317	2,826,478	2,807,615	2,815,239	2,808,313	2,830,262	2,827,839	2,822,420	2,854,289	2,880,668
Nonintegrated . . . . .	1,052,779	1,021,378	1,000,711	1,023,154	1,019,193	1,016,479	983,003	1,027,143	1,001,123	995,076	1,021,988	1,022,296
Smelters . . . . .	196,647	188,105	190,274	182,314	180,254	191,262	200,415	193,781	193,874	199,200	198,134	206,270
Ingot . . . . .	1,450,288	1,457,595	1,412,116	1,422,380	1,383,463	1,424,353	1,371,419	1,360,052	1,344,872	1,350,943	1,386,040	1,447,327
Integrated <sup>1</sup> . . . . .	1,043,193	1,045,462	1,012,418	1,023,209	1,008,996	1,027,062	997,762	982,532	969,658	984,636	1,009,320	1,029,129
Nonintegrated <sup>1</sup> . . . . .	318,966	322,667	307,276	304,764	281,989	298,208	277,423	282,600	284,519	274,379	280,824	313,902
Smelters <sup>1</sup> . . . . .	88,129	89,466	92,422	94,407	92,478	99,083	96,234	94,920	90,695	91,928	95,896	104,296
Scrap . . . . .	732,240	693,741	656,695	660,514	648,526	637,065	709,597	693,890	686,920	690,055	655,424	679,622
Integrated <sup>1</sup> . . . . .	375,506	357,347	337,448	338,262	341,246	327,746	373,261	363,811	359,878	360,510	338,414	366,339
Nonintegrated <sup>1</sup> . . . . .	248,216	237,755	221,395	234,345	219,504	217,140	232,155	231,218	223,863	222,273	214,772	211,309
Smelters <sup>1</sup> . . . . .	108,518	98,639	97,852	87,907	87,776	92,179	104,181	98,861	103,179	107,272	102,238	101,974
All other . . . . .	1,890,230	1,919,395	1,969,491	1,949,052	1,975,073	1,961,562	1,910,715	1,997,244	1,991,044	1,975,698	2,032,947	1,982,285
Integrated <sup>1</sup> . . . . .	1,404,633	1,458,439	1,497,451	1,465,007	1,457,373	1,460,431	1,437,290	1,483,919	1,498,303	1,477,274	1,506,555	1,485,200
Nonintegrated <sup>1 2</sup> . . . . .	485,597	460,956	472,040	484,045	517,700	501,131	473,425	513,325	492,741	498,424	526,392	497,085
Smelters <sup>1</sup> . . . . .	-	-	-	-	-	-	-	-	-	-	-	-
<b>1996</b>												
<b>Total</b> . . . . .	<b>4,407,205</b>	<b>4,500,904</b>	<b>4,458,880</b>	<b>4,479,322</b>	<b>4,366,330</b>	<b>4,395,034</b>	<b>4,356,657</b>	<b>4,256,482</b>	<b>4,222,933</b>	<b>4,120,789</b>	<b>4,085,255</b>	<b>4,105,147</b>
Integrated . . . . .	3,177,525	3,266,253	3,232,986	3,237,032	3,131,162	3,158,035	3,104,781	3,022,443	2,995,042	2,879,395	2,822,332	2,801,080
Nonintegrated . . . . .	1,030,074	1,025,129	1,017,931	1,022,241	1,010,110	1,008,213	1,011,193	1,004,680	1,007,784	1,031,580	1,052,727	1,069,984
Smelters . . . . .	199,606	209,522	207,963	220,049	216,068	228,786	240,683	229,359	220,107	209,814	210,196	234,083
Ingot . . . . .	1,745,345	1,739,208	1,705,924	1,685,618	1,617,898	1,607,584	1,596,003	1,521,280	1,505,381	1,446,118	1,448,304	1,466,766
Integrated <sup>3</sup> . . . . .	1,314,750	1,311,353	1,295,280	1,280,471	1,204,631	1,195,537	1,193,547	1,131,383	1,122,161	1,050,485	1,050,157	1,051,293
Nonintegrated <sup>3</sup> . . . . .	330,367	327,281	309,461	299,832	306,587	308,812	293,320	282,556	278,275	294,067	291,927	306,749
Smelters <sup>3</sup> . . . . .	100,228	100,574	101,183	105,315	106,680	103,235	109,136	107,341	104,945	101,566	106,220	108,724
Scrap . . . . .	634,405	678,378	640,682	662,035	670,539	698,403	757,494	751,966	715,237	701,314	702,717	704,174
Integrated <sup>3</sup> . . . . .	339,050	368,700	333,566	341,391	356,071	375,827	399,765	403,549	370,835	360,919	361,490	345,899
Nonintegrated <sup>3</sup> . . . . .	195,979	200,730	200,336	205,910	205,080	197,025	226,182	226,399	229,240	232,147	237,251	232,916
Smelters <sup>3</sup> . . . . .	99,376	108,948	106,780	114,734	109,388	125,551	131,547	122,018	115,162	108,248	103,976	125,359
Other . . . . .	2,027,455	2,083,318	2,112,274	2,131,669	2,077,893	2,089,047	2,003,160	1,983,236	2,002,315	1,973,357	1,934,234	1,934,207
Integrated <sup>3</sup> . . . . .	1,523,725	1,586,200	1,604,140	1,615,170	1,570,460	1,586,671	1,511,469	1,487,511	1,502,046	1,467,991	1,410,685	1,403,888
Nonintegrated <sup>2 3</sup> . . . . .	503,730	497,118	508,134	516,499	507,433	502,376	491,691	495,725	500,269	505,366	523,549	530,319
Smelters <sup>3</sup> . . . . .	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

<sup>1</sup>Number of companies reporting aluminum inventory data for December 1997 only are: Ingot integrated 13; Ingot nonintegrated 125; Ingot smelters 25; Scrap integrated 13; Scrap nonintegrated 124; Scrap smelters 22; Other integrated 11; Other nonintegrated 142; Other smelters 7.

<sup>2</sup>All other smelters are combined with "All other nonintegrated smelters" to avoid disclosing data for individual companies.

<sup>3</sup>Number of companies reporting aluminum inventory data for December 1996 only are: Ingot integrated 13; Ingot nonintegrated 118; Ingot smelters 22; Scrap integrated 13; Scrap nonintegrated 118; Scrap smelters 19; Other integrated 11; Other nonintegrated 142; and Other smelters 7.



**Table 15. Gross Shipments of Aluminum Mill Products by Type of Producer and Month: 1997**

[Thousands of pounds]

Product description	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated
	Total			January			February		
<b>Total .....</b>	<b>16,310,157</b>	<b>11,161,846</b>	<b>5,148,311</b>	<b>1,279,389</b>	<b>882,550</b>	<b>396,838</b>	<b>1,269,602</b>	<b>874,914</b>	<b>394,688</b>
Sheet and plate and foil.....	11,165,874	8,734,873	2,431,001	887,634	692,563	195,071	877,125	684,646	192,479
Drawing stock, wire, and cable .....	1,140,801	787,621	353,180	90,736	61,582	29,154	87,327	58,618	28,709
Rod and bare wire .....	504,369	414,227	90,142	40,419	32,261	8,158	41,839	34,397	7,442
Cable and insulated wire.....	636,432	373,394	263,038	50,316	29,321	20,995	45,488	24,221	21,267
Rod, bar, pipe, tube, and shapes ...	3,647,502	1,458,010	2,189,492	272,707	111,882	160,825	276,462	115,715	160,746
All other <sup>1</sup> .....	355,981	181,342	174,639	28,312	16,523	11,789	28,688	15,935	12,753
	March			April			May		
<b>Total .....</b>	<b>1,396,514</b>	<b>975,099</b>	<b>421,416</b>	<b>1,428,726</b>	<b>972,410</b>	<b>456,316</b>	<b>1,432,429</b>	<b>977,032</b>	<b>455,397</b>
Sheet and plate and foil.....	954,200	758,925	195,275	987,611	765,738	221,873	999,456	770,995	228,461
Drawing stock, wire, and cable .....	97,021	68,335	28,686	104,438	71,472	32,966	98,179	71,143	27,036
Rod and bare wire .....	43,547	36,046	7,501	44,921	37,399	7,522	45,267	38,044	7,223
Cable and insulated wire.....	53,474	32,289	21,185	59,517	34,073	25,444	52,912	33,099	19,813
Rod, bar, pipe, tube, and shapes ...	315,658	131,678	183,980	304,924	118,409	186,515	305,146	119,613	185,533
All other <sup>1</sup> .....	29,635	16,161	13,474	31,753	16,791	14,962	29,649	15,281	14,368
	June			July			August		
<b>Total .....</b>	<b>1,413,944</b>	<b>963,010</b>	<b>450,934</b>	<b>1,372,435</b>	<b>957,140</b>	<b>415,295</b>	<b>1,400,354</b>	<b>947,659</b>	<b>452,695</b>
Sheet and plate and foil.....	958,222	743,224	214,998	942,988	765,904	177,084	954,417	743,861	210,556
Drawing stock, wire, and cable .....	100,522	71,159	29,363	94,983	66,009	28,974	98,968	68,828	30,140
Rod and bare wire .....	44,875	37,278	7,597	40,340	32,850	7,490	42,435	35,284	7,151
Cable and insulated wire.....	55,647	33,881	21,766	54,643	33,159	21,484	56,533	33,544	22,989
Rod, bar, pipe, tube, and shapes ...	326,654	134,546	192,106	304,367	109,382	194,985	315,980	119,324	196,656
All other <sup>1</sup> .....	28,548	14,081	14,467	30,097	15,845	14,252	30,989	15,646	15,343
	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated
	September			October					
<b>Total .....</b>	<b>1,419,089</b>	<b>964,058</b>	<b>455,032</b>	<b>1,402,128</b>	<b>941,632</b>	<b>460,496</b>			
Sheet and plate and foil.....	960,182	746,898	213,284	941,442	734,113	207,329			
Drawing stock, wire, and cable .....	97,299	66,692	30,607	100,465	66,715	33,750			
Rod and bare wire .....	42,586	35,037	7,549	39,058	31,516	7,542			
Cable and insulated wire.....	54,713	31,655	23,058	61,407	35,199	26,208			
Rod, bar, pipe, tube, and shapes ...	331,051	135,160	195,891	327,153	124,681	202,472			
All other <sup>1</sup> .....	30,557	15,308	15,249	33,068	16,123	16,945			
	November			December					
<b>Total .....</b>	<b>1,247,980</b>	<b>847,933</b>	<b>400,047</b>	<b>1,247,568</b>	<b>858,409</b>	<b>389,159</b>			
Sheet and plate and foil.....	844,430	659,110	185,320	858,166	668,896	189,270			
Drawing stock, wire, and cable .....	84,762	58,852	25,910	86,103	58,216	27,887			
Rod and bare wire .....	38,824	32,512	6,312	40,259	31,603	8,656			
Cable and insulated wire.....	45,937	26,340	19,597	45,844	26,613	19,231			
Rod, bar, pipe, tube, and shapes ...	293,142	118,546	174,596	274,258	119,074	155,184			
All other <sup>1</sup> .....	25,646	11,425	14,221	29,041	12,223	16,818			

<sup>1</sup>Data for shipments of "All other" include "Powder and paste" and "Forgings and impacts."

**Table 16. Gross Shipments of Aluminum Mill Products by Type of Producer and Month: 1996**

[Thousands of pounds]

Product description	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated
	Total			January			February		
<b>Total .....</b>	<b>15,564,845</b>	<b>10,541,126</b>	<b>5,023,719</b>	<b>1,175,186</b>	<b>781,310</b>	<b>393,876</b>	<b>1,195,499</b>	<b>809,738</b>	<b>385,761</b>
Sheet and plate and foil.....	10,630,761	8,284,693	2,346,068	805,528	613,840	191,688	823,365	632,653	190,712
Drawing stock, wire, and cable .....	1,108,194	757,639	350,555	89,111	58,720	30,391	89,995	62,499	27,496
Rod and bare wire .....	483,783	398,484	85,299	39,346	32,355	6,991	40,222	32,831	7,391
Cable and insulated wire.....	624,411	359,155	265,256	49,765	26,365	23,400	49,773	29,668	20,105
Rod, bar, pipe, tube, and shapes ...	3,492,033	1,320,671	2,171,362	251,330	92,916	158,414	254,724	99,225	155,499
All other <sup>1</sup> .....	333,857	178,123	155,734	29,217	15,834	13,383	27,415	15,361	12,054
	March			April			May		
<b>Total .....</b>	<b>1,363,750</b>	<b>938,492</b>	<b>425,258</b>	<b>1,334,972</b>	<b>908,833</b>	<b>426,139</b>	<b>1,420,861</b>	<b>975,020</b>	<b>445,841</b>
Sheet and plate and foil.....	911,070	719,285	191,785	918,908	721,449	197,459	981,165	772,423	208,742
Drawing stock, wire, and cable .....	98,276	69,166	29,110	100,600	68,728	31,872	95,737	66,904	28,833
Rod and bare wire .....	41,981	34,654	7,327	43,919	36,919	7,000	41,728	34,936	6,792
Cable and insulated wire.....	56,295	34,512	21,783	56,681	31,809	24,872	54,009	31,968	22,041
Rod, bar, pipe, tube, and shapes ...	326,155	134,433	191,722	286,691	102,648	184,043	315,122	120,110	195,012
All other <sup>1</sup> .....	28,249	15,608	12,641	28,773	16,008	12,765	28,837	15,583	13,254
	June			July			August		
<b>Total .....</b>	<b>1,265,246</b>	<b>837,175</b>	<b>428,071</b>	<b>1,270,190</b>	<b>854,289</b>	<b>415,901</b>	<b>1,379,074</b>	<b>918,381</b>	<b>460,693</b>
Sheet and plate and foil.....	840,639	644,975	195,664	881,473	681,405	200,068	933,003	726,739	206,264
Drawing stock, wire, and cable .....	88,796	59,782	29,014	90,476	59,780	30,696	96,420	65,848	30,572
Rod and bare wire .....	36,802	30,017	6,785	37,132	30,665	6,467	41,273	33,990	7,283
Cable and insulated wire.....	51,994	29,765	22,229	53,344	29,115	24,229	55,147	31,858	23,289
Rod, bar, pipe, tube, and shapes ...	309,899	118,362	191,537	270,672	98,678	171,994	322,498	111,166	211,332
All other <sup>1</sup> .....	25,912	14,056	11,856	27,569	14,426	13,143	27,153	14,628	12,525
	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated	Total	Integrated	Noninte- grated
	September			October					
<b>Total .....</b>	<b>1,297,479</b>	<b>859,035</b>	<b>438,444</b>	<b>1,372,718</b>	<b>924,715</b>	<b>448,003</b>			
Sheet and plate and foil.....	864,014	660,188	203,826	937,180	730,168	207,012			
Drawing stock, wire, and cable .....	95,274	66,118	29,156	100,317	67,480	32,837			
Rod and bare wire .....	41,478	34,432	7,046	45,006	36,782	8,224			
Cable and insulated wire.....	53,796	31,686	22,110	55,311	30,698	24,613			
Rod, bar, pipe, tube, and shapes ...	313,109	120,255	192,854	306,862	112,053	194,809			
All other <sup>1</sup> .....	25,082	12,474	12,608	28,359	15,014	13,345			
	November			December					
<b>Total .....</b>	<b>1,263,950</b>	<b>865,735</b>	<b>398,215</b>	<b>1,225,920</b>	<b>868,403</b>	<b>357,517</b>			
Sheet and plate and foil.....	860,846	679,802	181,044	873,570	701,766	171,804			
Drawing stock, wire, and cable .....	85,631	60,163	25,468	77,561	52,451	25,110			
Rod and bare wire .....	40,246	33,163	7,083	34,650	27,740	6,910			
Cable and insulated wire.....	45,385	27,000	18,385	42,911	24,711	18,200			
Rod, bar, pipe, tube, and shapes ...	287,084	109,954	177,130	247,887	100,871	147,016			
All other <sup>1</sup> .....	30,389	15,816	14,573	26,902	13,315	13,587			

<sup>1</sup>Data for shipments of "All other" include "Powder and paste" and "Forgings and impacts."

**Table 17. Net Shipments of Aluminum Mill Products by Month: 1997 and 1996**

[Thousands of pounds]

Product description	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1997</b>													
Aluminum mill products . . . . .	14,991,777	1,185,200	1,165,040	1,281,758	1,307,476	1,313,099	1,303,268	1,253,911	1,288,239	1,306,601	1,285,647	1,147,308	1,154,230
Total receipts . . . . .	1,318,380	94,188	104,562	114,756	121,250	119,330	110,676	118,524	112,115	112,488	116,482	100,671	93,338
Sheet, plate, and foil . . . . .	10,390,824	836,541	816,877	885,957	918,353	922,925	892,778	867,909	884,619	896,738	876,886	788,370	802,871
Sheet, plate, and foil, total receipts . . . . .	775,049	51,093	60,248	68,243	69,258	76,531	65,444	75,079	69,798	63,444	64,556	56,060	55,295
Sheet and plate . . . . .	9,251,737	744,856	725,226	789,135	811,659	820,236	794,392	754,392	794,709	805,353	783,355	702,909	725,515
Sheet . . . . .	8,849,250	712,942	693,605	758,039	780,052	786,612	759,606	720,785	760,239	769,634	746,175	671,344	690,217
Nonheat-treatable . . . . .	8,569,020	689,549	670,258	735,442	755,014	761,415	736,305	697,759	736,643	744,984	721,515	651,802	668,334
Heat-treatable . . . . .	280,230	23,393	23,347	22,597	25,038	25,197	23,301	23,026	23,596	24,650	24,660	19,542	21,883
Plate . . . . .	402,487	31,914	31,621	31,096	31,607	33,624	34,786	33,607	34,470	35,719	37,180	31,565	35,298
Nonheat-treatable . . . . .	112,867	9,462	9,994	9,634	10,497	9,829	10,671	10,662	8,987	8,838	8,397	6,900	8,996
Heat-treatable . . . . .	289,620	22,452	21,627	21,462	21,110	23,795	24,115	22,945	25,483	26,881	28,783	24,665	26,302
Foil . . . . .	1,139,087	91,685	91,651	96,822	106,694	102,689	98,386	113,517	89,910	91,385	93,531	85,461	77,356
Rod, wire, and cable . . . . .	694,526	57,577	52,851	59,782	61,495	62,327	64,556	58,754	62,732	56,829	55,855	46,824	54,944
Rod and bare wire . . . . .	58,095	7,261	7,363	6,308	1,978	9,415	8,909	4,111	6,199	2,116	(5,552)	887	9,100
Drawing stock (redraw rod) . . . . .	(73,084)	(4,482)	(3,328)	(4,525)	(8,679)	(760)	(2,556)	(6,670)	(4,623)	(8,965)	(16,861)	(8,917)	(2,718)
Drawing stock (redraw rod), total receipts . . . . .	446,275	33,158	34,476	37,239	42,943	35,852	35,966	36,229	36,236	40,470	44,610	37,937	31,159
Bare wire . . . . .	131,179	11,743	10,691	10,833	10,657	10,175	11,465	10,781	10,822	11,081	11,309	9,804	11,818
Cable and insulated wire . . . . .	636,430	50,316	45,488	53,474	59,517	52,912	55,647	54,643	56,533	54,713	61,406	45,937	45,844
ACSR and aluminum cable, bare . . . . .	203,807	15,740	14,498	18,447	19,200	18,577	19,676	19,176	17,769	15,906	18,128	13,134	13,556
Wire and cable, insulated or covered . . . . .	432,623	34,576	30,990	35,027	40,317	34,335	35,971	35,467	38,764	38,807	43,278	32,803	32,288
Rod, bar, pipe, tube, and shapes . . . . .	3,550,446	262,770	266,624	306,384	295,875	298,199	317,388	297,151	309,899	322,477	319,837	286,468	267,374
Rod, bar, pipe, tube, and shapes, total receipts . . . . .	97,056	9,937	9,838	9,274	9,049	6,947	9,266	7,216	6,081	8,574	7,316	6,674	6,884
Rod and bar (rolled and extruded) . . . . .	374,503	28,008	29,673	33,798	30,899	31,951	33,686	27,589	28,865	32,005	31,693	32,206	34,130
Pipe and tube (extruded and drawn) . . . . .	341,436	27,379	27,033	28,297	31,529	27,447	29,852	26,738	29,244	29,726	31,742	26,220	26,229
Extruded shapes . . . . .	2,834,507	207,383	209,918	244,289	233,447	238,801	253,850	242,824	251,790	260,746	256,402	228,042	207,015
Alloys other than 2,000 and 7,000 series . . . . .	2,723,979	199,193	201,296	235,022	224,260	229,250	244,047	233,876	242,541	250,892	246,300	219,091	198,211
Alloys in 2,000 and 7,000 series . . . . .	110,528	8,190	8,622	9,267	9,187	9,551	9,803	8,948	9,249	9,854	10,102	8,951	8,804
All other . . . . .	335,981	28,312	28,688	29,635	31,753	29,648	28,546	30,097	30,989	30,557	33,069	25,646	29,041
Powder and paste . . . . .	141,980	9,850	10,508	11,239	11,394	12,260	11,129	12,059	12,224	13,254	13,273	10,766	14,024
Atomized . . . . .	88,351	6,605	6,811	7,160	7,094	8,313	7,564	7,333	7,486	7,986	7,315	6,415	8,269
Other flake, powder, and paste . . . . .	53,629	3,245	3,697	4,079	4,300	3,947	3,565	4,726	4,738	5,268	5,958	4,351	5,755
Forgings and impacts . . . . .	214,001	18,462	18,180	18,396	20,359	17,388	17,417	18,038	18,765	17,303	19,796	14,880	15,017
Forgings . . . . .	157,169	13,865	13,697	13,706	15,251	12,612	11,337	13,717	13,625	12,445	15,043	11,045	10,826
Impacts . . . . .	56,832	4,597	4,483	4,690	5,108	4,776	6,080	4,321	5,140	4,858	4,753	3,835	4,191
Scrap receipts <sup>1</sup> . . . . .	6,661,057	586,612	589,388	249,155	648,132	654,998	556,436	570,910	558,578	580,899	613,520	534,703	517,726
<b>1996</b>													
Aluminum mill products . . . . .	14,243,566	1,074,958	1,092,671	1,251,728	1,219,592	1,309,289	1,153,132	1,164,012	1,263,251	1,183,077	1,251,857	1,156,552	1,123,447
Total receipts . . . . .	1,321,279	100,228	102,828	112,022	115,380	111,572	112,114	106,178	115,823	114,402	120,861	107,398	102,473
Sheet, plate, and foil . . . . .	9,841,766	748,385	763,021	842,443	854,202	914,271	771,758	816,421	862,789	796,729	866,505	793,411	811,831
Sheet, plate, and foil, total receipts . . . . .	788,995	57,143	60,344	68,627	64,706	66,894	68,881	65,052	70,214	67,285	70,675	67,435	61,739

See footnotes at end of table.

**Table 17. Net Shipments of Aluminum Mill Products by Month: 1997 and 1996—Con.**

[Thousands of pounds]

Product description	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1996—Con.</b>													
Sheet, plate, and foil—Con.													
Sheet and plate . . . . .	8,729,349	660,556	672,046	751,117	755,377	814,442	681,537	726,076	765,895	704,142	762,735	702,256	733,170
Sheet . . . . .	8,427,344	633,098	647,367	726,312	730,621	787,915	660,469	703,508	740,815	678,615	736,632	675,064	706,928
Nonheat-treatable . . . . .	8,115,165	603,735	619,863	699,673	705,597	758,088	636,944	680,515	716,400	653,133	709,168	649,394	682,655
Heat-treatable . . . . .	312,179	29,363	27,504	26,639	25,024	29,827	23,525	22,993	24,415	25,482	27,464	25,670	24,273
Plate . . . . .	302,005	27,458	24,679	24,805	24,756	26,527	21,068	22,568	25,080	25,527	26,103	27,192	26,242
Nonheat-treatable . . . . .	82,379	7,737	7,567	6,451	6,014	7,363	5,679	6,402	6,371	6,887	7,497	7,848	6,563
Heat-treatable . . . . .	219,626	19,721	17,112	18,354	18,742	19,164	15,389	16,166	18,709	18,640	18,606	19,344	19,679
Foil . . . . .	1,112,417	87,829	90,975	91,326	98,825	99,829	90,221	90,345	96,894	92,587	103,770	91,155	78,661
Rod, wire, and cable . . . . .	670,179	53,645	54,518	62,568	56,642	57,337	52,585	55,395	58,309	57,528	58,685	54,152	48,815
Rod and bare wire . . . . .	45,768	3,880	4,745	6,273	(39)	3,328	591	2,051	3,162	3,732	3,374	8,767	5,904
Drawing stock (redraw rod) . . . . .	(68,516)	(5,797)	(5,125)	(3,863)	(9,558)	(5,907)	(8,256)	(6,861)	(6,590)	(5,584)	(7,411)	(390)	(3,174)
Drawing stock (redraw rod), domestic receipts . . . . .	438,015	35,466	35,477	35,708	43,958	38,400	36,211	35,081	38,111	37,746	41,632	31,479	28,746
Bare wire . . . . .	114,284	9,677	9,870	10,136	9,519	9,235	8,847	8,912	9,752	9,316	10,785	9,157	9,078
Cable and insulated wire . . . . .	624,411	49,765	49,773	56,295	56,681	54,009	51,994	53,344	55,147	53,796	55,311	45,385	42,911
ACSR and aluminum cable, bare . . . . .	230,842	18,717	20,874	24,441	22,949	21,849	18,760	17,650	19,831	18,730	18,360	13,629	15,052
Wire and cable, insulated or covered . . . . .	393,569	31,048	28,899	31,854	33,732	32,160	33,234	35,694	35,316	35,066	36,951	31,756	27,859
Rod, bar, pipe, tube, and shapes . . . . .	3,397,764	243,711	247,717	318,468	279,975	308,844	302,877	264,627	315,000	303,738	298,308	278,600	235,899
Rod, bar, pipe, tube and shapes, total receipts . . . . .	94,269	7,619	7,007	7,687	6,716	6,278	7,022	6,045	7,498	9,371	8,554	8,484	11,988
Rod and bar (rolled and extruded) . . . . .	338,407	30,073	27,637	31,829	29,487	30,735	29,780	25,481	28,475	28,300	28,248	27,555	20,807
Pipe and tube (extruded and drawn) . . . . .	328,540	26,505	25,823	29,974	28,565	29,156	28,106	24,060	27,416	28,634	30,103	26,470	23,728
Extruded shapes . . . . .	2,730,817	187,133	194,257	256,665	221,923	248,953	244,991	215,086	259,109	246,804	239,957	224,575	191,364
Alloys other than 2,000 and 7,000 series . . . . .	2,639,769	179,711	186,610	248,719	214,504	241,240	237,219	208,576	251,899	238,803	231,919	216,305	184,264
Alloys in 2,000 and 7,000 series . . . . .	91,048	7,422	7,647	7,946	7,419	7,713	7,772	6,510	7,210	8,001	8,038	8,270	7,100
All other . . . . .	333,857	29,217	27,415	28,249	28,773	28,837	25,912	27,569	27,153	25,082	28,359	30,389	26,902
Powder and paste . . . . .	115,657	9,313	8,772	9,489	9,284	10,205	9,197	11,218	9,209	9,739	9,951	10,162	9,118
Atomized . . . . .	79,161	7,131	6,543	7,093	6,875	7,304	6,453	7,325	5,751	5,956	5,814	7,055	5,861
Other flake, powder and paste . . . . .	36,496	2,182	2,229	2,396	2,409	2,901	2,744	3,893	3,458	3,783	4,137	3,107	3,257
Forgings and impacts . . . . .	218,200	19,904	18,643	18,760	19,489	18,632	16,715	16,351	17,944	15,343	18,408	20,227	17,784
Forgings . . . . .	160,480	15,206	14,361	13,685	14,534	13,517	11,849	12,002	13,340	10,296	13,445	14,321	13,924
Impacts . . . . .	57,720	4,698	4,282	5,075	4,955	5,115	4,866	4,349	4,604	5,047	4,963	5,906	3,860
Scrap receipts <sup>1</sup> . . . . .	7,139,481	542,587	508,470	588,751	643,699	651,327	541,371	609,048	636,142	615,585	653,090	573,803	575,608

<sup>1</sup>Data not included in net shipments information.

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**HISTORICAL NOTE**

Data on aluminum ingot and mill products have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

The M33D survey is conducted under the sponsorship of the Aluminum Association.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Mary W. Ellickson, 301-457-4736.

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## NONFERROUS CASTINGS (MA33E)

### INTRODUCTION

These data cover producers of nonferrous castings, whether for commercial sale or for use by the producing company.

The statistics were collected by mail on Census Bureau annual Form MA33E, Nonferrous Castings. The survey panel was first mailed for survey year 1994. It now consists of about 795 producers of nonferrous castings selected from approximately 2,500 establishments identified in the 1992 Census of Manufactures.

### SUMMARY OF FINDINGS

In 1997, the total shipments of nonferrous castings were 4,507 million pounds. This represented a 1-percent increase from the 1996 total shipments of 4,455 million pounds. Shipments of aluminum castings in 1997 totaled 3,107 million pounds, showing a 2-percent increase from the 1996 total of 3,042 million pounds. Shipments of copper castings totaled 560 million pounds in 1997, a 2-percent decrease from the 1996 total of 569 million pounds. The shipments of magnesium castings in 1997 totaled 38 million pounds, representing a 26-percent decrease from the 1996 total of 51 million pounds. Shipments of zinc castings increased 2 percent during 1997 to 434 million pounds, compared with the 1996 total of 423 million pounds. Shipments of lead castings during 1997 totaled 367 million pounds, representing a 1-percent decrease, compared with the 1996 total of 369 million pounds.

### EXPLANATION OF TERMS

**Shipments for sale.** Represents commercial sales only (castings shipped to the trade). Intracompany sales are not

included in this category. Value figures represent only these shipments.

**Shipments for own use.** Represents castings shipped for use by the reporting company or by a subsidiary, parent, or other affiliated company. Castings produced and consumed at the same location in the production of finished products are also included.

**Sand casting.** Castings produced by pouring molten metal into a sand mold and allowing it to solidify.

**Permanent mold casting.** Castings produced by introducing molten metal by gravity, or low pressure, into a mold constructed of durable material, usually iron or steel, and allowing it to solidify.

**Semipermanent casting.** Mold castings are made using an expendable core such as sand.

**Die casting.** Castings produced by introducing molten metal under high pressure into a metal mold or die and allowing it to solidify.

**Centrifugal casting.** Castings produced by pouring molten metal into a spinning mold. Centrifugal force acts to distribute the metal uniformly around the interior of the mold.

**Continuous casting.** Castings produced by introducing molten metal by gravity into a watercooled graphite die from which the solidified form is continuously drawn.

**Table 18. Producers' Shipments of Nonferrous Castings: 1997 and 1996**

[Thousands of pounds]

Year	By type of customer			By metal				
	Total	For sale	For own use	Aluminum and aluminum-base alloy	Copper and copper-base alloy	Magnesium and magnesium-base alloy	Zinc and zinc-base alloy	Lead and lead-base alloy die
1997.....	4,507,047	2,783,114	1,723,933	3,107,390	560,144	37,921	434,433	367,159
1996.....	4,454,861	2,798,149	1,656,712	3,042,161	569,119	51,448	423,085	369,048

**Table 19. Value of Shipments of Nonferrous Castings: 1997 and 1996**

[Value in thousands of dollars]

Product description	Value		Standard error of estimate (percent) for column —	
	1997	1996	A	B
	A	B	A	B
<b>Nonferrous castings.....</b>	<b>6,981,786</b>	<b>6,798,192</b>	<b>(NA)</b>	<b>(NA)</b>
Aluminum and aluminum-based alloy.....	4,967,925	4,724,290	5.5	4.7
Copper and copper-based alloy.....	980,162	983,955	2.2	2.1
Magnesium and magnesium-based alloy.....	216,719	272,842	1.8	1.1
Zinc and zinc-based alloy.....	807,072	780,127	2.4	2.0
Lead and lead-based alloy.....	9,908	7,978	14.5	17.0

NA Not available.      †Revised by 5 percent or more from previously published data.

Table 20. **Quantity of Shipments of Nonferrous Castings by Type and Method of Castings: 1997 and 1996**

[Quantity in thousands of pounds]

Product code	Product description	Quantity		Standard error of estimate (percent) for column —	
		1997	1996	A	B
		A	B	A	B
	Nonferrous castings .....	4,507,047	4,454,861	(NA)	(NA)
	For sale .....	2,783,114	2,798,149	(NA)	(NA)
	For own use .....	1,723,933	1,656,712	(NA)	(NA)
	Aluminum and aluminum-base alloy .....	3,107,390	3,042,161	(NA)	(NA)
	For sale .....	2,025,865	2,034,027	7.5	6.7
	For own use .....	1,081,525	1,008,134	0.6	0.7
33650 11	Sand .....	338,287	365,963	(NA)	(NA)
	For sale .....	310,760	332,529	2.3	2.0
	For own use .....	27,527	33,434	1.2	1.4
33650 31	Permanent and semipermanent mold <sup>1</sup> .....	1,031,799	1,029,088	(NA)	(NA)
33630 00	Die .....	1,476,729	1,390,593	(NA)	(NA)
	For sale .....	938,047	881,968	16.1	15.4
	For own use .....	538,682	508,625	1.2	1.4
33650 61	All other <sup>1</sup> .....	260,575	256,517	(NA)	(NA)
	Copper and copper-base alloy .....	560,144	569,119	(NA)	(NA)
	For sale .....	354,760	356,768	3.2	3.0
	For own use .....	205,384	212,351	0.7	0.7
33660 26	Sand .....	270,278	276,686	(NA)	(NA)
	For sale .....	157,029	156,596	6.5	6.4
	For own use .....	113,249	120,090	1.2	1.3
33660 31	Permanent and semipermanent mold <sup>1</sup> .....	45,425	42,539	(NA)	(NA)
33640 11	Die <sup>1</sup> .....	25,749	7,941	(NA)	(NA)
33660 41	Centrifugal <sup>1</sup> .....	54,260	51,373	(NA)	(NA)
33660 61	All other <sup>1</sup> .....	164,432	190,580	(NA)	(NA)
	Magnesium and magnesium-base alloy .....	37,921	51,448	(NA)	(NA)
	For sale .....	(D)	(D)	(NA)	(NA)
	For own use .....	(D)	(D)	(NA)	(NA)
33690 15	Sand <sup>1</sup> .....	(D)	(D)	(NA)	(NA)
33640 31	Die <sup>1</sup> .....	28,138	41,108	(NA)	(NA)
33690 41	All other .....	(D)	(D)	(NA)	(NA)
	Zinc and zinc-base alloy .....	434,433	423,085	(NA)	(NA)
	For sale .....	352,260	344,003	2.1	1.6
	For own use .....	82,173	79,082	2.5	2.7
33640 21	Die <sup>1</sup> .....	408,740	397,993	(NA)	(NA)
33690 11	All other <sup>1</sup> .....	25,693	25,092	(NA)	(NA)
33640 41	Lead and lead-base alloy die <sup>1</sup> .....	367,159	369,048	(NA)	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Castings "For sale" and "For own use" are combined to avoid disclosing data for individual companies.

Note: Comparable data for Schedule B export numbers and HTSUSA import numbers are not available.

### HISTORICAL NOTE

Data on nonferrous castings have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal

Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

### CONTACT FOR DATA USERS

For additional information about these data, contact Michael Taylor, 301-457-4742.



## INVENTORIES OF STEEL PRODUCING MILLS (M33J)

### INTRODUCTION

These data cover producers and steel service centers. Important nonmanufacturing activities such as construction and mining are not included.

The statistics are based on a survey of manufacturers and represent total U.S. inventories of steel mill shapes and forms. Estimates are included for companies whose reports were not received in time for tabulation.

Data for producers are based on information collected by mail on Census Bureau monthly Form M33J, Net Shipments and Inventories of Steel Mill Shapes and Forms (Producers Report), from companies that produce over 90 percent of total steel output. Estimates have been derived to represent 100-percent coverage of steel producers. These estimates are benchmarked annually to Current Industrial Reports Series MA33B, *Steel Mill Products*, the last being 1996.

### SUMMARY OF FINDINGS

Total inventories of steel mill shapes and forms held by steel producers, and steel service centers (warehouses) increased from 19.9 million short tons at the end of December 31, 1996, to 20.5 million short tons in 1997.

Inventories held by steel service centers increased from 7.0 million short tons to 7.3 million short tons in 1997, and inventories held by steel producers increased from 12.9 to 13.2 million short tons for 1997.

### EXPLANATION OF TERMS

**Steel mill shapes and forms.** Steel mill shapes and forms include ingot, semifinished shapes such as billets and wire rods, bar and bar shapes, sheet, strip plate, tinplate, terneplate, blackplate, wire, structural shapes, and piling.

Rough and machined castings and forgings, powder, and all fabricated steel products or components such as purchased stampings are excluded.

Table 21. **Inventories of Steel Mill Shapes and Forms Held by Steel Service Centers, Steel Producers, and Related Statistics: 1997 and 1996**

[Million short tons]

Product description	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1997</b>												
<b>Total inventories . . . . .</b>	<b>19.7</b>	<b>19.8</b>	<b>19.8</b>	<b>20.1</b>	<b>20.3</b>	<b>20.1</b>	<b>20.1</b>	<b>20.1</b>	<b>20.0</b>	<b>20.0</b>	<b>20.3</b>	<b>20.5</b>
Steel service centers: <sup>1</sup>												
Inventories, end-of-month <sup>1</sup> . . .	6.9	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.3
Producing mills:												
Inventories, end-of-month . . . .	12.8	12.8	12.8	12.9	13.1	12.9	12.9	12.9	12.8	12.8	13.1	13.2
Steel in process . . . . .	7.3	7.3	7.3	7.3	7.5	7.4	7.4	7.3	7.2	7.2	7.3	7.4
Finished steel . . . . .	5.5	5.5	5.5	5.6	5.6	5.5	5.5	5.6	5.6	5.6	5.8	5.8
<b>1996</b>												
<b>Total inventories . . . . .</b>	<b>19.4</b>	<b>19.0</b>	<b>19.1</b>	<b>19.2</b>	<b>18.9</b>	<b>19.2</b>	<b>19.5</b>	<b>19.6</b>	<b>19.6</b>	<b>19.6</b>	<b>19.7</b>	<b>19.9</b>
Steel service centers: <sup>1</sup>												
Inventories, end-of-month <sup>1</sup> . . .	6.3	6.3	6.2	6.5	6.5	6.6	6.7	6.8	6.8	6.8	6.8	7.0
Producing mills:												
Inventories, end-of-month . . . .	13.1	12.7	12.9	12.7	12.4	12.6	12.8	12.8	12.8	12.8	12.9	12.9
Steel in process . . . . .	7.4	7.2	7.2	7.3	7.2	7.2	7.3	7.2	7.3	7.2	7.3	7.3
Finished steel . . . . .	5.7	5.5	5.7	5.4	5.2	5.4	5.5	5.6	5.5	5.6	5.6	5.6

<sup>1</sup>Source: Steel Service Center Institute.

Table 22. **Net Shipments and Imports of Steel Mill Shapes: 1997 and 1996**

[Thousands of short tons]

Month and year	Manufacturers' net shipments <sup>1</sup>	Imports for consumption <sup>2</sup>
<b>1997</b>		
<b>Total.....</b>	<b>104,957</b>	<b>27,284</b>
December.....	8,648	1,854
November.....	8,467	2,052
October.....	9,424	2,311
September.....	9,072	2,273
August.....	8,668	2,142
July.....	8,785	2,433
June.....	8,968	2,316
May.....	8,768	2,520
April.....	8,907	2,338
March.....	8,529	2,162
February.....	8,091	2,127
January.....	8,630	2,756
<b>1996</b>		
<b>Total.....</b>	<b>100,130</b>	<b>25,566</b>
December.....	8,043	2,255
November.....	7,906	2,778
October.....	8,812	2,495
September.....	8,307	2,332
August.....	8,407	2,599
July.....	8,097	2,288
June.....	8,335	1,985
May.....	8,817	2,021
April.....	8,538	1,880
March.....	8,428	1,614
February.....	8,260	1,632
January.....	8,180	1,687

<sup>1</sup>Source: American Iron and Steel Institute (AISI).

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*. Import tonnage is derived from following HTSUSA import numbers: 7206.10.0000 - 7306.90.5000.

Table 23. **Comparison of Manufacturers' Net Shipments With Apparent Consumption of Steel Mill Shapes by Selected Years: 1992 to 1996**

[Thousands of short tons]

Product description	1996	1995	1994	1993	1992
Manufacturers' net shipments .....	87,473	85,118	99,144	91,372	82,895
Exports <sup>1</sup> .....	3,123	6,355	3,527	3,653	3,863
Imports <sup>2</sup> .....	14,449	21,163	26,675	17,898	16,045
Apparent consumption <sup>3</sup> .....	98,799	99,926	122,292	105,617	95,077

<sup>1</sup>Source: Current Industrial Report MA33B, *Steel Mill Products*. Net shipments figures are somewhat understated because of method used to calculate these data. These figures are derived by subtracting total domestic receipts of all mill shapes at producing mills from total quantity of shipments, plus steel consumed in producing plants. Prior to 1980, import receipts were also used in net shipments calculation. Beginning in 1980, import receipts of steel mill products for further processing were collected separately and were no longer used in net shipments calculation.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*. Import tonnage is derived from following 1994 HTSUSA numbers: 7206.10.0000 - 7306.90.5000.

<sup>3</sup>Apparent consumption is derived by subtracting exports from total of net shipments plus imports.

### HISTORICAL NOTE

Data on inventories of steel mills shapes have been collected by the Census Bureau since 1962. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

### CONTACT FOR DATA USERS

For additional information about these data, contact Ann Truffa, 301-457-4846.

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## INSULATED WIRE AND CABLE (MA33L)

### INTRODUCTION

These data cover companies engaged in manufacturing insulated wire and cable and/or fabricating appliance wire, cord, or flexible cordage from purchased insulated wire.

The statistics were collected by mail on Census Bureau annual Form MA33L, Insulated Wire and Cable. The survey panel includes all known insulators of wire and cable, as well as the largest producers of appliance wire, cord, and flexible cord sets from purchased insulated wire as measured by the dollar value of shipments from the 1992 Census of Manufactures. No estimate is included for the smaller fabricators. The total number of companies is approximately 223.

### SUMMARY OF FINDINGS

In 1997, the total value of manufacturers' shipments of insulated wire and cable increased by 7 percent to \$19,540 million from \$18,234 million in 1996. Copper insulated wire and cable increased by 9 percent to \$11,169 from the 1996 level of \$10,225 million. In 1997, aluminum insulated wire and cable increased by 2 percent to \$3,962 from the 1996 level of \$3,892 million. Copper magnet wire decreased by 2 percent from the 1996 level of \$1,238 million to \$1,215 million in 1997. Aluminum magnet wire increased by 11 percent in 1997 to \$133 million from the 1996 level of \$120 million. In 1997, insulated optical fiber cable increased by 7 percent to \$1,852 million from the \$1,728 million in 1996. Optical cable increased by 17 percent in 1997 to \$1,210 million from the 1996 level of \$1,031 million.

### EXPLANATION OF TERMS

**Gross weight.** Includes insulating materials but excludes packaging materials.

**AWG.** American wire gauge.

**Dual rated products.** All dual rated products are classified according to their highest ratings.

**Multi-insulated cables.** All multi-insulated cables are classified according to their primary insulation, i.e., the layer of material designed to do the electrical insulating, usually the first layer of material applied over the conductor.

**Insulated wire and cable.** All insulated wire and cable for transmitting electrical energy, signals, or communications. Excludes bare and tinned wire and cable and Aluminum Cable Steel Reinforced (ACSR).

**Magnet wire (including insulating magnet strip conductor).** All insulated wire of the type generally used in the winding of coils, including Litz wire and including insulating magnet sheet, strip, and foil. The thermal classification for bondable wires are determined by the underlying insulation. Also, the combination (film fabrics) product is classified based on the insulation on the top side.

**Electronic wire and cable.** All single and multiconductor wire and cable used for transmission, reception, or reproduction of electrical frequencies (16 gauge and smaller). Excludes telephone cable. See "Apparatus Wire and Cable" for larger gauges.

**Telephone wire and cable.** All wire and cables used in the telephone industry to transmit, receive, and monitor communications signals. Excludes coaxial and other electronic wire and cable.

**Power wire and cable.** All insulated wire and cable used for the transmission and distribution of electrical energy. Excludes communications, aircraft, and marine types.

**Control wire and signal wire and cable.** All insulated wire and cable used to transmit signals to control and actuate relays, valves, servo-mechanisms, and related devices, including traffic control cable and fire alarm cable. Excludes elevator hatch and traveling cable.

**Building wire and cable.** All wire and cable (600 volts or less) having UL labels, used within structures for light and power.

**Apparatus wire and cable.** Insulated wire and cable used in connecting electrical apparatus to a power source, and appliance wiring material (14 AWG and larger) used for internal wiring. See "Electronic Wire and Cable" for appliance wiring material smaller than 14 AWG.

**Other insulated wire and cable.** Includes bulk automotive battery and ignition wire, elevator hatch and traveling cable, airframe, shipboard, and ground support cable.

**Table 24. Summary of Shipments of Insulated Wire and Cable: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description	1997	1996
	Insulated wire and cable . . . . .	19,539,959	18,234,251
3357A —	Electronic wire and cable . . . . .	2,747,996	2,544,194
3357B —	Telephone and telegraph wire and cable . . . . .	2,224,550	2,075,275
33578 —	Power wire and cable . . . . .	1,561,193	1,487,776
33578 6—	Portable power cable . . . . .	70,573	95,276
3357C —	Control wire and signal wire and cable . . . . .	280,368	247,658
3357D —	Building wire and cable . . . . .	2,933,996	2,492,797
33576 —	Apparatus wire and cable . . . . .	810,254	812,295
3357E —	Other insulated wire and cable . . . . .	539,779	469,657
3357— pt.	Aluminum insulated wire and cable . . . . .	3,962,426	3,891,547
33577 —	Magnet wire . . . . .	1,347,539	1,358,975
33579 —	Insulated optical fiber cable . . . . .	1,851,613	1,727,980
32318 —	Optical fiber cable . . . . .	1,209,672	1,030,821

pt. Part.

**Table 25. Shipments of Copper Insulated Wire and Cable: 1997 and 1996**

[Copper content in thousands of pounds. Value in thousands of dollars]

Product code	Product description	Shipments, including interplant transfers <sup>1</sup>					
		1997			1996		
		Number of companies	Copper content <sup>2</sup>	Value	Number of companies	Copper content <sup>2</sup>	Value
3357— pt.	Insulated wire (except magnet wire and optical wire) . . . . .	(NA)	2,810,090	11,168,709	(NA)	2,561,191	10,224,928
3357A —	Electronic wire and cable . . . . .	82	235,747	2,747,996	85	202,491	2,544,194
	Coaxial cable, armored or unarmored:						
3357A 10	Rigid . . . . .	4	640	4,383	4	<sup>†</sup> 624	4,547
3357A 12	Semirigid . . . . .	14	31,339	479,532	14	26,748	460,868
	Flexible:						
3357A 13	135 C and over . . . . .	13	3,779	66,793	13	3,714	59,116
3357A 14	Under 135 C . . . . .	28	27,635	419,666	28	<sup>†</sup> 23,649	401,491
3357A 16	CATV/broadcast coaxial cable . . . . .	7	(D)	(D)	7	(D)	(D)
3357A 22	Antenna lead-in wire . . . . .	7	(D)	(D)	6	(D)	(D)
	Hookup wire (single conductor, shielded, and nonshielded):						
3357A 23	135 C and over temperature rating . . . . .	24	19,033	247,814	25	12,014	<sup>†</sup> 188,451
3357A 25	Under 135 C temperature rating . . . . .	39	20,000	103,505	40	17,024	83,353
	Multiconductor electronic wire and cable (shielded and nonshielded):						
3357A 30	Flat and ribbon cable . . . . .	21	8,297	97,031	21	<sup>†</sup> 6,933	<sup>†</sup> 82,245
	Other multiconductor electronic wire and cable:						
	Shielded:						
3357A 31	135 C and over temperature rating . . . . .	18	32,308	252,888	19	26,445	233,282
3357A 33	Under 135 C temperature rating . . . . .	33	33,151	277,797	35	<sup>†</sup> 31,126	244,941
	Nonshielded:						
3357A 35	135 C and over temperature rating . . . . .	11	11,320	127,869	12	10,504	115,663
3357A 37	Under 135 C temperature rating . . . . .	29	34,414	206,935	31	33,314	201,120
3357B —	Telephone and telegraph wire and cable . . . . .	28	501,335	2,224,550	30	497,063	2,075,275
3357B 41	Jumper and distributing frame wire . . . . .	7	(D)	(D)	7	(D)	(D)
3357B 43	Station wire and cable . . . . .	15	19,380	156,006	17	<sup>†</sup> 17,299	<sup>†</sup> 129,317
3357B 48	Telephone cord sets and cordage . . . . .	5	(D)	(D)	5	(D)	(D)
3357B 52	Inside wiring cable . . . . .	18	79,428	488,474	19	74,256	440,381
3357B 55	Drop and bridle and duct wire . . . . .	4	55,049	218,508	4	49,028	195,854
3357B 68	Rural and urban distribution wire and cable . . . . .	3	(D)	(D)	3	(D)	(D)
3357B 73	Polyethylene covered exchange area and toll cable (PIC and PULP insulated) . . . . .	7	283,302	1,004,244	8	297,067	983,719
3357B 90	Other telephone and telegraph wire and cable . . . . .	8	(D)	(D)	7	(D)	(D)

See footnotes at end of table.

**Table 25. Shipments of Copper Insulated Wire and Cable: 1997 and 1996—Con.**

[Copper content in thousands of pounds. Value in thousands of dollars]

Product code	Product description	Shipments, including interplant transfers <sup>1</sup>					
		1997			1996		
		Number of companies	Copper content <sup>2</sup>	Value	Number of companies	Copper content <sup>2</sup>	Value
33578 —	Power wire and cable.....	24	267,344	1,561,193	25	'266,342	'1,487,776
33578 07	Paper insulated cable (all voltages, all types).....	2	(D)	(D)	2	(D)	(D)
	Plastics and rubber insulated:						
	600 volts or less:						
33578 08	Portable welding cable.....	7	14,811	42,368	7	'15,368	'44,615
33578 17	Underground distribution cable (UD, URD).....	8	7,470	297,569	10	7,443	274,393
33578 19	Thermoplastics insulated power cable.....	10	16,532	47,204	12	17,826	46,326
	Thermoset insulated:						
33578 20	Armored, rubber and cross-linked.....	6	9,674	28,606	6	9,476	27,603
33578 21	Unarmored, rubber.....	6	34,712	136,482	7	34,609	129,145
33578 22	Unarmored, cross-linked.....	8	11,230	34,528	9	14,904	40,098
33578 23	Rubber (R, RH, RHH, RHW, USE, etc.).....	2	(D)	(D)	3	(D)	(D)
33578 25	Weatherproof cable.....	5	(D)	(D)	4	(D)	(D)
	Service drop cable:						
33578 27	Thermoset insulated.....	4	(D)	(D)	3	(D)	(D)
33578 28	Thermoplastics insulated.....	3	(D)	(D)	3	(D)	(D)
	Over 600 volts:						
33578 37	Underground distribution cable (UD, URD), all insulations (jacketed and unjacketed).....	7	55,664	376,563	7	50,738	333,325
33578 39	Thermoplastics insulated power cable, excluding underground.....	5	(D)	(D)	5	(D)	(D)
	Thermoset insulated power cable, excluding underground:						
	Over 600 volts to 15 kV:						
33578 41	Armored, rubber and cross-linked.....	6	13,242	58,222	7	15,247	59,439
33578 42	Unarmored, rubber.....	7	48,897	160,618	7	48,176	187,249
33578 43	Unarmored, cross-linked.....	7	16,792	55,710	8	15,661	49,843
33578 44	Over 15 kV (rubber and cross-linked).....	5	5,028	34,817	4	4,453	32,716
33578 50	Other power wire and cable.....	8	13,341	99,987	7	'12,874	'84,568
33578 6—	Portable power cable.....	7	19,700	70,573	8	'24,311	'95,276
33578 61	2 kV or less.....	6	(D)	(D)	8	'16,273	'67,051
	Over 2 kV:						
33578 62	Portable cross-linked jacketed cable (mine shovel cable).....	3	(D)	(D)	4	(D)	(D)
33578 63	Portable noncross-linked jacketed cable.....	33	(D)	(D)	2	(D)	(D)
3357C —	Control and signal wire.....	27	43,349	280,368	28	39,608	247,658
3357C 11	Signal wire and cable.....	16	16,584	155,996	17	14,813	132,092
	Control wire and cable, excluding elevator cable:						
3357C 14	Thermoset insulated.....	9	9,518	51,286	9	'9,128	51,875
3357C 17	Thermoplastics insulated.....	18	17,247	73,086	18	15,667	63,691
3357D —	Building wire and cable.....	23	1,389,773	2,933,996	24	1,172,301	'2,492,797
	Building wire and cable having underwriters' labels:						
	Thermoset insulated:						
3357D 37	Cross-linked polyethylene (XHHW).....	12	43,102	129,196	13	'45,994	'111,589
3357D 38	Cross-linked polyethylene (USE).....	11	17,521	57,480	10	'19,198	'51,488
	Thermoplastics insulated:						
3357D 40	Flame-retardant nylon (THHN, THWN).....	17	813,346	1,538,579	16	621,538	'1,254,588
3357D 49	Moisture and heat resistant (TW, THW).....	12	3,979	8,479	12	'4,224	'8,484
3357D 51	Service entrance cable (SER, SEU, ASE).....	8	8,212	109,570	8	8,694	97,610
	Nonmetallic branch-circuit and underground feeder:						
3357D 54	Type NM-B.....	6	395,131	784,940	7	363,851	677,933
3357D 55	Type UF and NMC (corrosion resistant).....	8	42,810	91,183	9	40,425	82,535
3357D 57	Metallic armored cable (all AC types).....	10	56,085	184,773	10	49,653	164,368
3357D 58	Other building wire and cable.....	10	9,587	29,796	10	18,724	44,202
33576 —	Apparatus wire and cordage <sup>3</sup> .....	45	210,627	810,254	45	209,566	812,295
	Flexible cordage:						
33576 13	Thermoset insulated.....	10	13,894	65,953	9	'10,935	'46,597
33576 15	Thermoplastics, including thermoplastics elastomers.....	16	31,255	64,074	15	'30,692	62,866
33576 42	Extension cord sets.....	9	26,441	113,930	9	30,056	130,082
33576 43	Fixed power supply cords.....	18	20,515	143,825	18	22,718	167,559
33576 44	Detachable power supply cords.....	6	8,937	52,948	6	'8,964	'54,084
33576 47	Retractable power cords and other.....	9	752	14,515	9	647	12,818

See footnotes at end of table.

**Table 25. Shipments of Copper Insulated Wire and Cable: 1997 and 1996—Con.**

[Copper content in thousands of pounds. Value in thousands of dollars]

Product code	Product description	Shipments, including interplant transfers <sup>1</sup>					
		1997			1996		
		Number of companies	Copper content <sup>2</sup>	Value	Number of companies	Copper content <sup>2</sup>	Value
33576 —	Apparatus wire and cordage <sup>3</sup> —Con.						
33576 21	Apparatus wire: Appliance fixture wire . . . . .	19	32,686	101,801	19	'32,071	'96,578
	Appliance wiring material 14 gauge and larger, including motor lead and transformer lead wire:						
33576 23	Thermoset insulated . . . . .	4	(D)	(D)	4	(D)	(D)
33576 24	Thermoplastics insulated . . . . .	9	34,477	78,086	9	34,192	75,910
33576 28	Submersible pump cable . . . . .	7	(D)	(D)	8	(D)	(D)
33576 29	Other apparatus wire and cordage, including tool wire . . . . .	16	21,577	78,536	16	19,475	73,957
3357E —	Other insulated wire and cable . . . . .	40	142,215	539,779	40	'149,509	469,657
	Automotive:						
3357E 72	Bulk automotive primary wire . . . . .	11	84,563	206,899	12	'81,214	'186,077
3357E 74	Bulk battery cable . . . . .	7	14,582	36,002	7	'12,724	'34,598
3357E 76	Bulk ignition wire . . . . .	6	(D)	(D)	6	(D)	(D)
3357E 78	Other automotive wire and cable . . . . .	6	(D)	(D)	7	(D)	(D)
	Airframe, shipboard and ground support cable, excluding coaxial cable and ignition cable:						
3357E 79	Airframe and missile, including ground support cable . . . . .	10	4,159	40,828	8	4,166	<sup>a</sup> 29,935
3357E 81	Shipboard cable . . . . .	5	3,671	36,620	6	3,808	31,013
3357E 98	Other insulated or covered wire and cable, n.e.c. . .	20	24,363	106,090	21	'36,870	91,073

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. pt. Part. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>Interplant transfers for 1997 totaled \$44,010 and for 1996 totaled \$31,505.

<sup>2</sup>Aluminum content for 1997 totaled 679,912 thousand pounds and for 1996 totaled 640,975 thousand pounds. See Table 27 for additional details.

<sup>3</sup>Data include the following: (a) all known establishments which insulate wire and cable and then fabricate it into finished products, (SIC product class 33576), and (b) establishments from product class 36996, that manufacture wire, cord, and flexible cord sets from purchased insulated wire.

Note: Data presented in this table are for copper insulated wire and cable. See Table 27 for aluminum content information. Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated.

**Table 26. Aluminum Content of Selected Insulated Wire and Cable: 1997 and 1996**

[Quantity in thousands of pounds. Value in thousands of dollars]

Product code	Product description	1997			1996		
		Number of companies	Gross weight	Value	Number of companies	Gross weight	Value
3357— pt.	Insulated wire (except magnet wire) .....	(X)	679,912	3,962,426	(X)	640,975	3,891,547
3357A —	Electronic wire and cable .....	4	(D)	(D)	4	(D)	(D)
33578 —	Power wire and cable .....	9	325,733	1,790,548	9	'313,963	'1,713,554
33578 17	Underground distribution cable, all insulations—600 volts or less .....	5	152,037	286,564	5	142,803	261,950
33578 27	Service drop cable, thermoset insulated .....	3	34,826	64,317	3	34,584	62,546
33578 28	Service drop cable, thermoplastics insulated .....	2	(D)	(D)	2	(D)	(D)
33578 37	Underground distribution cable, all insulations—over 600 volts .....	6	60,087	408,063	6	52,047	360,975
33578 42	Thermoset insulated power cable, unarmored, rubber—over 600 volts to 15 kV .....	5	(D)	(D)	4	(D)	(D)
33578 43	Thermoset insulated power cable, unarmored, cross-linked—over 600 volts to 15 kV .....	3	(D)	(D)	3	(D)	(D)
3357D —	Building wire and cable .....	5	62,940	735,031	6	59,353	759,343
3357D 38	Thermoset insulated, cross-linked polyethylene (USE) ..	3	(D)	(D)	3	(D)	(D)
3357E —	Other insulated wire and cable .....	2	(D)	(D)	2	(D)	(D)

D Withheld to avoid disclosing data for individual companies. pt. Part. 'Revised by 5 percent or more from previously published data.  
X Not applicable.

**Table 27. Copper Shipments of Magnet Wire, Including Interplant Transfers: 1997 and 1996**

[Copper gross weight in thousands of pounds. Value in thousands of dollars]

Product code	Product description	Shipments, including interplant transfers <sup>1</sup>					
		1997			1996		
		Number of companies	Gross weight <sup>1</sup>	Value	Number of companies	Gross weight <sup>1</sup>	Value
33577 —	Magnet wire .....	(NA)	728,002	1,214,980	(NA)	728,631	1,238,581
33577 1—	Class 105 .....	(NA)	49,604	67,122	(NA)	52,545	78,150
33577 11	7 AWG and larger round (also all square and rectangle) .....	5	7,118	11,056	6	7,842	13,332
33577 13	8 to 21 AWG inclusive .....	5	32,151	37,964	7	31,753	40,763
33577 15	22 to 32 AWG inclusive .....	6	9,105	13,502	7	11,824	20,109
33577 18	33 to 44 AWG inclusive .....	5	1,230	4,600	7	1,126	3,946
33577 2—	Classes 130 and 155 .....	(NA)	129,840	272,539	(NA)	132,267	281,788
33577 20	7 AWG and larger round (also all square and rectangle) .....	1	(D)	(D)	3	(D)	(D)
33577 22	8 to 21 AWG inclusive .....	12	26,283	45,053	11	26,384	45,498
33577 24	22 to 32 AWG inclusive .....	15	81,338	155,292	14	84,126	165,356
33577 28	33 to 44 AWG inclusive .....	11	(D)	(D)	11	(D)	(D)
33577 4—	Class 180 and higher .....	(NA)	481,322	727,401	(NA)	471,392	729,081
33577 40	7 AWG and larger round (also all square and rectangle) .....	7	38,510	72,001	8	37,061	68,941
33577 42	8 to 21 AWG inclusive .....	12	290,999	389,303	13	279,883	379,535
33577 44	22 to 32 AWG inclusive .....	11	125,648	207,357	14	121,422	211,833
33577 48	33 to 44 AWG inclusive .....	9	(D)	(D)	9	6,560	28,437
33577 80	Miscellaneous film coated, n.e.c. ....	1	(D)	(D)	4	(D)	(D)
33577 pt.	Nonfilm coated (fibrous and tape) .....	(NA)	32,440	82,335	(NA)	31,585	75,160
33577 81, 83	Class 130 and below .....	5	16,908	45,973	5	17,211	41,154
33577 85, 87	Class 155 and above .....	5	(D)	(D)	7	(D)	(D)
33577 88	Miscellaneous nonfilm coated, n.e.c. ....	1	(D)	(D)	2	(D)	(D)

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. pt. Part.

<sup>1</sup>Interplant transfers for 1997 totaled 40,548 thousand pounds and 1996 totaled 53,364 thousand pounds of copper.



**Table 28. Aluminum Shipments of Magnet Wire, Including Interplant Transfers: 1997 and 1996**

[Aluminum gross weight in thousands of pounds. Value in thousands of dollars]

Product code	Product description	Shipments, including interplant transfers <sup>1</sup>					
		1997			1996		
		Number of companies	Gross weight	Value	Number of companies	Gross weight	Value
33577 —	Magnet wire .....	15	63,069	132,559	13	59,304	120,394
3577 pt.	Film coated .....	14	54,452	118,728	13	51,373	107,813
3577 1-	Class 105 .....	5	(D)	(D)	5	(D)	(D)
3577 2-	Classes 130 and 155 .....	12	(D)	(D)	13	(D)	(D)
3577 4-	Class 180 and higher .....	9	32,188	71,691	12	30,150	66,709
3577 pt.	Other types of magnet wire (nonfilm coated; insulated magnet sheet, strip, and foil; and film coated, 45 AWG and finer) .....	5	8,617	13,831	5	7,931	12,581

D Withheld to avoid disclosing individual companies. pt. Part. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Interplant transfers for 1997 totaled 6,143 thousand pounds of aluminum and 1996 totaled 7,075 thousand pounds of aluminum.

**Table 29. Value of Shipments of Fiber Optic Cable and Optical Fiber: 1997 and 1996**

[Thousands of dollars]

Product code	Product description	1997		1996	
		Number of companies	Value	Number of companies	Value
33579 —	Insulated optical fiber cable .....	37	1,851,613	38	1,727,980
33579 pt.	Communication applications .....	25	1,814,445	26	1,682,267
	Single-mode stepped-index:				
33579 12	Dispersion shifted .....	11	(D)	9	(D)
33579 13	Dispersion unshifted .....	14	1,613,647	15	1,492,955
33579 14	Multimode stepped index .....	5	(D)	6	(D)
33579 15	Multimode graded index .....	19	200,798	19	189,312
33579 21	Other applications .....	15	37,168	16	45,713
	Optical fiber for data and nondata transmission .....	25	1,209,672	26	1,030,821
32318 95	Optical fiber used for data transmission .....	16	1,162,257	17	946,092
32318 97	Optical fiber used for nondata transmission .....	14	47,415	14	84,729

D Withheld to avoid disclosing data for individual companies. pt. Part.

**HISTORICAL NOTE**

Data on insulated wire have been collected by the Census Bureau since 1965. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Mary W. Ellickson, 301-457-4736.

# Chapter 7. Electronics

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## COMPUTERS AND OFFICE AND ACCOUNTING MACHINES (MA35R)

### INTRODUCTION

These data cover manufacturers of computers and office and accounting machines, except very small firms (generally less than 10 employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies. The statistics were collected by mail on Census Bureau annual Form MA35R, Computers and Office and Accounting Machines. The survey panel includes all known producers of these products, except the very small firms excluded from the scope of the survey. Approximately 818 companies are included. No estimate is derived for the small firms excluded from the scope of the survey.

### SUMMARY OF FINDINGS

In 1997, manufacturers' shipments of computers were valued at \$49.6 billion, a decrease from the 1996 total of \$50.7 billion. Shipments of computers increased from 19.9 million in 1996 to 20.1 million in 1997. Personal computers were valued at \$21.9 billion in 1997. Workstations were valued at \$5.1 billion in 1997. Notebooks were valued at \$4.8 billion in 1997. Loaded computer processor boards and board subassemblies were valued at \$25.3 billion in 1997, compared to \$24.9 billion in 1996. Computer storage devices and equipment were valued at \$8.6 billion in 1997, a decrease of 3.3 percent from the 1996 total of \$8.9 billion. Magnetic and optical recording media were valued at \$5.2 billion in 1997 compared to \$5.7 billion in 1996.

### EXPLANATION OF TERMS

**Computers.** These automatic data processing units are capable of: (1) performing arithmetic computations, (2) processing data in accordance with a processing program, (3) immediately storing the processing program and the data necessary for execution of the processing program, and (4) executing a processing program without human intervention, on the basis of instructions contained in the program, to automatically modify execution by logical decision during the performance of processing tasks.

**General-purpose computers.** A computer designed to solve a large variety of problems; e.g., a stored program computer that may be adapted to any of a very large class of applications.

**Digital computers.** A computer that processes information represented by combinations of discrete or discontinuous data, compared with an analog computer for continuous data. More specifically, it is a device for performing sequences or arithmetic and logical operations. Still more specifically, it is a stored program digital computer capable of performing sequences of internally stored instructions, as opposed to calculators, on which a sequence is impressed manually.

**Analog computers.** A computer that represents variables by physical analogies. Thus, any computer that solves problems by translating physical conditions such as flow, temperature, pressure, angular position, or voltage into related mechanical or electrical equivalent circuits as an analog for the physical phenomenon being investigated. In general, it is a computer that uses an analog for each variable and produces analogs as output. Thus, an analog computer measures continuously; whereas, a digital computer counts discretely.

**Hybrid computers.** A computer designed with both digital and analog characteristics, combining the advantages of analog as well as digital computers, when working as a system. Hybrid computers are used extensively in simulation process control systems where it is necessary to have a close representation with the physical world. The hybrid system provides better precision than can be attained with analog computers and greater speed than is possible with digital computers, plus the ability to accept input data in either form.

**Special-purpose computers.** A special-purpose computer is a general-purpose computer programmed and/or configured to operate upon a restricted class of problems.

**Peripheral equipment for computers.** In a data processing system, any equipment, distinct from the processing unit, that may provide the system with outside communication or additional facilities. Includes input/output typewriters and displays sold as part of a large office system. Included are:

*Input/output equipment.* Terminals include those units that, in addition to their capabilities of displaying data or accepting data input, are capable of performing other

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functions such as stamping approvals for bank account withdrawals, time stamping, and issuing receipts. A unit is included if it meets all of the following conditions:

1. It is connectable to the processing unit either directly or through one or more other units;
2. It is specifically designed as part of such a system. (It must in particular, unless it is a power supply unit, be able to accept or deliver data in a form (code or signals) that can be used by the system.)

*Computer storage devices.* Storage in addition to the main storage of a computer; e.g., magnetic tapes, disks, or magnetic drums. Auxiliary storage usually holds much larger amounts of information than the main storage, and the information is accessible less rapidly. Computer terminals. A point at which information can enter or leave a computer communication network. An input/output device to send or receive data in an environment associated with the job to be performed, capable of transmitting entries to and obtaining output from the computer system of which it is a part.

*Cash registers.* Stand-alone electronic devices, including adding device with cash drawer and excluding terminals that have interactive communication capabilities. Firmware based, fixed or parameterized function devices developed primarily for cash control, with limited transaction or merchandise information as a byproduct.

*Fund transfer devices.* Devices facilitating the handling of various financial transactions involving the consumer and financial institutions. Typically, these devices provide services such as account status inquiries, transfers of funds to and from various accounts, withdrawals, deposits, and payments.

*Point-of-sale devices.* Devices facilitating the handling of various retail transactions involving the sale, exchange, or return of merchandise or service.

**Accounting machines.** A keyboard actuated machine that prepares accounting records. A machine that may read data from external storage media such as cards or tapes, and automatically produces accounting records or tabulations, usually on continuous forms.

**Calculating machines.** Devices requiring manual means for entering numerical data for performance of arithmetic operations. These machines, by nature, require frequent operator intervention. A calculator uses separate, fixed storage areas for its programs and for the storage of data. These machines cannot execute programs that modify themselves during their execution. There are two major classifications of these machines: printing calculating machines print one or more of the significant elements of computation; nonprinting calculating machines display one or more of the significant elements of computations.

Includes both three- and four-operation printing calculators. Three-operation printing calculators are those incorporating short-cut multiplication and/or fully "automatic multiplication" and division.

**Duplicating machines.** A machine in which an ink image on a master is transferred onto a copy paper.

**Postage franking machines.** Machines that print a design in place of the postage stamp. The machine has a non-reversible totalling device that adds up the total value of the postage printed. In addition, the machine can often be used for other printing on the envelope; e.g., advertising slogans.

**Dictating, transcribing, and recording machines and systems.** Machines that are designed as office machines for conference recording, combination dictating, and telephone recording used to produce a written record, but excluding home-type wire and tape recorders. A single recording unit with a number of dictating stations should be counted as one unit or system. A system consists of a recorder and a transcribing unit with more than one dictating station.

**Standard typewriters.** Machines, electric or nonelectric, designed solely for preparation of documents with letter printlike characters and symbols that are operated manually by consecutive depressing of keyboard keys. A typewriter contains a four-row keyboard, including alpha and numeric as well as special symbols. It may or may not include special attachments to be used in the preparation of addresses or other stencils, braille typing for the blind, and similar materials. In addition, it may or may not include special carriages, pin-feed platens, and other devices used to increase the speed of the typing on continuous forms. Machines that include accounting registers are excluded.

**Bar code.** An array of rectangular bars and spaces arranged in a predetermined pattern, following unambiguous rules in a specific way, to represent elements of data that are referred to as characters.

**Code reader or scanner.** A device that examines a spatial pattern, one part after another, and generates analog or digital signals corresponding to the pattern. The major components of a bar code scanner are an illumination source, a photodetector device, and a microcomputer. A focused light beam is moved across the symbol (bar code), the reflected light is received by the photodetector, which in turn generates a voltage (analog signal) that is proportional to the amount of light reflected by the signal. The signal from the photodetector is conditioned by preprocessor circuitry before being presented to the microcomputer for analysis.

**Decoder.** An electronic package that receives the signals from the scanner, and then performs the algorithm to interpret the signals into meaningful data and provides the interface to other devices.

**Optical character recognition (OCR).** Relies on a sensor to differentiate between light-reflecting background and printed data that do not reflect light. Output from the sensor is fed to a set of recognition logics, and then forwarded to the computer.

**Magnetic strip.** Records, or encodes, information onto a material, using low or high energy electromagnetic charges. These charges or signals can then be read by a decoder that translates them into numbers and characters for identification by a computer.

**Radio frequency.** A system based on the ability of an identification tag (transponder) to receive radio frequency signals and output a code to a reader.

**Voice recognition.** A computer recognizes words in a preprogrammed vocabulary. The operator speaks the words into a microphone, and the word or phrase is recognized by the machine and converted into electronic impulses for the micro or host computer.

**Machine vision.** Devices used for optical noncontact sensing to receive and interpret automatically an image of a real scene, to obtain information, and/or to control machines or processes.

**Image processor.** Selects and interprets data to determine an object's position, location, shape, and size.

**Table 1. Value of Shipments of Computers and Office and Accounting Machines: 1990 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990
35710 —	Electronic computer manufacturing <sup>1</sup> . . . . .	49,605.5	50,681.5	49,038.1	38,260.7	29,659.1	28,571.2	26,274.1	25,630.1
35711 —	Host computers (multiusers) . . . . .	15,328.2	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35712 —	Single user computers . . . . .	33,307.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35719 —	Other computers, including array, analog, hybrid, or special computers not listed above . . . . .	969.5	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
36798 —	Loaded computer processor boards and board subassemblies <sup>2</sup> . . . . .	25,283.4	24,937.3	24,447.7	17,514.8	15,087.1	13,745.8	12,590.4	2,247.2
35721 —	Computer storage devices and equipment . . . . .	8,617.2	8,909.2	7,903.0	5,555.6	5,730.7	6,282.4	5,609.7	7,488.2
35722 —	Parts for computer storage devices and subassemblies . . . . .	2,142.5	1,719.9	2,235.6	1,951.9	1,496.4	1,357.1	780.4	955.2
35751 —	Computer terminals . . . . .	791.7	1,103.9	1,086.0	1,243.5	1,531.3	1,707.9	1,729.5	2,066.7
35752 41	Parts for computer terminals . . . . .	(D)	<sup>†</sup> 199.2	(D)	(D)	275.9	192.1	417.0	362.9
35771 —	Computer peripheral equipment, n.e.c. . . . .	13,686.2	<sup>†</sup> 11,462.8	12,331.0	11,943.6	9,810.2	8,505.6	7,763.6	7,696.6
35772 —	Parts for input/output equipment. . . . .	2,487.5	5,504.8	2,391.0	2,498.7	2,554.3	3,053.2	4,186.9	3,705.5
35784 —	Calculating and accounting machines <sup>3</sup> . . . . .	1,621.4	1,485.0	1,278.9	1,261.5	1,454.2	967.5	973.5	(D)
35789 —	Parts for calculating, coin, or currency handling, and accounting machines <sup>4</sup> . . . . .	127.5	<sup>†</sup> 82.9	106.1	86.7	77.7	73.4	97.4	133.3
35792 —	Automatic typing and word processing machines. . . . .	(D)	(D)	(D)	(D)	342.9	465.2	417.1	342.5
35793 —	Duplicating machines . . . . .	(D)	59.9	(D)	68.4	(D)	(D)	(D)	(D)
35795 —	Mailing, letter-handling, and addressing machines . . . . .	1,397.9	1,230.6	1,280.1	967.5	1,267.8	1,152.4	1,124.8	976.9
35799 —	Check handling, electric stapling and dictating machines, typewriters, and all other office machines, n.e.c. . . . .	603.0	579.7	577.7	664	(D)	(D)	517.6	545.9
3579A —	Parts for office machines, n.e.c. . . . .	441.8	<sup>†</sup> 454.4	440.3	359.6	344.7	263.3	199.2	451.6
36950 —	Magnetic and optical recording media . . . . .	5,242.8	<sup>†</sup> 5,739.1	5,106.2	4,777.1	4,483.3	4,336.8	3,894.4	3,695.4

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>In 1997, computer industry data were revised. Previous years are not comparable.

<sup>2</sup>These data are collected on two Current Industrial Report forms, MA35R, *Computer and Office and Accounting Machines*, and MA36Q, *Semiconductors, Printed Circuit Boards, and Other Electronic Components*.

<sup>3</sup>Product codes 35781 and 35782 were combined into product code 35784 in 1991.

<sup>4</sup>Product code 35783 was changed to product code 35789 in 1991.

**Table 2. Quantity and Value of Shipments of Computers and Office and Accounting Machines: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3571- —	Electronic computers (automatic data processors) <sup>1</sup> .....	172	20,124,027	49,605,501	19,938,816	50,681,536
	Host computers (multiusers):					
35711 10	Large scale systems, including mainframes and super computers .....	16	376,693	6,065,320	(NA)	(NA)
35711 20	Medium-scale systems and unix servers .....	29	2,414,401	8,327,930	(NA)	(NA)
35711 30	Personal computer servers .....	16	160,954	644,394	(NA)	(NA)
35711 90	Other host computers .....	6	33,038	290,520	(NA)	(NA)
	Single users computers:					
35712 10	Personal computers .....	44	13,473,265	21,931,109	(NA)	(NA)
35712 20	Workstations .....	23	475,951	5,137,371	(NA)	(NA)
35712 30	Laptops (AC/DC) .....	10	502,939	1,256,536	(NA)	(NA)
35712 40	Notebooks, subnotebooks (battery operated) .....	12	1,899,263	4,755,233	(NA)	(NA)
35712 50	Personal digital assistants <sup>2</sup> .....	1	(D)	(D)	(NA)	(NA)
35712 60	Other portable computers <sup>2</sup> .....	4	127,597	122,756	(NA)	(NA)
35712 90	Other single user computers .....	4	175,239	104,858	(NA)	(NA)
35719 00	Other computers, including array, analog, hybrid or special-purpose computers not included above .....	45	484,687	969,474	(NA)	(NA)
36798 —	Printed circuit assemblies (loaded boards, subassemblies, and modules) <sup>3</sup> .....	694	(X)	25,283,420	(X)	24,937,307
	Loaded computer processor boards and board subassemblies:					
36798 51	Computer and peripheral printed board assemblies .....	278	(X)	11,335,201	(X)	12,310,246
36798 53	Communications printed board assemblies .....	233	(X)	4,377,701	(X)	<sup>r</sup> 3,732,540
36798 55	Industrial process control board assemblies .....	178	(X)	570,351	(X)	<sup>r</sup> 439,994
36798 57	Instrumentation printed board assemblies (except industrial) .....	176	(X)	3,402,880	(X)	3,269,342
36798 59	Search and detection printed board assemblies .....	40	(X)	49,418	(X)	<sup>r</sup> 44,412
36798 61	Consumer electronics printed board assemblies .....	115	(X)	513,743	(X)	521,026
36798 90	Other electronics, printed board assemblies including office equipment and point of sales .....	273	(X)	5,034,126	(X)	4,619,747
35721 —	Computer storage devices and equipment .....	86	(X)	8,617,175	(X)	<sup>r</sup> 8,909,234
	Rigid magnetic disk drives:					
35721 35	Less than 2-1/2 inches <sup>4</sup> .....	1	(D)	(D)	(D)	(D)
35721 37	2-1/2 inches up to but not including 3-1/2 inches <sup>4</sup> .....	4	(D)	(D)	(D)	(D)
35721 39	3-1/2 inches up to but not including 5-1/4 inches .....	21	1,272,936	1,530,804	2,564,485	2,167,206
35721 41	5-1/4 inches and greater <sup>4</sup> .....	8	101,395	362,803	207,027	401,746
35721 45	Disk subsystems and disk arrays for multiuser computer systems .....	24	323,002	1,175,704	119,924	1,267,634
35721 47	Flexible magnetic disk drives .....	8	(D)	(D)	(D)	(D)
	Optical disk drives, including CD-ROM and magneto-optical equipment:					
	CD-ROM:					
35721 51	"Juke-box" capable of handling multiple disks <sup>5</sup> .....	8	(D)	(D)	1,177,962	144,580
35721 53	Single-disk equipment <sup>5</sup> .....	8	1,883,565	810,812	164,663	595,609
35721 55	WORM (write once, read many times) <sup>6</sup> .....	4	(D)	(D)	12,959	48,237
35721 57	Rewritable <sup>6</sup> .....	7	864,987	331,919	<sup>r</sup> 585,653	<sup>r</sup> 206,253
35721 59	Optical subsystems for multiuser computer systems .....	8	15,755	220,431	<sup>b</sup> 24,341	176,775
	Auxiliary storage, not disk or tape-based, for multiuser computer systems:					
35721 61	Encased or enclosed in a housing, enclosure, or cabinet <sup>7</sup> .....	10	(D)	(D)	(D)	(D)
35721 63	Other <sup>7</sup> .....	6	575,082	347,576	407,610	414,135
35721 65	Other direct-access storage equipment .....	12	274,432	177,973	288,784	268,187
	Serial-access storage equipment (e.g., tape drives):					
35721 71	1/2-inch tape drives .....	10	461,481	1,515,458	316,391	1,234,766
35721 73	1/4-inch tape drives .....	13	1,555,833	269,198	2,378,892	393,088
35721 75	Helical scan tape drives .....	12	232,894	396,441	(D)	(D)
35721 77	Cassette tape drives .....	7	26,689	154,235	(D)	(D)
35721 79	Other serial-access storage equipment .....	7	(D)	(D)	1,193,439	459,710
35722 11	Computer storage parts and subassemblies .....	16	(X)	2,142,516	(X)	1,719,880

See footnotes at end of table.

Table 2. **Quantity and Value of Shipments of Computers and Office and Accounting Machines: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35751 —	Computer terminals . . . . .	51	(X)	791,737	(X)	1,103,897
35751 80	Remote batch terminals . . . . .	6	<sup>a</sup> 16,163	<sup>b</sup> 24,319	<sup>a</sup> 19,032	<sup>b</sup> 32,151
35751 61	Teleprinters . . . . .	7	34,620	<sup>a</sup> 60,565	<sup>r</sup> 31,452	<sup>r</sup> 39,421
	Display terminals, including graphics type, whether or not incorporating a printing mechanism:					
35751 63	X-terminals . . . . .	10	278,160	262,409	<sup>r</sup> 178,308	<sup>r</sup> 202,322
	Other than X-terminals:					
35751 65	13-inch or less display . . . . .	9	55,804	79,896	57,075	<sup>a</sup> 38,808
35751 67	More than 13-inch but less than 19-inch display . . . . .	17	<sup>a</sup> 649,637	<sup>a</sup> 335,408	1,761,025	751,713
35751 69	19-inch or more display . . . . .	6	<sup>b</sup> 8,460	<sup>b</sup> 29,140	<sup>b</sup> 22,941	<sup>b</sup> 39,482
35752 41	Computer terminal parts and subassemblies . . . . .	9	(X)	(D)	(X)	<sup>r</sup> 199,169
35771 —	Computer peripheral equipment, n.e.c. . . . .	253	(X)	13,686,202	(X)	<sup>r</sup> 11,462,756
	Keying equipment:					
35771 33	Keyboards . . . . .	23	<sup>a</sup> 20,350,506	<sup>a</sup> 612,843	20,810,401	560,224
35771 35	Other keying equipment . . . . .	4	(D)	(D)	(D)	(D)
35771 02	Mouse devices . . . . .	11	(D)	(D)	(D)	(D)
35771 04	Digitizers and light pen tablets . . . . .	10	551,647	123,967	<sup>r</sup> 176,279	<sup>r</sup> 51,534
35771 06	Other manual input devices (joysticks, trackballs, touchscreens, etc.) . . . . .	10	<sup>a</sup> 500,581	<sup>a</sup> 40,396	<sup>a</sup> 561,783	<sup>a</sup> 33,475
35771 08	Computer output to microfilm (COM) equipment . . . . .	5	(D)	(D)	(D)	(D)
35771 12	Media copying and/or conversion equipment . . . . .	9	<sup>a</sup> 14,522	59,390	(D)	(D)
	Optical scanning devices:					
35771 14	Bar code devices . . . . .	29	2,510,684	<sup>a</sup> 909,933	2,090,463	850,428
35771 16	OCR equipment . . . . .	11	215,135	<sup>a</sup> 259,624	<sup>b</sup> 635,428	<sup>a</sup> 237,433
	Other than bar code or OCR devices:					
35771 18	Flat bed scanners . . . . .	6	<sup>b</sup> 43,563	<sup>a</sup> 55,777	(D)	(D)
35771 22	Hand-held scanners . . . . .	4	46,476	52,968	(D)	(D)
35771 24	Other . . . . .	17	382,861	169,326	349,142	<sup>r</sup> 112,030
35771 26	Voice recognition equipment . . . . .	7	(D)	(D)	(D)	(D)
35771 28	Magnetic strip and ink recognition equipment . . . . .	12	(D)	(D)	311,513	205,810
35771 29	Other document entry equipment . . . . .	3	(D)	(D)	(D)	(D)
	Computer printers:					
	Impact printers:					
35771 74	Line type (typically with a Centronics interface with output measured in lines per minute) . . . . .	12	255,630	303,154	329,468	386,361
35771 72	Serial type (typically with a serial and/or parallel interface with output measured in characters per second) . . . . .	24	<sup>a</sup> 512,806	<sup>b</sup> 203,741	569,705	254,343
	Nonimpact printers:					
35771 40	Laser . . . . .	30	2,427,245	2,547,672	<sup>r</sup> 1,941,839	<sup>r</sup> 1,946,660
35771 42	Inkjet . . . . .	13	7,486,107	1,511,483	15,523,120	<sup>r</sup> 1,320,686
35771 45	Other (thermal, ion deposition, etc.) . . . . .	23	1,278,689	480,769	596,686	<sup>r</sup> 638,451
35771 47	Peripheral sharing devices . . . . .	10	<sup>a</sup> 190,759	<sup>b</sup> 68,934	<sup>a</sup> 181,453	<sup>a</sup> 59,407
35771 49	Font cartridges . . . . .	3	(D)	(D)	(D)	(D)
35771 50	Plotters, including electrostatic . . . . .	13	37,740	<sup>b</sup> 217,440	47,443	<sup>a</sup> 235,734
	Monitors, excluding terminals:					
35771 55	Flat panel displays . . . . .	5	(D)	(D)	(D)	(D)
	Other than flat panel displays (e.g., CRT):					
35771 56	Less than 19-inch display . . . . .	22	(D)	(D)	(D)	(D)
35771 58	19-inch or more display . . . . .	11	232,940	181,241	228,693	224,383
35771 62	Monitor screen projection devices (e.g., LCD panels) . . . . .	7	(D)	(D)	(D)	(D)
35771 63	All other input/output devices . . . . .	58	(X)	<sup>a</sup> 1,288,509	(X)	<sup>r</sup> 898,458
35771 68	Accessories for computer peripherals (e.g., device supports and ergonomic aids) . . . . .	40	(X)	2,378,630	(X)	<sup>r</sup> 1,227,314
35772 —	Parts and subassemblies for computer peripherals and input/output equipment . . . . .	66	(X)	2,487,482	(X)	5,504,761
35784 —	Calculating and accounting machines . . . . .	41	(X)	1,621,390	(X)	1,484,978
35784 54	Funds transfer devices <sup>8</sup> . . . . .	6	(D)	(D)	(D)	(D)
35784 55	Point-of-sale terminals <sup>8</sup> . . . . .	22	368,408	1,301,154	334,251	1,182,666
35784 16	Machines for sorting, wrapping, counting, changing, or dispensing coins and/or currency . . . . .	11	489,354	<sup>b</sup> 237,068	436,808	<sup>b</sup> 218,686
	Other coin or currency handling machines, including cash registers, calculators, accounting, bookkeeping and billing machines, and credit card im printers . . . . .	14	(X)	<sup>b</sup> 83,168	(X)	<sup>b</sup> 83,626

See footnotes at end of table.

**Table 2. Quantity and Value of Shipments of Computers and Office and Accounting Machines: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35789 —	Parts for calculating, coin or currency handling, and accounting machines.....	14	(X)	127,535	(X)	<sup>1</sup> 82,949
35792 —	Automatic typing and word processing machines (all types)...	3	(D)	(D)	(D)	(D)
35793 —	Duplicating machines.....	5	(D)	(D)	11,371	59,881
35795 —	Mailing, letter handling, and addressing machines.....	31	(X)	1,397,911	(X)	1,230,632
35795 34	Forms handling equipment, including bursters, decollators, and imprinters.....	9		396,022	46,220	401,692
35795 37	Mailing machines, including postage franking machines <sup>9</sup> ...	7	(D)	(D)	(D)	(D)
35795 43	Letter and envelope handling machines.....	13		19,623	307,577	25,365
35795 48	Other mailing, letter handling, and addressing machines <sup>9</sup> ...	10		578,680	1,044,114	440,741
35799 —	All other office machines, n.e.c. ....	44	(X)	602,973	(X)	579,665
35799 31	Check handling machines.....	10		<sup>b</sup> 26,208	54,833	<sup>a</sup> 60,621
35799 32	Electric stapling machines, office type.....	4		385,414	12,493	262,572
35799 33	Time recording and time stamp machines.....	10		<sup>a</sup> 246,580	103,759	233,575
35799 41	Paper cutting machines and apparatus, office type.....	4		589,902	20,605	795,582
35799 44	Paper shredders.....	3	(D)	(D)	(D)	(D)
35799 45	Perforating or stapling machines, nonelectric.....	5	(D)	(D)	(D)	(D)
35799 95	All other office machines, n.e.c., including pencil sharpeners, typewriters, dictating machines, binding machines, ticket counting machines, and voting machines.....	25	(X)	338,884	(X)	<sup>1</sup> 340,806
3579A —	Parts for office machines, n.e.c. ....	34	(X)	441,777	(X)	<sup>1</sup> 454,352
36950 —	Magnetic and optical recording media.....	57	(X)	5,242,777	(X)	<sup>1</sup> 5,739,079
	Rigid disks:					
36950 12	Less than 2-1/2 inches.....	1	(D)	(D)	(D)	(D)
36950 14	2-1/2 inches up to but not including 3-1/2 inches.....	6	(D)	(D)	(D)	(D)
36950 16	3-1/2 inches up to but not including 5-1/4 inches.....	11		27,234,720	1,151,126	18,005,756
36950 18	5-1/4 inches and greater.....	5		3,225	16,790	12,980,963
	Flexible disks:					
36950 22	3-1/2 inches up to but not including 5-1/4 inches.....	13		782,694	717,747	2,359,779
36950 24	5-1/4 inches and greater.....	9		<sup>b</sup> 128,467	<sup>b</sup> 17,893	1,536,169
36950 09	Optical disks.....	12		229,754	548,763	198,689
36950 26	Bulk magnetic tape.....	4		133,255	24,424	(D)
	Packaged magnetic tape:					
36950 11	In reels for computer use.....	5	(D)	(D)	(D)	(D)
36950 13	In cassette and cartridge for computer use.....	14		44,723	742,739	862,420
36950 28	In forms suitable for audio use.....	10		<sup>b</sup> 433,078	<sup>b</sup> 315,805	431,461
36950 21	In video cassette, 8-mm and 1/2-inch.....	15		755,300	868,228	697,108
36950 23	In video cassette, 3/4 (19-mm) and 2-inch (51-mm).....	4		9,909	83,588	38,046
36950 34	Other package magnetic tape.....	4		199,452	363,624	181,958
36950 39	Other magnetic recording media, including parts.....	16	(X)	(X)	<sup>b</sup> 183,634	(X)
50650 00	Nonmanufacturing revenue of manufacturing establishments: Supplies and accessories for use with computers or business machines (resales).....	50	(X)	1,442,467	(X)	1,415,878
99980 49	Research and development, testing, and evaluation of systems and components.....	18	(X)	96,493	(X)	47,949
73721 00	Software sold with computer systems shipped by manufacturers:					
	Operating system software.....	14	(X)	94,358	(X)	121,773
73722 00	Utilities and device managers.....	12	(X)	2,806	(X)	5,476
73723 00	Application software.....	36	(X)	425,435	(X)	437,019

See footnotes at end of table.

**Table 2. Quantity and Value of Shipments of Computers and Office and Accounting Machines: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
	Nonmanufacturing revenue of manufacturing establishments—Con.					
73724 00	Software sold with computer systems shipped by manufactures—Con.	10	(X)	66,031	(X)	126,546
73730 00	Other software . . . . .					
	Systems integration revenues, including configuration, installation and site preparation, and custom programming. . . . .	26	(X)	408,653	(X)	299,960
73700 00	Other nonmanufacturing revenues associated with computer systems . . . . .	72	(X)	1,517,293	(X)	1,547,807

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>In 1997, breakout of computer industry was redefined. Therefore, previous data are incompatible.

<sup>2</sup>For 1997, product codes 35712 50 and 35712 60 are combined to avoid disclosing data for individual companies.

<sup>3</sup>These data are collected on two Current Industrial Report forms: MA35R, "Computer and Office Accounting Machines," and MA36Q, "Semiconductors, Printed Circuit Boards, and Other Electronic Components."

<sup>4</sup>Product codes 35721 35 and 35721 37 have been combined with product code 35721 41 to avoid disclosing data for individual companies.

<sup>5</sup>Product codes 35721 51 and 35721 53 have been combined to avoid disclosing data for individual companies.

<sup>6</sup>Product codes 35721 55 and 35721 57 have been combined to avoid disclosing data for individual companies.

<sup>7</sup>Product codes 35721 61 and 35721 63 have been combined to avoid disclosing data for individual companies.

<sup>8</sup>Product codes 35784 54 and 35784 55 have been combined to avoid disclosing data for individual companies.

<sup>9</sup>Product codes 35795 37 and 35795 48 have been combined to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated. <sup>b</sup>Over 26 percent of this item is estimated.

**Table 3. Shipments, Exports, Imports, and Apparent Consumption of Computing and Accounting Machines: 1997**

[Quantity in thousands of units. Value in millions of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments (f.o.b. plant)		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3</sup>	
		Quantity	Value	Quantity	Value at port	Quantity	Value
35711 10, 20, 30, 90 35712 10, 20, 30, 40, 50, 60, 90, 35719 00	Computers, digital, analog, hybrid, and other. . . . .	20,124.0	49,605.5	2,323.3	5,918.6	4,758.0	6,381.4
35721 47	Flexible magnetic disk drives. . . . .	(D)	(D)	560.6	110.8	37,803.8	1,004.3
35721 35, 37, 39, 41, 45	Rigid magnetic disk drives, including disk subsystems and disk arrays. . . . .	1,697.3	3,069.3	2,622.3	1,843.6	66,953.2	14,707.4
35721 51, 53, 55, 57, 59, 61, 63, 65, 71, 73, 75, 77, 79	Computer storage devices and equipment, n.e.c. . . . .	7,234.7	4,788.2	1,597.0	1,506.6	40,603.8	4,028.2
35771 40	Laser computer printers . . . . .	2,427.2	2,547.7	936.2	585.2	2,546.7	1,376.7
35771 42, 45, 72, 74	Computer printers, n.e.c. . . . .	9,533.2	2,499.1	2,152.1	922.6	14,673.2	2,697.4

See footnotes at end of table.



**Table 3. Shipments, Exports, Imports, and Apparent Consumption of Computing and Accounting Machines: 1997—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments (f.o.b. plant)		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3</sup>	
		Quantity	Value	Quantity	Value at port	Quantity	Value
35771 33	Computer keyboards.....	20,350.5	612.8	1,739.8	122.2	43,090.3	540.2
35751 00	Computer terminals.....	(X)	791.7	64.9	115.0	1,328.6	998.3
35771 56, 58	Monitors, CRT-type.....	2,889.1	1,214.1	980.6	429.3	27,331.4	7,847.8
35771 55, 62	Monitors, n.e.c.....	877.2	630.2	348.0	234.5	1,570.0	1,014.9
35771 14, 16, 18, 24, 28	Optical scanning devices and magnetic strip and ink recognition equipment.....	3,518.4	1,651.7	560.2	332.0	5,741.6	820.3
35771 02, 04, 06, 08, 12, 26, 29, 35, 47, 49, 51, 53, 63	Computer peripheral equipment, n.e.c.....	25,934.5	2,151.9	329.4	232.8	776.3	52.8
35771 68, 35772 —, 35798 —	Parts, subassemblies, and accessories for computer peripheral equipment.....	(X)	36,533.1	-	18,204.7	-	23,704.8
35793 00	Duplicating machines.....	(D)	(D)	35.6	26.3	29.1	64.9
35784 55	Point-of-sales terminals.....	(D)	(D)	58.5	87.5	1,418.6	246.4
35784 16, 54, 59	Coin or currency handling machines, n.e.c., including cash registers, accounting, bookkeeping, and billing machines, and credit card im printers.....	540.9	794.3	1,156.5	74.8	101,447.0	842.5
35792 00	Automatic typing and word processing machines (all types)...	(D)	(D)	109.8	40	38,679.7	69.4
35795 00	Mailing, letter handling, and addressing machines.....	(X)	1,398.0	93.7	102.5	219.2	180.5
35799 33	Time recording and time stamping machines.....	246.6	103.8	96.6	12.6	145.3	4.4
35789 —	Office machines, n.e.c.....	10,278.3	499.2	2,866.4	189.9	30,661.6	593.0
35789 00	Parts for calculating, coin, or currency handling, and accounting machines.....	(X)	127.5	-	379.8	-	254.8
3579A —	Parts for office machines, n.e.c.....	(X)	441.8	-	185.7	-	101.4
36950 09, 12, 14, 16, 18, 22, 24	Rigid, flexible, and optical disks.....	28,446.8	2,624.7	399,016.3	1,906.1	1,138,918.6	317.2
36950 11, 13, 21, 23, 25, 26, 34	Bulk and packaged magnetic tape.....	1,579.1	2,434.4	95,524.0	573.6	652,927.0	1,534.5
36950 39	Other magnetic recording media, including parts.....	(X)	183.6	133.2	378.6	980.7	672.3

- Represents zero. D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified.  
X Not applicable.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

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**HISTORICAL NOTE**

Data on computers and office and accounting machines have been collected by the Census Bureau since 1953. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Keith McKenzie, 301-457-4777.

## SWITCHGEAR, SWITCHBOARD APPARATUS, RELAYS, AND INDUSTRIAL CONTROLS (MA36A)

### INTRODUCTION

These data cover manufacturers of switchgear, switchboard apparatus, relays, and industrial controls, except very small firms (generally less than 20 employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies.

The statistics were collected by mail on Census Bureau annual Form MA36A, Switchgear, Switchboard Apparatus, Relays, and Industrial Controls. The survey panel includes all known producers of these products, except the very small firms excluded from the scope of the survey. Approximately 720 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments of switchgear and switchboard apparatus was \$6.7 billion, up 4.8 percent from the 1996 value of \$6.4 billion. The 1997 shipments include power circuit breakers, valued at \$456.3 million, an increase of 10.6 percent from 1996; low voltage panelboards, valued at \$2.2 billion, an increase of 4.4

percent from 1996; fuses and fuse equipment, valued at \$557.4 million, an increase of 6.7 percent from 1996; molded case circuit breakers, valued at \$1.3 billion, an increase of 5.4 percent from 1996; duct, valued at \$278.1 million, an increase of 9.3 percent from 1996; and switchgear valued at \$1.9 billion, an increase of 2.3 percent from 1996. During 1997, the total value of shipments of relays and industrial controls was \$9.3 billion, up 2.2 percent from the 1996 value of \$9.1 billion. The 1997 shipments include general-purpose relays valued at \$850.8 million, an increase of 8.2 percent from 1996; specific-purpose industrial controls, valued at \$3.5 billion, an increase of 2.0 percent from 1996; general-purpose industrial controls, valued at \$4.4 billion, an increase of 0.7 percent from 1996; and motor controller accessories valued at \$554.4 million, an increase of 7.4 percent from 1996.

### EXPLANATION OF TERMS

For explanation of terms, see "Contact for Data Users" at the end of this subsection.

Table 4. **Value of Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1992 to 1997**

[Millions of unadjusted dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992
36132	Power circuit breakers .....	456.3	412.7	442.9	550.9	520.8	480.8
36133	Low-voltage panelboards .....	2,186.7	2,093.3	2,025.4	1,750.8	1,687.1	1,531.1
36134	Fuses and fuse equipment .....	557.4	522.2	500.1	382.1	319.9	412.8
36135	Molded case circuit breakers .....	1,283.6	1,218.1	1,173.4	1,132.9	1,009.8	954.7
36136	Duct, 1,000 volts and under .....	278.1	254.5	238.5	227.9	200.1	189.1
36139	Switchgear (except ducts) .....	1,911.6	1,868.2	1,758.3	1,663.7	1,581.3	161.5
36251	Relays, general-purpose .....	850.8	786.6	808.1	804.0	750.6	781.5
36252	Specific-purpose industrial control .....	3,523.3	3,454.9	3,312.4	2,747.9	2,321.6	1,915.7
36253	General-purpose industrial controls .....	4,353.8	4,323.8	4,189.2	3,840.3	3,326.3	2,778.2
36254	Motor controller accessories and parts for industrial controls .....	554.4	516.4	503.3	511.6	476.4	447.9

**Table 5. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3613—	Switchgear and switchboard apparatus . . . . .	(NA)	(X)	6,673,723	(X)	6,368,948
36132 —	Power circuit breakers and parts, all voltages . . . . .	33	(X)	456,296	(X)	412,680
36132 16	Power circuit breakers (sold separately) for use in metal-clad switchgear oil and oilless, over 1,000 volts, (number of breakers) . . . . .	10	4,246	<sup>a</sup> 45,524	3,304	42,908
36132 17	Parts for power circuit breakers for use in metal-clad switchgear <sup>1</sup> . . . . .	5	(X)	(D)	(X)	(D)
36132 21	Power circuit breakers, free standing, oil and oilless, from 15.5 kV through 800 kV and above (number of breakers) . . . . .	8	4,426	165,061	3,238	147,652
36132 22	Parts for power circuit breakers, free standing, oil and oilless, from 15.5 kV through 800 kV and above <sup>1</sup> . . . . .	3	(X)	12,723	(X)	12,602
36132 26	Power circuit breakers (sold separately) in individual enclosure and/or for use in low-voltage switchgear, 1,000 volts and below, excluding molded case circuit breakers (number of breakers) <sup>2</sup> . . . . .	9	(D)	(D)	(D)	(D)
36132 27	Parts for power circuit breakers in individual enclosures and/or for use in low-voltage switchgear, 1,000 volts and below, excluding molded case circuit breakers <sup>2</sup> . . . . .	5	(X)	(D)	(X)	(D)
36132 31	All other power circuit breakers (sold separately), oil and oilless, network protectors, and automatic circuit reclosers <sup>2</sup> . . . . .	8	(X)	180,972	(X)	175,824
36132 32	Parts for all other power circuit breakers, oil and oilless, network protectors, and automatic circuit reclosers . . . . .	14	(X)	52,016	(X)	<sup>r</sup> 33,694
36133 —	Low voltage panelboards, distribution boards, and other switching and interrupting devices, 1,000 volts and below . . . . .	125	(X)	2,186,671	(X)	2,093,277
	Panelboards, including enclosing cabinets:					
36133 11	Fusible, including combination switch fuse . . . . .	43	(S)	154,516	(S)	<sup>r</sup> 161,144
36133 12	Circuit breaker . . . . .	53	1,193,896	551,937	1,057,960	483,427
	Distribution switchboards:					
36133 15	Fusible . . . . .	32	34,582	108,510	<sup>r</sup> 36,072	<sup>r</sup> 112,747
36133 17	Circuit breaker . . . . .	45	84,539	343,635	<sup>r</sup> 78,091	323,222
36133 19	Other, including theater switchboards . . . . .	7	4,923	5,208	<sup>r</sup> 3,643	<sup>r</sup> 4,015
	Switches (except switches commonly known as snap, toggle, and rotary switches and switch devices intended primarily to be used with electric motor controls):					
	Knife switches, enclosed:					
36133 21	Heavy duty . . . . .	10	1,546,205	181,742	1,794,738	170,864
36133 22	General duty . . . . .	6	1,382,275	68,621	1,567,589	69,328
36133 24	Enclosed fusible, service entrance, and branch circuit cutouts . . . . .	8	474,260	28,567	930,081	25,038
36133 26	Circuit breaker type . . . . .	15	(S)	262,467	(S)	270,810
	Load centers:					
36133 32	Grouped metering panels (combinations of two or more meters and related switching units with overcurrent protection associated with each meter, including accessory components, excluding single socket load combinations) . . . . .	14	(S)	<sup>a</sup> 35,089	(S)	39,878
36133 33	Other switches, excluding snap, bolted toggle, push, etc., including open knife switches, motor contact, motor disconnect, meter service equipment other than meter mounting, and test devices. . . . .	22	(X)	<sup>a</sup> 163,461	(X)	160,986
36133 98	Other low voltage switchgear apparatus . . . . .	30	(X)	<sup>a</sup> 282,918	(X)	271,818
36134 —	Fuses and fuse equipment, under 2,300 volts (except power distribution cutouts) . . . . .	24	(X)	<sup>b</sup> 557,363	(X)	522,201
36134 31	Nonrenewable plug fuses <sup>3</sup> . . . . .	3	(X)	(D)	(X)	(D)
36134 51	Nonrenewable cartridge fuses . . . . .	10	(X)	<sup>b</sup> 261,953	(X)	254,408
36134 71	Renewable plug and cartridge fuses, including renewable links <sup>3</sup> . . . . .	3	(X)	<sup>b</sup> 4,382	(X)	5,605
36134 93	Other fuses and open fuse material, including cutouts, clips, bases, etc. . . . .	22	(X)	<sup>b</sup> 291,028	(X)	262,188

See footnotes at end of table.

Table 5. **Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3613— 36135 —	Switchgear and switchboard apparatus—Con. Molded case circuit breakers, 1,000 volts and under . . . . .	33	(D)	1,283,649	(D)	1,218,119
	Industrial type, assembled as complete units in supporting and enclosing housing of insulating materials, with or without accessories or attachments:					
36135 14	With ground fault detection capability . . . . .	15	<sup>a</sup> 75,496	29,291	71,642	<sup>f</sup> 27,391
36135 16	Without ground fault detection capability. . . . .	17	31,578,925	680,198	27,808,120	606,674
	Residential or light duty type, primarily for load center application, assembled as complete units in supporting and enclosing housing of insulating materials:					
36135 18	With ground fault detection capability <sup>4</sup> . . . . .	7	(D)	(D)	(D)	(D)
36135 19	Without ground fault detection capability <sup>4</sup> . . . . .	6	48,710,661	269,478	51,980,001	288,322
36135 31	Individually enclosed industrial type, excluding panelboards and busway plugs . . . . .	13	(S)	16,187	(S)	15,747
	Other molded case circuit breakers:					
36135 91	Marine and Navy type <sup>5</sup> . . . . .	4	(D)	(D)	(D)	(D)
36135 92	Aircraft and aerospace <sup>5</sup> . . . . .	6	1,417,854	127,551	1,293,889	119,165
36135 93	Automotive <sup>6</sup> . . . . .	2	(D)	(D)	(D)	(D)
36135 94	Electronic <sup>6</sup> . . . . .	5	(D)	(D)	(D)	(D)
36135 95	All other types <sup>6</sup> . . . . .	12	66,548,291	160,944	59,535,988	<sup>f</sup> 160,820
36136 —	Duct, including plug-in units and accessories, 1,000 volts and under, consisting of enclosed sectionalized prefabricated bus bars rated 20 A or more, and associated structures and fittings. . . . .	22	2,148,413	278,147	1,484,533	254,475
36136 11	Busways <sup>7</sup> . . . . .	20	(D)	(D)	(D)	(D)
36136 31	Trolley-type and lighting distribution duct <sup>7</sup> . . . . .	3	2,148,413	278,147	1,484,533	254,475
36139 —	Switchgear (except ducts) . . . . .	129	(X)	1,911,597	(X)	1,868,196
36139 07	Automatic and manual control panels (generators, transformers, feed-controls, etc.) . . . . .	68	(X)	307,356	(X)	301,801
36139 09	Metal-clad switchgear (using power circuit breakers, oil and oilless), all voltages above 1,000 volts, up to and including 38 kV, excluding load interrupter switchgear . . . . .	43	(X)	<sup>a</sup> 355,286	(X)	<sup>f</sup> 348,774
36139 10	Metal-enclosed load interrupter switchgear assemblies, all voltages, including parts. . . . .	37	(X)	183,797	(X)	<sup>f</sup> 201,949
36139 13	Metal-enclosed low-voltage power circuit breaker switchgear assemblies, 1,000 volts and below, including parts and excluding load interrupter switchgear. . . . .	33	(X)	<sup>a</sup> 147,196	(X)	165,116
36139 17	Metal-enclosed bus bars when sold separately, above 1,000 volts, including isolated, segregated, nonsegregated, and cable bus bars . . . . .	18	(X)	<sup>a</sup> 45,670	(X)	<sup>f</sup> 39,191
	Power switching equipment, 2,300 volts and over, including attachments, auxiliaries, bus supports and fittings, and accessories, but excluding power fuses, sold separately. Also includes single-phase circuit reclosers:					
36139 41	Outdoor, excluding structures . . . . .	28	(X)	372,826	(X)	337,931
36139 45	Indoor. . . . .	9	(X)	7,091	(X)	3,434
36139 51	Power fuses and fuse links for 2,300 volts and over, ac service, excluding distribution cutouts <sup>8</sup> . . . . .	11	(X)	(D)	(X)	(D)
36139 81	Power and ground connectors generally used in substation construction <sup>8</sup> . . . . .	6	(X)	158,741	(X)	143,179
36139 91	Overhead transmission and distribution connectors (clamps, taps, terminals, and splices) . . . . .	6	(X)	45,946	(X)	41,729
36139 93	Transmission and distribution connectors, n.e.c., including underground deadends, hot line taps, stirrups, and repair sleeves, etc. <sup>9</sup> . . . . .	4	(X)	(D)	(X)	(D)
36139 83	Distribution cutouts . . . . .	9	(X)	83,208	(X)	84,888
36139 98	Other switchgear devices, including regulators and miscellaneous switchboard devices (for sale separately) <sup>9</sup> . . . . .	24	(X)	<sup>a</sup> 204,480	(X)	200,204

See footnotes at end of table.

Table 5. **Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3625—	Relays and industrial controls . . . . .	(NA)	(X)	9,282,244	(X)	9,081,688
36251 —	General-purpose and other relays . . . . .	116	(X)	850,771	(X)	786,615
36251 01	Industrial-control relays (all voltages), n.e.c. . . . .	42	(S)	<sup>a</sup> 247,979	(S)	<sup>r</sup> 229,950
	General-purpose electromechanical relays:					
	Over 100 MW actuating power and sealed (either hermetically or environmentally):					
36251 03	0 through 2.0 amperes contact rating <sup>10</sup> . . . . .	8	(D)	(D)	(D)	(D)
36251 04	Over 2.0 through 10.0 amperes contact rating . . . . .	16		967,769	<sup>r</sup> 921,178	24,219
36251 05	Over 10.0 amperes contact rating <sup>10</sup> . . . . .	6		1,505,079	(S)	36,690
	Over 100 MW actuating power and not sealed:					
36251 02	0 through 10.0 amperes contact rating . . . . .	14		<sup>a</sup> 955,637	<sup>a</sup> 9,376	1,339,791
36251 10	Over 10.0 amperes contact rating <sup>11</sup> . . . . .	12	(D)	(D)	(D)	(D)
36251 11	0 through 100 MW actuating power (both sealed and not sealed) <sup>11</sup> . . . . .	2		<sup>a</sup> 859,216	9,842	1,250,927
	Miniature printed circuit mounted electromechanical relays, excluding reed relays (profile height 1/2-inch max.):					
	Sealed (either hermetically or environmentally):					
36251 12	0 through 2.0 amperes contact rating <sup>12</sup> . . . . .	4	(D)	(D)	(D)	(D)
36251 15	Over 2.0 amperes contact rating <sup>12</sup> . . . . .	3		11,115,959	13,276	10,235,539
36251 20	Not sealed . . . . .	4	(D)	(D)	(D)	(D)
	DIP or SIP footprint:					
36251 19	Sealed (either hermetically or environmentally) . . . . .	2	(D)	(D)	(D)	(D)
	Telephone relays, all types:					
36251 22	Sealed (either hermetically or environmentally) <sup>13</sup> . . . . .	4	(D)	(D)	(D)	(D)
36251 23	Not sealed <sup>13</sup> . . . . .	4		<sup>c</sup> 12,844,017	<sup>c</sup> 14,205	6,722,880
36251 30	General-purpose solid-state relays, pure solid-state, and hybrid solid state, excluding time delay . . . . .	10	(D)	(D)	(D)	(D)
	High performance military/aerospace/aircraft relays and contactors (generally pertaining to Mil-R5757, 6106, 19523, 25108, and 39016):					
36251 31	Round and square can multipole airframe relays and contactors (both sealed and not sealed) (all sizes) . . . . .	5	(D)	(D)	(D)	(D)
	Crystal can types (sealed):					
36251 32	Larger than full size . . . . .	5	(S)	25,317	344,030	21,539
36251 33	Full size . . . . .	5		184,164	12,564	174,140
36251 37	Half size and smaller, including TO-5 package <sup>14</sup> . . . . .	4	(D)	(D)	(D)	(D)
36251 52	RF, antenna and coaxial relays (sealed and not sealed), excluding reed relays <sup>14</sup> . . . . .	7		<sup>a</sup> 1,820,947	89,325	<sup>r</sup> 1,744,353
	Reed relays:					
	Dry reed:					
36251 59	Miniature size (glass length less than .85 inch) <sup>15</sup> . . . . .	10	(D)	(D)	(D)	(D)
36251 61	Standard size <sup>15</sup> . . . . .	7		21,888,345	42,432	17,758,964
36251 66	Mercury wetted reed <sup>16</sup> . . . . .	6	(D)	(D)	(D)	(D)
36251 69	Stepping switches, stepping and impulse relays <sup>16</sup> . . . . .	4	(D)	(D)	(D)	(D)
36251 75	Switchgear and protective relays <sup>16</sup> . . . . .	6		627,338	25,731	572,202
	Timing relays (timers):					
36251 79	Solid-state/EMR combination . . . . .	24		<sup>b</sup> 1,199,009	<sup>b</sup> 36,050	930,410
36251 81	Solid-state-pure . . . . .	18		322,272	14,750	250,357
36251 82	All other timing relays (timers), including pneumatic, motor driven, electronic, etc. . . . .	15		450,148	18,829	432,999
36251 92	All other general-purpose and special-purpose relays, n.e.c. . . . .	25	(X)	169,208	(X)	160,865
36251 96	Parts for general-purpose and special-purpose relays, sold separately . . . . .	9	(X)	<sup>b</sup> 16,796	(X)	28,308
36252 —	Specific-purpose industrial controls . . . . .	250	(X)	3,523,286	(X)	3,454,885
36252 45	U.S. Coast Guard, Navy, and Marine auxiliary controls and accessories . . . . .	24		62,807	137,411	75,612
36252 47	Metal mill controls and accessories (all voltages) . . . . .	8	(D)	(D)	(D)	(D)
36252 48	Crane and hoist controls, constant and adjustable voltage, including operators' desks and stations . . . . .	19		36,392	131,630	44,595

See footnotes at end of table.

Table 5. **Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3625—	Relays and industrial controls—Con.					
36252	Specific-purpose industrial controls—Con.					
36252 49	Definite-purpose contactors and starters (600 volts and less) .....	19	10,789,899	135,262	11,797,777	<sup>†</sup> 160,097
	Machine tool applications (motion controllers):					
	Stand-alone controls for numerically controlled machine tools:					
36252 51	Computer numerical controls (CNC); positioning (point-to-point) .....	12	9,523	23,097	9,449	22,262
36252 55	Computer numerical controls (CNC); continuous path (contouring) .....	13	46,732	288,923	35,570	277,992
36252 57	Robotic controls .....	4	(D)	(D)	(D)	(D)
36252 58	Other stand-alone motion controls .....	13	51,307	92,696	<sup>†</sup> 70,973	<sup>†</sup> 91,891
36252 60	Subordinate motion controls .....	12	(S)	<sup>a</sup> 15,156	(S)	<sup>†</sup> 15,471
36252 71	Programmable controller, sold separately .....	56	(S)	1,223,469	(S)	<sup>†</sup> 1,133,627
36252 76	Other specific- or special-purpose ac and dc controllers, other definite-purpose devices .....	157	(X)	<sup>a</sup> 1,365,793	(X)	1,377,299
36253 —	General-purpose industrial controls and power circuit devices .....	262	(X)	4,353,770	(X)	4,323,798
	General purpose controls:					
36253 01	Ac full voltage noncombination magnetic starters (1,000 volts or less) .....	24	<sup>b</sup> 968,714	155,910	1,153,398	154,856
	Ac full voltage combination magnetic starters (1,000 volts or less):					
36253 03	Combination starters (less pumping panels) .....	22	106,068	67,983	<sup>†</sup> 129,062	73,427
36253 05	Pumping panels .....	19	62,505	36,411	38,991	29,572
36253 06	Disconnect switches (600 volts or less) .....	19	2,519,221	55,758	1,977,834	56,476
	Ac full voltage manual controllers, 1,000 volts or less:					
36253 23	Designed and rated to U.S. National Standards (NEMA) .....	12	1,285,192	48,515	<sup>†</sup> 1,290,669	48,886
36253 25	Designed and rated to International Standards (IEC) .....	7	(S)	722	(S)	<sup>†</sup> 769
	Ac contactors, 1,000 volts or less, excluding controls for packaged adjustable speed drives and synchronous motor controls:					
36253 27	Designed and rated to U.S. National Standards (NEMA) .....	14	577,622	82,837	<sup>†</sup> 483,249	68,231
36253 29	Designed and rated to International Standards (IEC) .....	16	(D)	(D)	(D)	(D)
36253 14	Ac reduced voltage controls, 1,000 volts or less, excluding synchronous motor starters .....	21	<sup>a</sup> 89,112	<sup>a</sup> 63,267	77,689	59,024
36253 15	Synchronous motor starters, 1,000 volts or less, including both full and reduced voltage .....	4	(D)	(D)	(D)	(D)
36253 16	Motor control centers, 1,000 volts or less .....	38	(X)	437,495	(X)	422,834
36253 18	Starters and contactors for squirrel cage and wound rotor and synchronous and nonsynchronous motors, over 1,000 to 7,200 volts, air break, vacuum, and oil immersed .....	8	43,844	77,887	70,354	85,605
36253 21	Brakes and clutches .....	20	1,474,894	70,047	1,138,134	66,827
36253 34	Digital readout system, including dial or plugboard type .....	22	7,823	<sup>a</sup> 4,677	7,868	<sup>†</sup> 8,592
	Presence sensors and motion measurement devices:					
	Limit switches (positioning sensors):					
36253 32	Electromechanical positioning sensors .....	30	(X)	135,698	(X)	<sup>†</sup> 129,496
36253 33	Movement sensors .....	19	(X)	37,892	(X)	35,815
	Solid-state positioning sensors:					
36253 35	Nonoptical proximity sensors .....	18	(X)	90,302	(X)	80,040
36253 36	Optical proximity sensors .....	15	(X)	154,285	(X)	132,925
36253 37	All other pilot circuit devices, excluding relays and limit switches .....	12	(X)	<sup>c</sup> 15,780	(X)	26,619
36253 38	Dc power circuit devices (all voltages) .....	12	(X)	<sup>b</sup> 28,235	(X)	<sup>†</sup> 26,219
36253 39	Other control sensors (all voltages) .....	18	(X)	104,253	(X)	<sup>†</sup> 109,955
	Pushbuttons and pushbutton stations, excluding operators' desks and stations:					
36253 42	Pushbuttons, 18 mm and smaller .....	14	(X)	7,581	(X)	<sup>†</sup> 8,536
36253 46	Pushbuttons, 19 mm to 29 mm .....	19	(X)	62,319	(X)	49,178
36253 48	Pushbuttons, 30 mm and larger .....	24	(X)	211,561	(X)	<sup>†</sup> 208,659
36253 81	Rheostats and resistors (except for electronic applications) sold separately, n.e.c. ....	14	(X)	24,215	(X)	22,001

See footnotes at end of table.

**Table 5. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3625 — 36253 —	Relays and industrial controls—Con. General-purpose industrial controls and power circuit devices—Con. Presence sensors and motion measurement devices—Con. Controls for adjustable speed drives, including electronic and nonelectric and operators' desks and stations:					
36253 83	Controls for ac packaged drives .....	37	570,415	376,332	549,023	<sup>f</sup> 436,571
36253 84	Controls for dc packaged drives .....	29	218,226	104,740	265,329	<sup>f</sup> 120,114
36253 85	Ac drive systems .....	35	<sup>b</sup> 70,616	<sup>a</sup> 197,712	68,502	239,709
36253 86	Dc drive systems .....	26	359,694	<sup>a</sup> 111,465	396,683	154,594
36253 98	Solid-state motor controllers (all voltages) .....	48	1,715,242	252,950	<sup>f</sup> 1,839,990	<sup>f</sup> 231,740
36253 99	All other general industry devices and systems .....	102	(X)	1,287,178	(X)	<sup>f</sup> 1,184,817
36254 — 36254 91	Motor controller accessories and parts for industrial controls .....	132	(X)	554,417	(X)	516,390
	Motor controller accessories, including those items that are sold separately, but become part of a motor controller. Includes overload relays, auxiliary contacts, heater elements, mechanical interlocks, control transformers, kits to add pushbuttons, selector switches, pilot lights, separate controller enclosure fittings, reset mechanisms, etc., excluding motor circuit switches, sold separately .....	43	(X)	184,010	(X)	<sup>f</sup> 164,154
36254 97	Parts for industrial controls .....	107	(X)	370,407	(X)	352,236

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. <sup>f</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

- <sup>1</sup>Product code 36132 17 is combined with product code 36132 22 to avoid disclosing data for individual companies.
- <sup>2</sup>Product codes 36132 26 and 36132 27 are combined with product code 36132 31 to avoid disclosing data for individual companies.
- <sup>3</sup>Product code 36134 31 is combined with product code 36134 71 to avoid disclosing data for individual companies.
- <sup>4</sup>Product code 36135 18 is combined with product code 36135 19 to avoid disclosing data for individual companies.
- <sup>5</sup>Product code 36135 91 is combined with product code 36135 92 to avoid disclosing data for individual companies.
- <sup>6</sup>Product codes 36135 93 and 36135 94 are combined with product code 36135 95 to avoid disclosing data for individual companies.
- <sup>7</sup>Product code 36136 11 is combined with product code 36136 31 to avoid disclosing data for individual companies.
- <sup>8</sup>Product code 36139 51 is combined with product code 36139 81 to avoid disclosing data for individual companies.
- <sup>9</sup>Product code 36139 93 is combined with product code 36139 98 to avoid disclosing data for individual companies.
- <sup>10</sup>Product code 36251 03 is combined with product code 36251 05 to avoid disclosing data for individual companies.
- <sup>11</sup>Product code 36251 10 is combined with product code 36251 11 to avoid disclosing data for individual companies.
- <sup>12</sup>Product code 36251 12 is combined with product code 36251 15 to avoid disclosing data for individual companies.
- <sup>13</sup>Product code 36251 22 is combined with product code 36251 23 to avoid disclosing data for individual companies.
- <sup>14</sup>Product code 36251 37 is combined with product code 36251 52 to avoid disclosing data for individual companies.
- <sup>15</sup>Product code 36251 59 is combined with product code 36251 61 to avoid disclosing data for individual companies.
- <sup>16</sup>Product codes 36251 66 and 36251 69 are combined with product code 36251 75 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated. <sup>b</sup>25 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.



**Table 6. Shipments, Exports, Imports, and Apparent Consumption of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description	Manufacturer's shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption <sup>2</sup>
<b>1997</b>				
36132 16, 21, 26, 31	Power circuit breakers .....	388,957	128,324	84,546
36132 17, 22, 27, 32	Parts for power circuit breakers .....	67,339	180,587	48,086
36133 11, 12, 15, 17, 19	Low voltage panelboards and distribution boards .....	1,163,806	117,953	275,231
36133 21, 22	Knife switches .....	250,363	3,587	9,137
36134 00	Fuses and fuse equipment, under 2,300 volts .....	557,363	162,174	94,889
36135 00	Molded case circuit breakers, 1,000 volts and under .....	1,283,649	123,817	298,484
36136 00	Duct, including plug-in units and accessories .....	278,147	50,749	6,404
36139 07, 09, 10, 13, 17, 41, 45, 83, 98	Switchgear and switchgear assemblies <sup>3</sup> .....	(D)	(D)	(D)
36139 51	Power fuses and fuse links, 2,300 volts and over <sup>3</sup> .....	(D)	(D)	(D)
36139 81, 91, 93	Power and ground connectors and transmission and distribution connectors <sup>3</sup> .....	1,911,597	285,980	122,723
36251 01-05, 10-12, 15, 20, 30-33, 37, 52, 59, 61, 66, 69, 75, 81, 82, 92	Relays .....	783,690	422,209	737,511
36252 51, 55	Controls for numerically controlled machine tools .....	312,020	29,750	48,026
36252 71	Programmable controllers .....	1,223,469	136,206	328,126
36253 01, 03, 05, 15	Motor starters .....	260,304	43,336	46,462
36253 16	Motor control centers, 1,000 volts or less .....	437,495	68,618	38,850
36253 21	Brakes and clutches .....	70,047	26,170	65,023
36253 32, 33	Limit switches .....	173,590	10,544	16,767
36253 81	Rheostats and resistors .....	24,215	9,992	10,938
<b>1996</b>				
36132 16, 21, 26, 31	Power circuit breakers .....	365,094	125,667	75,374
36132 17, 22, 27, 32	Parts for power circuit breakers .....	47,586	160,877	41,936
36133 11, 12, 15, 17, 19	Low voltage panelboards and distribution boards .....	1,084,555	126,683	211,789
36133 21, 22	Knife switches .....	240,192	2,793	4,031
36134 00	Fuses and fuse equipment, under 2,300 volts .....	522,201	131,419	82,636
36135 00	Molded case circuit breakers, 1,000 volts and under .....	1,218,119	92,281	251,919
36136 00	Duct, including plug-in units and accessories .....	254,475	39,007	9,823
36139 07, 09, 10, 13, 17, 41, 45, 83, 98	Switchgear and switchgear assemblies <sup>3</sup> .....	(D)	(D)	(D)
36139 51	Power fuses and fuse links, 2,300 volts and over <sup>3</sup> .....	(D)	(D)	(D)
36139 81, 91, 93	Power and ground connectors and transmission and distribution connectors <sup>3</sup> .....	1,868,196	270,272	123,049
36251 01-05, 10-12, 15, 20, 30-33, 37, 52, 59, 61, 66, 69, 75, 81, 82, 92	Relays .....	724,819	460,285	696,704
36252 51, 55	Controls for numerically controlled machine tools .....	300,254	25,112	62,605
36252 71	Programmable controllers .....	1,133,627	116,090	273,939
36253 01, 03, 05, 15	Motor starters .....	257,855	37,851	49,707
36253 16	Motor control centers, 1,000 volts or less .....	422,834	53,197	30,640
36253 21	Brakes and clutches .....	66,827	22,503	53,118
36253 32, 33	Limit switches .....	165,311	9,351	29,096
36253 81	Rheostats and resistors .....	22,001	4,649	13,300

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Source: Census Bureau report, EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report, IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Product codes 36139 07, 09, 10, 13, 17, 41, 45, 83, 98 and product code 36139 51 are combined with product codes 36139 81, 91, 93 to avoid disclosing data for individual companies.

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**HISTORICAL NOTE**

Data on switchgear, switchboard apparatus, relays, and industrial controls have been collected by the Census Bureau since 1971. Historical data may be obtained from Current Industrial Reports available at your local Federal

Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Tempie Whittington, 301-457-4800.

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## FLUORESCENT LAMP BALLASTS (MQ36C)

### INTRODUCTION

These data cover all companies engaged in the manufacture of fluorescent lamp ballasts. The statistics were collected by mail on Census Bureau quarterly Form MQ36C, Fluorescent Lamp Ballasts. The survey panel includes all known producers of this product, approximately 14 companies.

### SUMMARY OF FINDINGS

The value of manufacturers' shipments of fluorescent lamp ballasts amounted to \$906 million in 1997, a decrease of less than 1 percent over shipments of \$909 million in 1996. The quantity of fluorescent lamp ballasts shipped increased to 103.9 million units in 1997, from 97 million units in 1996, an almost 7 percent increase in units shipped. Magnetic type accounted for 65 percent of the quantity, but only 46 percent of the value of shipments; whereas, electronic type made up only 35 percent of the quantity, but comprised 54 percent of the value of shipments.

Magnetic corrected power-factor types accounted for 41 percent of the quantity and 38 percent of the value of shipments of all fluorescent lamp ballasts during 1997. For 1997, the quantity of shipments for magnetic corrected power-factor type was unchanged at 42.8 million units, while magnetic uncorrected power-factor type remained at 24 million units for the third straight year. The dollar value of shipments of the corrected type showed a 12-percent decrease for the third straight year; while the dollar value of the uncorrected power-factor type showed a slightly 1 percent increase, remaining around \$68 million for the third year.

The value of shipments of electronic ballasts increased 10 percent in 1997 to \$494 million compared \$451 million in 1996; continuing its upward trend while reducing per unit value. Quantity of ballasts increased 21 percent to 36.5 million units, from the 30 million level in 1996.

### EXPLANATION OF TERMS

#### Magnetic Type:

*Uncorrected power-factor ballasts.* Any ballast with a power factor less than 85 percent.

*Corrected power-factor ballasts.* Any ballast with a power factor of 85 percent or above.

#### Electronic Type:

*Uncorrected power factor.* Less than 90 percent power factor.

*Corrected power factor.* Ninety percent power factor or above.

**Rapid start.** Includes ballasts of all voltage and frequency ratings for operation of all lamps designed for cathode preheating without the use of starters.

**Preheat start.** Includes ballasts of all voltage and frequency ratings for operation of all lamps of the switch start type, except ballasts with preheat windings.

**Slimline and instant start.** Includes ballasts of all voltage and frequency ratings for operation of all hot cathode lamps that do not utilize preheating of cathodes.

**All other.** Includes ballasts of all voltage and frequency ratings not classified above. Specifically, includes ballasts with preheat windings for fast starting of standard switch start lamps (trigger start, quick start, etc.), ballasts for dc operation, and cold cathode ballasts.

#### Electronic Fluorescent Ballast

Includes ballasts serving preheat or rapid start lamps, including those ballasts operating lamps less than 20 watts up to 40 watts, driving one, two, three or four lamps, and ballasts for 800mA lamps and above, and miscellaneous applications for powering fluorescent lamps not reported elsewhere. Also includes ballasts for single-pin slimline, instant start lamps, including ballasts driving two 96-inch lamps, and all other slimline lamp ballasts.

**Table 7. Quantity and Value of Shipments of Uncorrected and Corrected Power-Factor Type Fluorescent Ballasts: 1986 to 1997**

[Quantity in thousands of ballasts. Value in thousands of dollars]

Year	Total		Magnetic type				Electronic type	
			Uncorrected power-factor type		Corrected power-factor type			
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1997.....	103,947	906,477	24,517	68,528	42,887	343,928	36,543	494,021
1996.....	97,355	909,178	24,172	67,884	42,841	389,877	30,342	451,417
1995.....	105,314	1,002,243	24,764	68,165	47,648	427,062	32,902	507,016
1994.....	108,114	940,746	27,517	75,013	55,991	474,958	24,606	390,775
1993.....	107,428	969,542	28,150	65,820	54,790	457,222	24,488	446,500
1992.....	97,034	812,287	28,363	68,771	55,379	468,940	13,292	274,576
1991.....	88,729	718,317	24,919	61,413	55,467	476,867	8,343	180,037
1990.....	81,364	615,569	22,556	54,403	55,807	491,878	3,001	69,288
1989.....	77,702	521,301	18,011	41,667	58,265	439,818	1,426	39,816
1988.....	75,676	476,375	17,813	40,916	56,799	409,954	1,064	25,505
1987.....	74,948	436,045	19,542	42,814	54,754	378,113	652	15,118
1986 <sup>1</sup> .....	69,840	407,906	17,370	38,601	52,039	357,470	431	11,835

<sup>1</sup>Data for electronic type were not collected separately prior to 1986.

**Table 8. Shipments, Exports, Imports, and Apparent Consumption of Fluorescent Lamp Ballasts: 1997 and 1996**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>3</sup>	
		Quantity	Value f.o.b. plant	Quantity <sup>2</sup>	Value at port <sup>2</sup>	Quantity <sup>2</sup>	Value <sup>2 4</sup>
36124 —	Fluorescent lamp ballasts.....	103,947	906,477	22,982	128,119	98,010	588,552
	1997 ..	97,355	909,178	17,955	92,191	81,844	504,702
	1996 ..						

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*. Schedule B export number is 8504.10.0000.

<sup>2</sup>Export/imports are over stated due to the inclusion of specialty transformers classified in product class 36123.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*. The HTSUSA import number is 8504.10.0000.

<sup>4</sup>This value represents c.i.f. plus U.S. import duties.

**Table 9. Quantity and Value of Shipments by Type of Ballast: 1997 and 1996**

[Quantity in thousands of ballasts. Value in thousands of dollars]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	<b>1997</b>										
36124 —	Fluorescent lamp ballasts. . . . .	103,947	906,477	25,343	228,100	25,799	228,016	25,522	214,297	27,283	236,064
	Magnetic type. . . . .	67,404	412,456	16,940	109,841	16,734	103,692	16,156	90,718	17,574	108,205
	Uncorrected power-factor type (less than 85 percent power factor). . . . .	24,517	68,528	5,919	17,114	6,490	18,016	6,037	16,179	6,071	17,219
	Preheat start. . . . .	17,237	37,075	4,082	8,956	4,873	10,716	4,222	8,648	4,060	8,755
36124 58	Single-ended compact lamps <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 62	20 watt and less. . . . .	8,371	16,506	2,089	4,052	2,265	4,598	2,064	3,961	1,953	3,895
36124 64	21 watt and over <sup>1</sup> . . . . .	8,866	20,569	1,993	4,904	2,608	6,118	2,158	4,687	2,107	4,860
36124 59	All other uncorrected power-factor type, including rapid start. . . . .	7,280	31,453	1,837	8,158	1,617	7,300	1,815	7,531	2,011	8,464
	Corrected power-factor type (85 percent power factor or above). . . . .	42,887	343,928	11,021	92,727	10,244	85,676	10,119	74,539	11,503	90,986
	Slimline and instant start . . .	6,836	74,020	1,902	21,410	1,614	18,274	1,441	15,085	1,879	19,251
36124 67	Two-lamp 96T12 and 72T12. . . . .	6,268	67,426	1,750	19,667	1,470	16,585	1,321	13,710	1,727	17,464
36124 68	Other slimline and instant start. . . . .	568	6,594	152	1,743	144	1,689	120	1,375	152	1,787
36124 69	Rapid start. . . . .	34,188	255,900	8,642	67,635	8,158	63,791	8,248	56,251	9,140	68,223
	One-lamp, 40 watt 48T12/RS <sup>2</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 71	Two-lamp, 40 watt 48T12/RS. . . . .	26,559	156,211	6,632	40,173	6,167	37,514	6,544	36,074	7,216	42,450
36124 75	Two-lamp, 32 watt 48T8/RS <sup>2</sup> . . . . .	2,265	16,618	567	4,249	595	4,527	509	3,496	594	4,346
	All other rapid start . . . . .	5,364	83,071	1,443	23,213	1,396	21,750	1,195	16,681	1,330	21,427
36124 72	800 to 1,000 mA <sup>3</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 73	1,500 mA. . . . .	198	6,784	56	2,033	47	1,599	40	1,303	55	1,849
36124 74	Other rapid start <sup>3</sup> . . . . .	5,166	76,287	1,387	21,180	1,349	20,151	1,155	15,378	1,275	19,578
	Preheat start <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 77	Single-ended compact lamps <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 78	Linear and circline lamps <sup>4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 98	All other magnetic corrected power-factor type <sup>4</sup> . . . . .	1,863	14,008	477	3,682	472	3,611	430	3,203	484	3,512
	Electronic type . . . . .	36,543	494,021	8,403	118,259	9,065	124,324	9,366	123,579	9,709	127,859
	Uncorrected power-factor type (less than 90 percent power factor):										
36124 91	Single-ended compact lamps. . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 92	All other electronic uncorrected power-factor type. . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Corrected power-factor type (90 percent power factor or above):										
	Instant start:										
36124 93	One- and two-lamp, 32 watt 48T8. . . . .	15,438	183,781	3,538	43,977	3,696	44,444	4,011	46,763	4,193	48,597
36124 94	Three- and four-lamp, 32 watt 48T8. . . . .	12,595	173,266	2,850	41,277	3,248	45,372	3,213	42,838	3,283	43,779
36124 95	Two-lamp, 59 watt 96T8. . .	961	18,363	186	3,693	268	5,186	264	5,055	243	4,429
36124 96	Two-lamp, 75 watt 96T12/IS <sup>5</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 97	All other instant start <sup>5</sup> . . . .	1,141	17,399	268	4,111	261	3,918	265	3,915	347	5,455

See footnotes at end of table.

**Table 9. Quantity and Value of Shipments by Type of Ballast: 1997 and 1996—Con.**

[Quantity in thousands of ballasts. Value in thousands of dollars]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
36124 —	<b>1997—Con.</b>										
	Fluorescent lamp ballasts—Con.										
	Electronic type—Con.										
	Corrected power-factor type (less than 90 percent power factor)—Con.										
	Rapid start:										
36124 82	All 32 watt 48T8 .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 84	All other T8, 4 foot and less .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 86	Two-lamp, 40 watt 48T12/RS .....	668	10,462	196	3,023	153	2,627	149	2,286	170	2,526
36124 88	800 mA .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 89	All other rapid start .....	800	13,693	169	3,045	183	3,145	229	3,914	219	3,589
36124 99	All other corrected power ...	-	-	-	-	-	-	(D)	(D)	(D)	(D)
	<b>1996</b>										
36124 —	Fluorescent lamp ballasts .....	97,355	909,178	24,034	217,161	23,452	225,539	23,943	228,964	25,926	237,514
	Magnetic type .....	67,013	457,761	17,387	119,910	16,204	109,232	15,844	107,896	17,578	120,723
	Uncorrected power-factor type (less than 85 percent power factor) .....	24,172	67,884	6,092	16,711	5,769	15,681	5,601	15,953	6,710	19,539
	Preheat start .....	17,339	36,908	4,406	9,346	4,481	9,552	3,861	8,150	4,591	9,860
36124 58	Single-ended compact lamps <sup>1</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 62	20 watt and less .....	10,757	19,412	2,727	4,707	2,909	5,130	2,390	4,426	2,731	5,149
36124 64	21 watt and over <sup>1</sup> .....	6,582	17,496	1,679	4,639	1,572	4,422	1,471	3,724	1,860	4,711
36124 59	All other uncorrected power-factor type, including rapid start .....	6,833	30,976	1,686	7,365	1,288	6,129	1,740	7,803	2,119	9,679
	Corrected power-factor type (85 percent power factor or above) .....	42,841	389,877	11,295	103,199	10,435	93,551	10,243	91,943	10,868	101,184
36124 67	Slimline and instant start ...	7,286	91,119	2,154	26,133	1,658	20,910	1,606	20,007	1,867	24,069
36124 68	Two-lamp 96T12 and 72T12 .....	6,612	82,422	1,973	23,902	1,488	18,721	1,448	18,053	1,703	21,746
	Other slimline and instant start .....	673	8,697	181	2,231	170	2,189	158	1,954	164	2,323
	Rapid start .....	33,322	281,888	8,560	72,719	8,251	68,654	8,053	67,672	8,458	72,843
36124 69	One-lamp, 40 watt 48T12/RS <sup>2</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 71	Two-lamp, 40 watt 48T12/RS <sup>2</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 75	Two-lamp, 32 watt 48T8/RS <sup>2</sup> .....	28,027	186,461	7,148	46,885	7,009	46,825	6,818	45,837	7,052	46,914
	All other rapid start .....	5,295	95,427	1,412	25,834	1,242	21,829	1,235	21,835	1,406	25,929
36124 72	800 to 1,000 mA .....	2,984	65,865	800	17,939	662	14,449	687	15,105	835	18,372
36124 73	1,500 mA .....	203	8,031	54	2,078	48	1,908	47	1,780	54	2,265
36124 74	Other rapid start .....	2,108	21,531	558	5,817	532	5,472	501	4,950	517	5,292
	Preheat start <sup>4</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 77	Single-ended compact lamps <sup>4</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 78	Linear and circline lamps <sup>4</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 98	All other magnetic corrected power-factor type <sup>4</sup> .....	2,234	16,870	581	4,347	526	3,987	584	4,264	543	4,272
	Electronic type .....	30,342	451,417	6,647	97,251	7,248	116,307	8,099	121,068	8,348	116,791
	Uncorrected power-factor type (less than 90 percent power factor):										
36124 91	Single-ended compact lamps .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 92	All other electronic uncorrected power-factor type .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 9. Quantity and Value of Shipments by Type of Ballast: 1997 and 1996—Con.**

[Quantity in thousands of ballasts. Value in thousands of dollars]

Product code	Product description	Total		First quarter		Second quarter		Third quarter		Fourth quarter	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	<b>1996—Con.</b>										
36124 —	Fluorescent lamp ballasts—Con. Electronic type—Con. Corrected power-factor type (90 percent power factor or above):										
	Instant start:										
36124 93	One- and two-lamp, 32 watt 48T8.....	12,466	164,632	2,694	34,873	2,868	41,033	3,339	44,494	3,565	44,232
36124 94	Three- and four-lamp, 32 watt 48T8.....	9,850	149,379	2,088	30,547	2,277	37,652	2,667	41,195	2,819	39,985
36124 95	Two-lamp, 59 watt 96T8..	847	18,479	191	4,058	193	4,553	208	4,493	255	5,375
36124 96	Two-lamp, 75 watt 96T12/IS.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 97	All other instant start.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Rapid start:										
36124 82	All 32 watt 48T8.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 84	All other T8, 4 foot and less.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36124 86	Two-lamp, 40 watt 48T12/RS.....	761	12,489	181	2,903	192	3,399	220	3,522	168	2,665
36124 88	800 mA.....	338	8,762	91	2,237	85	2,399	84	2,175	78	1,951
36124 89	All other rapid start.....	537	9,415	104	1,862	134	2,418	157	2,672	142	2,463
36124 99	All other corrected power...	-	-	-	-	-	-	-	-	-	-

- Represents zero. D Withheld to avoid disclosing data for individual companies. mA Milliampere. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>Product codes 36124 58 and 36124 64 were combined to avoid disclosing data for individual companies.

<sup>2</sup>For 1997, product codes 36124 69, and 36124 75 were combined to avoid disclosing data for individual companies. For 1996, product codes 36124 69 and 36124 71 are combined with product code 36124 75 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 36124 72 is combined with product code 36124 74 to avoid disclosing data for individual companies.

<sup>4</sup>"Preheat start" and product codes 36124 77 and 36124 78 are combined with product code 36124 98 to avoid disclosing data for individual companies.

<sup>5</sup>For 1997, product code 36124 96 is combined with product code 36124 97 to avoid disclosing data for individual companies.

**HISTORICAL NOTE**

Data on fluorescent lamp ballasts have been collected by the Census Bureau since 1955. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact the Census Bureau, Customer Services, 301-457-4100.

**FUNDING**

The MQ36C survey is funded, in part, by the Certified Ballasts Manufacturers Association.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Chris Blackburn, 301-457-4817.

## WIRING DEVICES AND SUPPLIES (MA36K)

### INTRODUCTION

These data cover firms engaged in the manufacture of current-carrying wiring devices and noncurrent-carrying devices in the United States. Very small firms (generally fewer than five employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies are excluded. The statistics were collected by mail on Census Bureau annual Form MA36K, Wiring Devices and Supplies. The survey panel includes all known manufacturers of wiring devices and supplies, except the very small firms excluded from the scope of the survey. Approximately 398 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, manufacturers' shipment of wiring devices and supplies totaled \$9.2 billion, an increase of 4.9 percent from \$8.8 billion in 1996. Current-carrying wiring devices accounted for \$4.9 billion, an increase of 1.4 percent from \$4.8 billion in 1996, while the noncurrent-carrying wiring devices accounted for \$4.3 billion, an increase of 9.1 percent, from \$4.0 billion in 1996.

The 1997 shipments included lampholders, valued at \$193.3 million, up 0.3 percent from \$192.6 million in 1996; convenience and power outlets, valued at \$411.1 million, up 9.5 percent from \$375.4 million in 1996; switches, valued at \$1.6 billion, unchanged from 1996; metal contacts, valued at \$211.5 million, a decrease of 11.6 percent from \$239.2 million in 1996; wire connectors, valued at \$1.3 billion, up 3.4 percent from \$1.2 billion in 1996; other current-carrying wiring devices, valued at \$1.2 billion, unchanged from 1996; pole line and transmission hardware, valued at \$738.2 million, up 4.8 percent from \$704.1 million in 1996; electrical conduit and conduit fittings, valued at \$2.2 billion, up 11.2 percent from \$2.0 billion in 1996; and other noncurrent-carrying devices, valued at \$1.4 billion, up 8.2 percent from \$1.3 billion in 1996.

### EXPLANATION OF TERMS

**Products covered.** The instruction manual for this survey, which is available on request, provides representative descriptions of products included in most product code classifications.

Table 10. Value of Shipments of Wiring Devices and Supplies by Class of Product: 1988 to 1997

[Millions of current dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
3643	Current-carrying wiring devices.....	4,906	4,836	4,772	4,422	4,087	4,154	3,939	3,858	4,031	3,922
36431	Lampholders.....	193	193	201	211	210	197	215	230	240	227
36432	Convenience and power outlets, both general- and special-purpose, excluding pin and sleeve type.....	411	375	364	341	314	332	309	287	301	304
36433	Switches for electrical circuitry.....	1,612	1,612	1,623	1,526	1,474	1,424	1,310	1,349	1,377	1,525
36434	Metal contacts precious and other.....	212	239	259	245	208	240	332	317	375	202
36435	Wire connectors for electrical circuitry.....	1,278	1,235	1,194	1,082	976	1,007	916	844	857	842
36436	Other current-carrying wiring devices, including attachment plug caps, connector bodies, lightning arrestors, and pin and sleeve convenience power outlets.....	1,200	1,182	1,130	1,018	904	953	858	830	884	823
3644	Noncurrent-carrying wiring devices.....	4,298	3,938	3,915	3,622	3,251	3,140	2,930	3,096	3,115	3,212
36441	Pole line and transmission hardware.....	738	704	673	641	618	542	494	517	526	455
36442	Electrical conduit and conduit fittings.....	2,181	1,960	2,050	1,866	1,634	1,601	1,497	1,658	1,665	1,834
36443	Other noncurrent-carrying wiring devices and supplies.....	1,379	1,274	1,192	1,116	999	998	940	922	925	923



**Table 11. Quantity and Value of Shipments of Wiring Devices and Supplies: 1997 and 1996**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
	Wiring devices and supplies .....	(X)	(X)	9,203,762	(X)	8,775,627
3643—	Current-carrying wiring devices .....	(X)	(X)	4,905,276	(X)	4,836,822
36431 —	Lampholders .....	27	506,551	193,270	<sup>r</sup> 511,028	<sup>r</sup> 192,623
	Incandescent:					
36431 03	Outlet box, threaded, medium base only, pull and keyless types .....	4	18,281	19,934	<sup>r</sup> 18,195	<sup>r</sup> 19,617
36431 04	Push through and pull types, all materials, threaded, medium base only, excluding outlet box type and socket interiors <sup>1</sup> .....	4	(D)	(D)	(D)	(D)
36431 06	Weatherproof, threaded, medium base only .....	6	3,578	3,839	3,619	<sup>r</sup> 3,737
36431 11	Candelabra base, all types .....	10	18,469	6,433	<sup>r</sup> 25,255	<sup>r</sup> 9,057
36431 13	Sign and fixture, medium base only .....	7	20,076	18,905	<sup>r</sup> 21,101	<sup>r</sup> 19,429
36431 19	All other incandescent, medium, admedium, intermediate, lumiline, miniature, including but not limited to pin-type, cleat, hasp, and socket interiors sold separately, all bases <sup>1</sup> .....	14	152,530	82,700	<sup>r</sup> 160,949	<sup>r</sup> 82,184
	Fluorescent:					
36431 15	Bi-pin .....	8	244,568	32,758	234,134	31,446
36431 21	Slimline <sup>2</sup> .....	5	(D)	(D)	(D)	(D)
36431 23	Recessed double contact <sup>2</sup> .....	4	(D)	(D)	(D)	(D)
36431 25	All other fluorescent, including but not limited to circline, panelescent, and starter holders <sup>2</sup> .....	5	42,998	21,398	41,411	20,900
36431 28	All other lampholders, including cold cathode neon, and bases for quartz lamps .....	5	6,051	7,303	<sup>r</sup> 6,364	<sup>r</sup> 6,253
36432 —	Convenience and power outlets, both general- and special-purpose, excluding pin and sleeve type .....	13	253,216	411,078	263,782	<sup>r</sup> 375,440
36432 27	Receptacles with GFIC (all types, all amperages) .....	4	23,085	161,723	<sup>r</sup> 20,193	<sup>r</sup> 139,001
	Receptacles without GFIC:					
36432 28	2-pole, 2-wire (flush, all types) <sup>3</sup> .....	5	(D)	(D)	(D)	(D)
	2-pole, 3-wire and up (flush):					
36432 29	Locking, 15 amperes and under <sup>4</sup> .....	4	(D)	(D)	(D)	(D)
36432 30	Locking, 20 amperes and over <sup>4</sup> .....	5	89,643	64,319	90,467	<sup>r</sup> 60,674
36432 31	Nonlocking, 15 amperes and under .....	5	82,991	61,824	80,404	57,187
36432 32	Nonlocking, 20 amperes and over .....	7	28,760	54,272	26,250	49,060
36432 34	Appliance and special applications all amperages, all types .....	4	16,443	6,840	<sup>b</sup> 33,720	<sup>b</sup> <sup>r</sup> 10,511
36432 39	All other types, including dust and explosion proof, surface and 2-pole/2-wire <sup>3</sup> .....	8	12,294	62,100	<sup>r</sup> 12,748	<sup>r</sup> 59,007
36433 —	Switches for electrical circuitry .....	78	879,704	1,611,934	830,020	1,612,420
	General use flush-mounted switches, designed for mounting in switch or outlet boxes (except dimmers):					
	Ac (except mercury):					
36433 60	Single pole, 15 amperes and under .....	8	84,173	63,879	<sup>r</sup> 83,089	<sup>r</sup> 59,811
36433 63	Single pole, over 15 amperes .....	6	9,354	24,673	7,978	21,889
36433 64	Other than single pole, including but not limited to double pole 3-way, 4-way .....	7	<sup>b</sup> 47,345	80,291	<sup>b</sup> <sup>r</sup> 41,738	<sup>r</sup> 67,602
36433 51	Ac-dc (except mercury) <sup>5</sup> .....	3	(D)	(D)	(D)	(D)
36433 69	All other general-use switches, including surface-mounted, mercury, etc. <sup>5</sup> .....	9	16,578	23,926	<sup>r</sup> 18,861	<sup>r</sup> 23,077

See footnotes at end of table.

**Table 11. Quantity and Value of Shipments of Wiring Devices and Supplies: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3643- —	Wiring devices and supplies—Con.					
36433 —	Current-carrying wiring devices—Con.					
36433 70	Switches for electrical circuitry—Con. Special-purpose switches: Appliance and fixture, including pendant and canopy types and variable speed controls . . . . .	18	95,335	144,250	<sup>r</sup> 99,406	142,399
36433 71	Precision (1/8-inch gap or less) snap-acting switches, excluding limit switches . . . . .	9	78,929	53,395	82,790	49,243
36433 72	Aircraft types <sup>6</sup> . . . . .	9	(D)	(D)	(D)	(D)
36433 76	Automotive types . . . . .	25	339,807	732,962	290,810	786,153
36433 77	All other special-purpose switches, including foot actuated, light sensing, and signal actuated <sup>6</sup> . . . . .	28	199,515	403,250	<sup>r</sup> 196,856	<sup>r</sup> 382,167
	Dimmers:					
	Incandescent:					
36433 93	Infinitely variable, 600 watts or less. . . . .	10	<sup>b</sup> 6,697	<sup>a</sup> 38,453	<sup>b</sup> 6,512	<sup>a</sup> 36,747
36433 94	Infinitely variable, over 600 watts. . . . .	9	<sup>a</sup> 263	<sup>a</sup> 11,817	<sup>a</sup> <sup>r</sup> 245	<sup>a</sup> 10,661
36433 95	All other types, including but not limited to portable lamps and high-low switches . . . . .	9	<sup>a</sup> 1,708	<sup>b</sup> 35,038	<sup>a</sup> 1,735	<sup>b</sup> <sup>r</sup> 32,671
36434 —	Metal contacts, precious and other . . . . .	15	(S)	211,512	(S)	<sup>r</sup> 239,200
36435 —	Wire connectors, including connectors used under national electrical application. . . . .	67	32,068,546	1,277,513	30,877,677	1,235,224
36435 82	Pressure connectors, where pressure is applied by screw, cone, or other mechanical device. . . . .	27	1,353,392	173,028	<sup>r</sup> 1,231,990	<sup>r</sup> 192,188
36435 83	Compression connectors, uninsulated terminals and splicers, tool installed . . . . .	28	3,432,656	148,853	3,196,301	<sup>r</sup> 140,338
36435 84	Preinsulated terminals and splicers, tool installed . . . . .	17	<sup>a</sup> 1,787,156	<sup>a</sup> 172,297	<sup>r</sup> 1,880,500	188,568
36435 86	Banded or strip terminals and splicers, machine installed. . . . .	14	6,170,195	150,252	6,945,012	149,926
36435 87	Pigtail connectors, including wire nuts <sup>7</sup> . . . . .	13	(D)	(D)	(D)	(D)
36435 88	Blade or pin type, separable terminations and splicers <sup>7</sup> . . . . .	12	(D)	(D)	(D)	(D)
36435 89	Other wire connectors, n.e.c., including solder type <sup>7</sup> . . . . .	31	19,325,147	633,083	17,623,874	<sup>r</sup> 564,204
36436 —	Other current-carrying wiring devices, including attachment plug caps, connector bodies, lightning arresters, pin and sleeve convenience power outlets, etc. . . . .	120	(X)	1,199,969	(X)	<sup>r</sup> 1,181,915
	Attachment plug caps and flanged outlets, including motor bases, all types; including fused, fuseless, switch, and switchless:					
36436 40	2-pole, 2-wire, all types, general use locking and nonlocking, all amperages . . . . .	13	<sup>a</sup> 24,732	12,917	<sup>r</sup> 24,061	<sup>r</sup> 13,098
	2-pole, 3-wire and up:					
36436 41	Locking, 15 amperes and under. . . . .	8	2,327	6,402	<sup>r</sup> 2,347	6,289
36436 42	Locking, 20 amperes and over . . . . .	7	2,195	<sup>a</sup> 18,932	<sup>r</sup> 1,946	<sup>r</sup> 17,073
36436 43	Nonlocking, 15 amperes and under <sup>8</sup> . . . . .	11	(D)	(D)	(D)	(D)
36436 44	Nonlocking, 20 amperes and over <sup>8</sup> . . . . .	10	47,065	<sup>b</sup> 69,378	<sup>r</sup> 28,853	<sup>r</sup> 48,902
36436 45	All other types (except pin and sleeve), including dust and explosion-proof, appliance, and other special application. . . . .	10	2,124	36,275	2,480	37,087
	Connector bodies and flanged outlets, all types:					
36436 49	2-pole, 2-wire, all types, all amperages . . . . .	8	<sup>c</sup> 2,252	<sup>b</sup> 2,076	<sup>a</sup> <sup>r</sup> 2,104	<sup>a</sup> <sup>r</sup> 1,915
	2-pole, 3-wire and up:					
36436 51	Locking, 15 amperes and under. . . . .	9	2,481	20,320	<sup>r</sup> 2,059	<sup>r</sup> 14,337
36436 53	Locking, 20 amperes and over . . . . .	10	1,159	<sup>a</sup> 16,475	<sup>r</sup> 1,050	<sup>r</sup> 15,149
36436 55	Nonlocking, 15 amperes and under. . . . .	11	<sup>a</sup> 5,326	<sup>a</sup> 19,589	<sup>r</sup> 5,196	<sup>r</sup> 18,726
36436 57	Nonlocking, 20 amperes and over <sup>9</sup> . . . . .	8	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 11. **Quantity and Value of Shipments of Wiring Devices and Supplies: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3643—	Wiring devices and supplies—Con.					
36436 —	Current-carrying wiring devices—Con.					
	Other current-carrying wiring devices, including attachment plug cups, connector bodies, lightning arresters, pin and sleeve convenience power outlets, etc.—Con.					
	Connector bodies and flanged outlets, all types—Con.					
36436 58	All other types, excluding pin and sleeve, including dust and explosion-proof, appliance, and other special application <sup>9</sup> . . . . .	8	35,834	38,231	44,631	41,254
	Pin and sleeve convenience and power outlets, attachment plug caps, and connector bodies:					
	Pin and sleeve, general-purpose (120 volts and over, 20 amperes and over):					
36436 65	Convenience and power outlets <sup>10</sup> . . . . .	9	(D)	(D)	(D)	(D)
36436 67	Attachment plug caps . . . . .	9	245	19,553	<sup>†</sup> 226	<sup>†</sup> 18,094
36436 69	Connector bodies . . . . .	8	450	23,943	<sup>†</sup> 382	<sup>†</sup> 20,308
36436 72	All other pin and sleeve, including dust and explosion-proof, 20-ampere types, etc. <sup>10</sup> . . . . .	6	1,348	36,736	<sup>†</sup> 1,200	<sup>†</sup> 34,347
36436 79	Fluorescent starters . . . . .	5	8,347	2,016	8,538	2,228
36436 81	Terminal blocks . . . . .	20	125,321	128,272	<sup>†</sup> 146,842	<sup>†</sup> 122,560
36436 83	Lightning arresters for alternating current power transmission systems and substations; U.S. designation, station and intermediate, I.E.C. designation 10 kA and 5 kA Series A . . . . .	6	(X)	29,372	(X)	35,884
36436 85	Lightning arresters for alternating current power distribution systems and substations; U.S. designation, distribution and secondary I.E.C. designation 5 kA Series B, 2.5 kA and 1.5 kA . . . . .	5	(X)	139,953	(X)	<sup>†</sup> 124,466
36436 88	Surge suppressors, designed for equipment operating on 110/120 volt circuits . . . . .	12	(X)	117,468	(X)	112,357
36436 91	Lightning rods . . . . .	12	(X)	<sup>a</sup> 50,929	(X)	<sup>a</sup> 49,687
36436 94	Electric harnesses and assemblies, excluding engine harnesses (from purchased wire) . . . . .	19	(X)	126,795	(X)	<sup>†</sup> 135,944
36436 97	Miscellaneous, including combination devices, adaptors, current taps, surface extensions, rosettes, choke coils, rail bonds, and overhead trolley line materials <sup>11</sup> . . . . .	34	(X)	284,337	(X)	<sup>†</sup> 312,210
36436 98	All other wiring devices with integral ground fault circuit interrupting capabilities, excluding circuit breakers <sup>11</sup> . . . . .	5	(D)	(D)	(D)	(D)
3644—	Noncurrent-carrying wiring devices . . . . .	(X)	(X)	4,298,486	(X)	3,938,805
36441 —	Pole and transmission line hardware . . . . .	34	(X)	738,196	(X)	<sup>†</sup> 704,053
36441 12	Pole and transmission line construction materials, also known as overhead and underground line hardware for electric transmission, distribution, and communication lines . . . . .	28	(X)	676,392	(X)	<sup>†</sup> 650,087
36441 13	Pole and transmission line anchors . . . . .	5	(X)	17,078	(X)	15,719
36441 19	All other pole and transmission line hardware . . . . .	10	(X)	<sup>b</sup> 44,726	(X)	<sup>†</sup> 38,247
36442 —	Electrical conduit and conduit fittings . . . . .	69	(X)	2,181,352	(X)	1,960,901
	Rigid metal conduit, excluding couplings, nipples, bends, and elbows:					
36442 01	Standard weights (steel) (short tons) <sup>12</sup> . . . . .	6	(D)	(D)	(D)	(D)
36442 05	Other metallic conduit (short tons) <sup>12</sup> . . . . .	2	280,126	279,613	<sup>†</sup> 280,098	264,864
36442 24	Nonmetallic conduit (1,000 pounds) . . . . .	6	<sup>a</sup> 710,416	<sup>a</sup> 306,322	<sup>a</sup> 683,420	<sup>a</sup> 283,215

See footnotes at end of table.

**Table 11. Quantity and Value of Shipments of Wiring Devices and Supplies: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3644—	Wiring devices and supplies—Con.					
36442—	Noncurrent-carrying wiring devices—Con.					
36442 27	Electrical conduit and conduit fittings—Con.					
36442 33	Electrical metallic tubing (short tons) . . . . .	5	441,735	383,180	<sup>†</sup> 408,592	<sup>†</sup> 346,514
36442 32	Flexible steel and aluminum conduit (1,000 feet) . . . . .	10	273,270	<sup>a</sup> 80,523	<sup>†</sup> 272,544	<sup>†</sup> 78,398
36422 35	Flexible nonmetallic conduit (1,000 pounds) . . . . .	11	55,586	44,369	45,256	<sup>†</sup> 40,849
36442 38	Raceways and wire ways, including fittings, metal . . . . .	11	(X)	199,067	(X)	171,789
36442 51	Ventilated cable tray and accessories . . . . .	5	(X)	65,663	(X)	<sup>†</sup> 45,972
36442 53	Cast conduit bodies, covers, and gaskets . . . . .	9	(X)	124,957	(X)	<sup>†</sup> 135,277
36442 54	Rigid conduit fittings, including couplings, nipples, bends, and elbows:					
36442 53	Couplings, connectors, and unions . . . . .	17	(X)	<sup>b</sup> 156,867	(X)	<sup>b</sup> 136,570
36442 54	Locknuts and bushings . . . . .	9	(X)	<sup>b</sup> 15,556	(X)	<sup>a</sup> 22,197
36442 59	All other rigid conduit fittings . . . . .	7	(X)	<sup>b</sup> 53,106	(X)	<sup>b</sup> 34,743
36442 52	Nonmetallic conduit fittings . . . . .	11	(X)	70,976	(X)	54,976
36442 56	EMT fittings (couplings and connectors):					
36442 57	Gland type . . . . .	12	(X)	<sup>a</sup> 34,614	(X)	<sup>b</sup> <sup>†</sup> 28,984
36442 58	Set-screw type . . . . .	8	(X)	30,554	(X)	<sup>b</sup> <sup>†</sup> 26,591
36442 44	All others . . . . .	8	(X)	<sup>b</sup> 11,264	(X)	<sup>b</sup> 9,187
36442 71	Service entrance caps, ells, and connectors . . . . .	12	(X)	9,798	(X)	11,341
36442 77	Cable, cord, and flexible conduit fittings:					
36442 72	Armored cable, metallic sheathed cable, and flexible conduit fittings . . . . .	13	(X)	184,769	(X)	<sup>†</sup> 164,042
36442 46	Liquid-tight flexible conduit fittings . . . . .	9	(X)	55,752	(X)	<sup>†</sup> 35,477
36443 —	Nonmetallic sheathed cable and cord fittings . . . . .	14	(X)	<sup>a</sup> 29,037	(X)	<sup>a</sup> <sup>†</sup> 31,759
36443 31	Other electric conduit fittings . . . . .	16	(X)	<sup>a</sup> 45,365	(X)	<sup>†</sup> 38,156
36443 32	Other noncurrent-carrying wiring devices and supplies . . . . .	73	(X)	1,378,938	(X)	1,273,851
36443 33	Stamped metal boxes, covers, and accessories, including stamped conduit boxes:					
36443 34	Switch and receptacle boxes . . . . .	13	(X)	424,458	(X)	386,194
36443 35	Outlet boxes . . . . .	9	(X)	110,364	(X)	103,188
36443 36	Covers . . . . .	12	(X)	55,335	(X)	51,219
36443 37	Supports, bar hangers, and other accessories . . . . .	13	(X)	65,094	(X)	61,455
36443 41	Cast metal boxes, covers, gaskets, and accessories:					
36443 42	FS and FD switch and receptacle type . . . . .	10	(X)	27,509	(X)	<sup>†</sup> 26,334
36443 43	Outlet type . . . . .	8	(X)	49,124	(X)	45,675
36443 44	Junction type . . . . .	16	(X)	81,786	(X)	<sup>†</sup> 76,572
36443 45	Switch, outlet, FM/TV, and telephone wall plates:					
36443 46	Metallic . . . . .	8	45,155	23,266	40,896	<sup>†</sup> 21,221
36443 47	Nonmetallic . . . . .	9	275,899	65,791	266,172	<sup>†</sup> 60,548
36443 48	Plastics boxes and covers . . . . .	18	(X)	133,431	(X)	<sup>†</sup> 127,615
36443 49	Floor boxes and covers . . . . .	8	(X)	37,903	(X)	<sup>†</sup> 37,277
36443 50	Other noncurrent-carrying wiring devices and supplies . . . . .	32	(X)	304,877	(X)	<sup>†</sup> 276,553

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. <sup>†</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

<sup>1</sup>Product code 36431 04 is combined with product code 36431 19 to avoid disclosing data for individual companies.

<sup>2</sup>Product codes 36431 21 and 36431 23 are combined with product code 36431 25 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 36432 28 is combined with product code 36432 39 to avoid disclosing data for individual companies.

<sup>4</sup>Product code 36432 29 is combined with product code 36432 30 to avoid disclosing data for individual companies.

<sup>5</sup>Product code 36433 51 is combined with product code 36433 69 to avoid disclosing data for individual companies.

<sup>6</sup>Product code 36433 72 is combined with product code 36433 77 to avoid disclosing data for individual companies.

<sup>7</sup>Product codes 36435 87 and 36435 88 are combined with product codes 36435 89 to avoid disclosing data for individual companies.

<sup>8</sup>Product code 36436 43 is combined with product code 36436 44 to avoid disclosing data for individual companies.

<sup>9</sup>Product code 36436 57 is combined with product code 36436 58 to avoid disclosing data for individual companies.

Table 11. **Quantity and Value of Shipments of Wiring Devices and Supplies: 1997 and 1996—Con.**

<sup>10</sup>Product code 36436 65 is combined with product code 36436 72 to avoid disclosing data for individual companies.

<sup>11</sup>Product code 36436 98 is combined with product code 36436 97 to avoid disclosing data for individual companies.

<sup>12</sup>Product code 36442 01 is combined with product code 36442 05 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated. <sup>b</sup>26 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.

Table 12. **Value of Shipments, Exports, and Imports of Selected Wiring Devices: 1997 and 1996**

[Millions of dollars]

Product description	Manufacturers' shipments f.o.b. plant <sup>1</sup>	Exports of domestic merchandise at port <sup>1 2</sup>	Imports for consumption <sup>1 3</sup>
<b>1997</b>			
Lampholders .....	193.3	18.3	65.7
Metal contacts .....	211.5	111.1	63.2
<b>1996</b>			
Lampholders .....	192.6	16.7	66.2
Metal contacts .....	239.2	91.4	55.9

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

#### HISTORICAL NOTE

Data on wiring devices and supplies have been collected by the Census Bureau since 1960. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

#### CONTACT FOR DATA USERS

For additional information about these data, contact Vance Davis, 301-457-4790.

## ELECTRIC LIGHTING FIXTURES (MA36L)

### INTRODUCTION

These data cover companies engaged in the manufacture of specified types of electric lighting fixtures, except very small firms (generally fewer than 10 employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies.

The statistics were collected by mail on Census Bureau annual Form MA36L, Electric Lighting Fixtures. The survey panel includes all known producers of the specified types of electric lighting fixtures, except the very small firms excluded from the scope of the survey. Approximately 320 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments of electric lighting fixtures was \$6,556.3 million. This represents a 5.6-percent increase from the 1996 total value of \$6,207.2 million. The 1997 data includes residential type fixtures, \$1,119.8 million, an increase of 8.1 percent from 1996; commercial and institutional type fixtures, \$3,056.6 million, an increase of 5.3 percent from 1996; industrial type fixtures, \$710.7 million, an increase of 4.2 percent from 1996; and outdoor lighting equipment, \$1,669.3 million, an increase of 5.3 percent from 1996. Vehicular lighting equipment data were discontinued in 1992.

### EXPLANATION OF TERMS

See Introduction for an explanation of terms.

**Table 13. Value of Shipments of Electric Fixtures: 1988 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
36451	Electric lighting fixtures <sup>1</sup> . . . . .	6,556.3	6,207.2	5,930.4	5,548.0	5,115.0	4,720.1	4,426.0	4,798.2	4,738.0	4,571.8
36462	Residential type . . . . .	1,119.8	1,036.2	983.8	1,025.1	996.5	898.2	760.9	827.6	858.5	877.1
36463	Commercial and institutional type (except spot-light) . . . . .	3,056.6	2,903.1	2,797.3	2,633.7	2,390.8	2,221.2	2,164.8	2,379.7	2,316.7	2,242.7
36470	Industrial type . . . . .	710.7	682.2	676.3	554.9	493.4	442.1	446.4	529.4	504.6	430.6
36485	Vehicular lighting equipment . . . . .	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	1,616.1	1,620.7	1,570.5	1,564.4
	Outdoor lighting equipment . . . . .	1,669.3	1,585.7	1,473.0	1,334.2	1,234.2	1,158.6	1,053.9	1,061.5	1,058.2	1,021.4

NA Not available.

<sup>1</sup>Excludes product code 36470, "Vehicular lighting equipment," which is not available after 1991.

**Table 14. Quantity and Value of Shipments of Electric Lighting Fixtures: 1997 and 1996**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36451 —	Electric lighting fixtures, residential type . . . . .	107	(X)	<sup>b</sup> 1,119,778	(X)	<sup>a</sup> <sup>r</sup> 1,036,246
	Incandescent, excluding PAR lampholders and floodlights:					
	Interior, including bath or kitchen:					
36451 11	Ceiling or pendant . . . . .	69	<sup>a</sup> 16,052	<sup>b</sup> 293,054	<sup>a</sup> 15,073	<sup>b</sup> <sup>r</sup> 271,230
36451 13	Wall or bracket . . . . .	56	<sup>b</sup> 3,065	<sup>b</sup> 77,100	<sup>b</sup> 2,662	<sup>b</sup> 62,981
	Track lighting:					
36451 06	Single circuit track lengths and accessories <sup>1</sup> . . . . .	3	(X)	(D)	(X)	(D)
36451 07	Multiple circuit track lengths and accessories <sup>1</sup> . . . . .	3	(X)	5,549	(X)	4,888
36451 08	Line voltage heads <sup>2</sup> . . . . .	1	(D)	(D)	(D)	(D)
36451 09	Low voltage heads <sup>2</sup> . . . . .	2	(D)	(D)	(D)	(D)
36451 10	Track lengths and heads sold together (kits) <sup>2</sup> . . . . .	2	274	6,479	380	7,736
36451 12	Recessed IC (direct contact with ceiling insulation) . . . . .	8	<sup>a</sup> 15,588	<sup>a</sup> 122,102	<sup>a</sup> 15,083	<sup>a</sup> 110,436
36451 14	Recessed non-IC (3-inch minimum clearance from ceiling insulation) . . . . .	7	<sup>a</sup> 4,342	<sup>a</sup> 72,954	<sup>a</sup> 4,758	<sup>a</sup> 77,530
	Outdoor:					
36451 15	Designed for attachment to house . . . . .	42	<sup>a</sup> 3,163	<sup>b</sup> 43,318	<sup>a</sup> <sup>r</sup> 3,288	<sup>a</sup> <sup>r</sup> 47,851
36451 16	Custom lighting (lanterns, etc.) . . . . .	8	(D)	(D)	(D)	(D)
36451 17	Not designed for attachment to house (garden, patio, and yard) . . . . .	34	13,379	129,385	<sup>r</sup> 11,324	<sup>r</sup> 120,696
	Fluorescent:					
	Wraparounds:					
36451 19	4 foot, 2 lamp . . . . .	6	1,722	34,943	1,599	34,029
36451 21	4 foot, 4 lamp . . . . .	8	498	15,748	431	13,864
36451 23	All other residential wraparounds . . . . .	11	<sup>c</sup> 3,554	<sup>c</sup> 31,275	<sup>c</sup> <sup>r</sup> 3,177	<sup>c</sup> <sup>r</sup> 28,374
36451 20	Ceiling mounted decorative . . . . .	28	<sup>b</sup> 4,680	<sup>a</sup> 87,223	<sup>b</sup> <sup>r</sup> 4,107	<sup>a</sup> 75,654
36451 22	Ceiling mounted general-purpose . . . . .	18	<sup>b</sup> 7,495	<sup>b</sup> 94,707	<sup>b</sup> 6,181	<sup>b</sup> 81,588
36451 24	Pendant . . . . .	7	(D)	(D)	(D)	(D)
36451 26	Recessed IC (direct contact with ceiling insulation) <sup>3</sup> . . . . .	4	(D)	(D)	(D)	(D)
36451 28	Recessed non-IC (3-inch minimum clearance from ceiling insulation) <sup>3</sup> . . . . .	2	<sup>a</sup> 606	<sup>c</sup> 32,523	<sup>a</sup> 574	<sup>c</sup> 30,927
36451 30	Wall or bracket . . . . .	23	<sup>c</sup> 1,173	<sup>b</sup> 15,566	<sup>c</sup> 1,158	<sup>b</sup> 14,630
36451 69	Components and renewal parts for residential type, sold separately . . . . .	29	(X)	<sup>b</sup> 52,561	(X)	48,027
36462 —	Electric lighting fixtures, commercial, and institutional type (except portable and spotlight) . . . . .	162	(X)	<sup>a</sup> 3,056,572	(X)	<sup>a</sup> 2,903,072
	Incandescent fixtures:					
	Utilitarian and ornamental types (primarily for public buildings, banks, stores, office buildings, schools, auditoriums, churches, theaters, etc.):					
36462 11	Surface or pendant . . . . .	53	<sup>a</sup> 874	66,091	<sup>a</sup> 790	<sup>a</sup> <sup>r</sup> 67,529
	Recessed:					
36462 12	IC (direct contact with ceiling insulation) . . . . .	16	6,576	60,095	6,225	56,540
36462 14	Non-IC (3-inch minimum clearance from ceiling insulation) . . . . .	18	<sup>a</sup> 9,389	<sup>a</sup> 138,950	<sup>a</sup> 9,228	<sup>b</sup> 134,221
	Track lighting:					
36462 20	Single circuit track lengths and accessories . . . . .	7	(X)	<sup>a</sup> 55,944	(X)	<sup>a</sup> 51,852
36462 22	Multiple circuit track lengths and accessories . . . . .	7	(X)	<sup>a</sup> 7,891	(X)	<sup>b</sup> <sup>r</sup> 7,549
36462 24	Line voltage heads . . . . .	10	<sup>b</sup> 2,060	<sup>b</sup> 43,795	<sup>b</sup> 2,492	<sup>b</sup> 50,320
36462 26	Low voltage heads <sup>4</sup> . . . . .	11	(D)	(D)	(D)	(D)
36462 28	Track lengths and heads sold together (kits) <sup>4</sup> . . . . .	6	<sup>a</sup> 2,469	<sup>a</sup> 33,510	<sup>a</sup> 2,533	<sup>a</sup> 35,959
36462 18	Specialized custom lighting fixtures, chandeliers, church lighting, etc. . . . .	37	(X)	<sup>a</sup> 68,210	(X)	<sup>a</sup> <sup>r</sup> 66,795
36462 19	Other incandescent fixtures such as interior display and PAR lampholders . . . . .	21	(X)	<sup>b</sup> 36,003	(X)	<sup>b</sup> 30,309
	High intensity discharge types:					
36462 30	Surface or pendant . . . . .	33	233	33,534	<sup>a</sup> 163	<sup>a</sup> 26,963
36462 31	Indirect lighting . . . . .	10	51	<sup>a</sup> 22,409	43	<sup>a</sup> 20,088
	Recessed non-IC (3-inch minimum clearance from ceiling insulation):					
36462 36	Open reflector . . . . .	16	497	38,747	576	42,492
36462 38	Enclosed . . . . .	15	<sup>a</sup> 210	<sup>a</sup> 24,518	<sup>a</sup> <sup>r</sup> 188	<sup>a</sup> <sup>r</sup> 23,572
	Recessed IC (direct contact with ceiling insulation):					
36462 39	Open reflector <sup>5</sup> . . . . .	2	(D)	(D)	(D)	(D)
36462 41	Enclosed <sup>5</sup> . . . . .	5	5	<sup>b</sup> 456	<sup>8</sup>	<sup>c</sup> 1,463

See footnotes at end of table.

**Table 14. Quantity and Value of Shipments of Electric Lighting Fixtures: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36462 —	Electric lighting fixtures, commercial, and institutional type (except portable and spotlight)—Con.					
	Fluorescent:					
	Recessed troffers, airhandling, including heat extraction versions:					
	Lensed:					
36462 80	2 feet X 4 feet, 4 lamp <sup>6</sup> .....	10	(D)	(D)	(D)	(D)
36462 81	2 feet X 4 feet, 3 lamp .....	8	199	12,079	163	10,234
36462 82	2 feet X 4 feet, 2 lamp .....	10	127	7,134	100	6,006
36462 52	All other lensed, airhandling <sup>6</sup> .....	13	382	23,450	358	21,749
	Metal louvered:					
36462 83	2 feet X 4 feet, 4 lamp .....	9	323	23,429	268	20,356
36462 84	2 feet X 4 feet, 3 lamp .....	10	1,450	102,121	1,228	90,105
36462 85	2 feet X 4 feet, 2 lamp .....	9	443	28,620	364	24,752
36462 53	All other metal louvered, airhandling .....	12	1,980	130,343	1,768	123,095
	Nonmetal louvered:					
36462 86	2 feet X 4 feet, 4 lamp <sup>7</sup> .....	3	(D)	(D)	(D)	(D)
36462 87	2 feet X 4 feet, 3 lamp <sup>7</sup> .....	3	(D)	(D)	(D)	(D)
36462 88	2 feet X 4 feet, 2 lamp <sup>7</sup> .....	3	(D)	(D)	(D)	(D)
36462 54	All other nonmetal louvered, airhandling <sup>7</sup> .....	6	63	6,710	63	6,826
	Recessed troffers, nonairhandling, including heat extraction versions:					
	Lensed:					
36462 89	2 feet X 4 feet, 4 lamp .....	23	3,354	141,426	3,256	139,239
36462 90	2 feet X 4 feet, 3 lamp .....	18	1,547	76,522	1,469	70,034
36462 91	2 feet X 4 feet, 2 lamp .....	17	1,896	73,031	1,872	72,220
36462 58	All other lensed, nonairhandling .....	25	4,553	187,488	4,210	175,785
	Metal louvered:					
36462 92	2 feet X 4 feet, 4 lamp .....	11	153	8,839	184	9,505
36462 93	2 feet X 4 feet, 3 lamp .....	11	672	29,546	620	28,556
36462 94	2 feet X 4 feet, 2 lamp .....	12	400	27,543	386	22,794
36462 56	All other metal louvered, airhandling .....	15	<sup>a</sup> 393	<sup>a</sup> 23,619	<sup>a</sup> 406	<sup>a</sup> 23,920
	Nonmetal louvered:					
36462 95	2 feet X 4 feet, 4 lamp .....	9	86	4,303	<sup>r</sup> 76	3,602
36462 96	2 feet X 4 feet, 3 lamp .....	8	51	2,949	<sup>r</sup> 38	1,993
36462 97	2 feet X 4 feet, 2 lamp .....	10	39	2,054	43	2,049
36462 60	All other nonmetal louvered, nonairhandling .....	11	<sup>b</sup> 159	<sup>b</sup> 5,808	<sup>b</sup> 155	<sup>b</sup> 5,492
36462 49	Striplights (surface) .....	51	9,538	217,360	9,660	220,435
36462 50	Striplights (recessed) .....	11	340	11,429	375	14,130
36462 55	Ceiling systems, including luminous ceilings .....	16	(X)	<sup>b</sup> 35,726	(X)	<sup>b</sup> 30,565
	Plastics wraparounds:					
36462 40	4 foot, 2 lamp .....	27	1,997	62,582	1,968	62,816
36462 42	4 foot, 4 lamp .....	23	666	30,269	700	31,481
36462 51	All other plastics commercial and institutional wraparounds .....	24	<sup>a</sup> 1,572	<sup>b</sup> 56,462	<sup>a</sup> 1,523	<sup>b</sup> 55,354
36462 57	Wall mounted fixtures .....	54	<sup>a</sup> 1,442	<sup>a</sup> 88,746	<sup>a</sup> 1,394	<sup>a</sup> 84,318
36462 65	Under cabinet mount task light .....	32	<sup>a</sup> 2,555	87,440	<sup>a</sup> 2,304	75,604
	Surface and pendant, all other:					
36462 66	Lensed .....	48	<sup>c</sup> 4,527	<sup>a</sup> 145,993	<sup>c</sup> 3,824	<sup>a</sup> 127,370
36462 68	Louvered .....	24	<sup>a</sup> 229	<sup>a</sup> 24,957	<sup>a</sup> 256	<sup>a</sup> 25,648
	Compact fluorescent downlights:					
36462 70	Recessed IC (direct contact with ceiling insulation) .....	9	566	28,961	744	<sup>r</sup> 43,760
36462 72	Recessed non-IC (3-inch minimum clearance from ceiling insulation) .....	15	<sup>a</sup> 2,387	<sup>a</sup> 113,423	<sup>a</sup> 2,130	<sup>b</sup> 100,171
	Specific function lighting, all sources (incandescent, HID, and fluorescent):					
36462 59	Enclosed and gasketed (clean room fixtures) .....	35	<sup>a</sup> 652	<sup>a</sup> 57,001	<sup>a</sup> 612	<sup>a</sup> 54,876
36462 74	Indirect lighting, furniture mount <sup>8</sup> .....	4	(D)	(D)	(D)	(D)
36462 76	Indirect lighting, pendant mount <sup>8</sup> .....	7	31	7,214	<sup>a</sup> 44	<sup>a</sup> 9,503
36462 61	Indoor signs, including electroluminescence (exit, directional, etc.) .....	29	<sup>a</sup> 2,339	<sup>b</sup> 169,738	<sup>b</sup> 2,113	<sup>b</sup> 158,100
36462 62	Indoor emergency lighting (automatic self-powered) ..	19	1,708	86,318	1,533	80,140
36462 63	Vandal resistant (specialty products designed for this application) .....	16	462	34,395	<sup>r</sup> 356	<sup>r</sup> 26,322
36462 64	All other .....	37	(X)	<sup>b</sup> 133,540	(X)	<sup>b</sup> 121,316
36462 69	Components and renewal parts for commercial and institutional type, sold separately .....	42	(X)	117,851	(X)	107,199

See footnotes at end of table.



**Table 14. Quantity and Value of Shipments of Electric Lighting Fixtures: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36463 —	Electric lighting fixtures, industrial type .....	64	(X)	710,650	(X)	682,240
	General lighting (except portable):					
36463 11	Incandescent .....	19	822	17,337	<sup>r</sup> 758	<sup>r</sup> 15,511
36463 13	Fluorescent .....	41	3,367	<sup>a</sup> 142,099	3,260	<sup>a</sup> 135,079
	High intensity discharge types, including integrally mounted and remote ballasts:					
36463 06	Open reflector .....	18	1,860	163,414	<sup>r</sup> 1,755	161,351
36463 08	Enclosed .....	16	1,330	160,636	<sup>r</sup> 1,240	<sup>r</sup> 158,513
36463 10	Parking garage lighting (fixtures designed specifically for this application) .....	10	133	<sup>a</sup> 14,989	<sup>r</sup> 111	<sup>r</sup> 12,919
	Hazardous lighting—UL listed, class, division, group:					
36463 16	Incandescent, including portable .....	8	(X)	17,870	(X)	<sup>r</sup> 20,654
36463 17	Fluorescent, including portable .....	17	(X)	<sup>b</sup> 19,449	(X)	<sup>b</sup> 19,698
36463 19	High intensity discharge types, including integrally mounted and remote ballasts .....	12	(X)	78,487	(X)	<sup>r</sup> 81,827
36463 29	Components and renewal parts for industrial type, sold separately .....	20	(X)	96,369	(X)	76,688
36485 —	Outdoor lighting equipment, excluding lamps .....	101	(X)	<sup>a</sup> 1,669,272	(X)	<sup>r</sup> 1,585,673
	Street and highway lighting luminaries, including bridge and tunnel lighting:					
36485 11	Incandescent (filament and quartz iodine) .....	6	(D)	(D)	(D)	(D)
	High intensity discharge types, including low pressure sodium and integrally mounted and remote ballasts:					
36485 13	Open .....	4	605	22,198	<sup>r</sup> 546	<sup>r</sup> 19,687
36485 14	Enclosed .....	14	1,382	129,456	<sup>r</sup> 1,229	116,993
36485 15	Fluorescent .....	4	<sup>c</sup> 9	<sup>c</sup> 1,903	<sup>c</sup> 9	<sup>b</sup> 1,909
36485 17	Special-purpose luminaries for highmast, sign lighting, and expressway fixtures, excluding value of poles .....	5	(D)	(D)	(D)	(D)
	Floodlighting, area, and site lighting luminaries:					
	General-purpose floodlighting:					
36485 20	Incandescent filament .....	10	<sup>b</sup> 164	<sup>a</sup> 13,183	<sup>b</sup> 135	<sup>a</sup> 11,179
36485 22	Incandescent quartz iodine .....	16	553	11,079	<sup>r</sup> 612	<sup>r</sup> 12,257
36485 23	High intensity discharge types, general, including low pressure sodium and integrally mounted and remote ballasts .....	29	1,436	234,860	1,363	223,686
36485 26	Fluorescent .....	11	(D)	(D)	(D)	(D)
36485 27	HID sportlighting (fixtures designed specifically for this application) .....	12	196	34,459	181	31,684
	HID area and site lighting:					
36485 35	Site lighting (under 20-foot mounting) .....	25	2,092	<sup>a</sup> 139,224	<sup>r</sup> 2,668	<sup>r</sup> 152,411
36485 39	Bollards .....	15	71	<sup>a</sup> 19,446	58	<sup>a</sup> 14,778
36485 51	Post-top .....	15	141	21,649	128	19,787
36485 42	Large area lighting (20- to 60-foot mounting) .....	24	<sup>b</sup> 743	<sup>b</sup> 213,933	<sup>r</sup> 761	<sup>r</sup> 192,047
36485 32	Wall packs (such as high intensity discharge, incandescent, and quartz) .....	24	1,161	119,296	<sup>r</sup> 1,237	<sup>r</sup> 125,202
36485 34	Outdoor PAR lampholders .....	14	905	<sup>a</sup> 10,723	<sup>r</sup> 932	<sup>a</sup> 10,234
	Other floodlighting and area lighting equipment:					
36485 43	Spotlights, including indoor and stage and excluding vehicular .....	9	273	37,757	265	35,202
36485 45	All other outdoor lighting equipment (such as underwater fountain and pool lighting) .....	22	(X)	<sup>a</sup> 113,018	(X)	<sup>a</sup> 106,784
	Aviation ground lighting equipment (for fixed-based airports):					
36485 31	Runway approach lighting, including fixtures, regulators, insulating transformers, isolating lamp transformers, beacons, wind tees, and cones ..	5	(X)	12,486	(X)	<sup>b</sup> 18,195
36485 33	Runway (except runway approach), taxiway, and ramp light, including fixtures, regulators, and isolating lamp transformers .....	6	(X)	42,177	(X)	<sup>r</sup> 46,092
36485 98	Components and renewal parts for outdoor lighting equipment, sold separately .....	28	(X)	<sup>a</sup> 51,633	(X)	<sup>a</sup> 53,415
	Poles, standards, newels, brackets, and accessories:					
	For street and highway lighting, including traffic signal standards:					
36485 36	Steel and cast iron poles .....	12	(X)	92,520	(X)	<sup>a</sup> 82,392
36485 38	Aluminum poles .....	12	(X)	<sup>a</sup> 37,119	(X)	<sup>r</sup> 30,260
36485 40	Concrete poles <sup>9</sup> .....	2	(X)	(D)	(X)	(D)
36485 37	All other (fiberglass, wood, etc.) <sup>9</sup> .....	1	(X)	21,525	(X)	17,553

See footnotes at end of table.

**Table 14. Quantity and Value of Shipments of Electric Lighting Fixtures: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36485 —	Outdoor lighting equipment, excluding lamps—Con. Poles, standards, newels, brackets, and accessories—Con. For area lighting, sports and other off-street use:					
36485 46	Steel and cast iron poles (60-foot and over) .....	6	(X)	13,204	(X)	<sup>r</sup> 12,681
36485 47	Steel and cast iron poles (under 60-foot) .....	23	(X)	<sup>a</sup> 126,896	(X)	<sup>r</sup> 115,345
36485 48	Aluminum poles .....	24	(X)	<sup>b</sup> 56,364	(X)	<sup>r</sup> 49,448
36485 49	All other (concrete, wood, etc.) .....	8	(X)	(D)	(X)	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>r</sup>Revised by 5 percent or more from previously published data.

X Not applicable.

<sup>1</sup>Product code 36451 06 is combined with product code 36451 07 to avoid disclosing data for individual companies.

<sup>2</sup>Product codes 36451 08 and 36451 09 are combined with product code 36451 10 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 36451 26 is combined with product code 36451 28 to avoid disclosing data for individual companies.

<sup>4</sup>Product code 36462 26 is combined with product code 36462 28 to avoid disclosing data for individual companies.

<sup>5</sup>Product code 36462 39 is combined with product code 36462 41 to avoid disclosing data for individual companies.

<sup>6</sup>Product code 36462 80 is combined with product code 36462 52 to avoid disclosing data for individual companies.

<sup>7</sup>Product codes 36462 86, 36462 87, and 36462 88 are combined with product code 36462 54 to avoid disclosing data for individual companies.

<sup>8</sup>Product code 36462 74 is combined with product code 36462 76 to avoid disclosing data for individual companies.

<sup>9</sup>Product code 36485 40 is combined with product code 36485 37 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated. <sup>b</sup>26 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.

**Table 15. Shipments, Exports, and Imports of Electric Lighting Fixtures: 1997**

[Quantity in units. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments f.o.b. plant (value)	Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>1</sup>	
			Quantity	Value at port <sup>2</sup>	Quantity	Value in foreign country <sup>3</sup>
36451 06-30	Electric lighting fixtures, residential type (except portable), excluding components and renewal parts .....	1,055,818	1,460,733	37,628	72,203,881	622,527
36462 11-35 70-97, 36463 06-19	Electric lighting fixtures, commercial, institutional and industrial types, excluding components and renewal parts .....	3,546,670	2,890,566	91,837	8,740,968	111,094
36485 11-35, 39, 42-43, 45, 51, 36451 69, 36462 69, 36463 29, 36485 98	Other electric lighting fixtures .....	1,596,935	10,403,615	413,306	105,851,886	773,448

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

**HISTORICAL NOTE**

Data on electric lighting fixtures have been collected by the Census Bureau since 1962. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

The MA36L survey is funded by the National Electric Manufacturers Association.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Vance Davis, 301-457-4790.

## COMMUNICATION EQUIPMENT (MA36P)

### INTRODUCTION

These data cover all significant manufacturers of communication equipment, including telephone, telegraph, and other electronic systems. The mailing panel included all establishments with 20 employees or more for industries 3661, 3663, 3669, and 3699.

The statistics were collected by mail on Census Bureau annual Form MA36P, Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment. The survey panel includes all known manufacturers of telephone and telegraph apparatus, communications systems and equipment, and electronic equipment, except the firms excluded from the scope of the survey. Approximately 1,040 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments of communication equipment totaled \$74.5 billion, an increase of 13.5 percent from the 1996 value of \$65.6 billion. Shipments of telephone switching equipment totaled \$10.6 billion, a 10.4-percent increase from the \$9.6 billion shipped in

1996. Shipments of carrier line equipment and modems totaled \$7.7 billion, an increase of 1.9 percent from the 1996 value of \$7.5 billion. Other telephone and telegraph equipment shipped in 1997 totaled \$17.8 billion, an increase of 27.2 percent from the \$14 billion shipped in 1996.

Communication systems and equipment shipped in 1997 totaled \$28.5 billion, a 12.7-percent increase from the \$25.3 billion shipped in 1996.

Shipments of broadcast, studio, and related electronic equipment totaled \$3.4 billion in 1997, an 11.7-percent increase from the \$3 billion shipped in 1996. Alarm systems totaled \$1.9 billion in 1997, a 6.5-percent increase from the \$1.8 billion shipped 1996.

### EXPLANATION OF TERMS

**Research and development.** Dollar shipments reflect income from development, design, and engineering services in connection with the manufacture of the products shipped.

Table 16. **Value of Shipments of Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment by Class of Product: 1992 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992
	Communication equipment, including telephone, telegraph, and other electronic systems and equipment ..	74,482.8	65,608.6	56,362.0	49,598.1	42,113.8	39,501.9
36611	Telephone switching and switchboard equipment . . . .	10,618.1	9,617.7	8,178.4	8,067.6	7,240.9	7,291.3
36613	Carrier line equipment and modems . . . . .	7,686.8	7,544.6	5,868.6	5,114.0	4,993.3	4,810.6
36614	Other telephone and telegraph equipment and components . . . . .	17,846.9	14,030.9	10,510.0	8,479.5	7,026.4	5,507.3
36631	Communication systems and equipment (except broadcast) . . . . .	28,550.9	25,332.5	23,031.9	19,977.5	16,196.7	15,162.8
36632	Broadcast, studio, and related electronic equipment .	3,350.5	3,000.2	2,844.7	2,469.5	2,077.5	1,948.2
36693	Intercommunications systems, including inductive paging systems (selective calling) . . . . .	252.7	277.8	296.0	283.7	241.7	288.5
36691	Alarm systems . . . . .	1,921.1	1,802.8	1,662.1	1,550.5	1,532.4	1,370.4
36692	Vehicular and pedestrian traffic control equipment and electrical railway signals and attachments . . . . .	805.5	762.0	710.7	669.9	573.4	597.3
36991	Electronic teaching machines, teaching aids, trainers, and simulators . . . . .	809.9	865.7	913.3	838.5	847.7	1,310.8
36992	Laser sources <sup>1</sup> . . . . .	1,020.9	843.8	787.5	726.4	(NA)	(NA)
36995	Ultrasonic equipment . . . . .	187.8	184.3	172.3	137.5	127.3	119.2
36999	Other electronic systems and equipment, n.e.c. <sup>2</sup> . . . .	1,431.8	1,346.3	1,386.5	1,283.5	1,256.5	1,095.5

NA Not available. n.e.c. Not elsewhere classified. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Beginning in 1994, data for "Laser equipment, instrumentation, and components" have been eliminated from this survey. Only "Laser sources" are being collected.

<sup>2</sup>Product code 36997 changed to product code 36999 for 1992. Product codes 36998, 39992, and 39447 are no longer collected on this survey.

**Table 17. Quantity and Value of Shipments of Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment by Product Code: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36611 —	Telephone switching and switchboard equipment.....	(NA)	(X)	10,618,107	(X)	9,617,677
	Central office switching equipment:					
36611 23	Local switching <sup>1</sup> .....	12	(X)	(D)	(X)	(D)
36611 28	Toll switching <sup>1</sup> .....	10	(X)	(D)	(X)	(D)
	Private branch exchange switching equipment:					
36611 41	Up to 99 lines <sup>2</sup> .....	9	(X)	(D)	(X)	192,863
36611 43	100-399 lines <sup>2</sup> .....	5	(X)	(D)	(X)	317,639
36611 45	400-1,000 lines.....	9	(X)	(D)	(X)	192,863
36611 49	Over 1,000 lines.....	5	(X)	153,130	(X)	243,346
36611 51	Cellular mobile telephone switching equipment <sup>3</sup> .....	5	(X)	104,255	(X)	188,905
36611 55	Packet switching equipment <sup>3</sup> .....	7	(X)	(D)	(X)	(D)
36611 91	Other telephone switching and switchboard equipment.....	8	(X)	(D)	(X)	(D)
36611 98	Parts, components, and subassemblies for telephone switching equipment.....	31	(X)	2,083,805	(X)	2,339,501
	Carrier line equipment and modems.....	25	(X)	352,201	(X)	370,341
36613 —	Carrier line equipment:	(NA)	(X)	7,686,805	(X)	7,544,607
	Repeaters and line transceivers:					
36613 01	Analog <sup>4</sup> .....	4	(X)	(D)	(X)	(D)
36613 05	Digital, all copper wire <sup>4</sup> .....	15	(X)	(D)	(X)	(D)
36613 09	Digital, optical input or output <sup>4</sup> .....	3	(X)	(D)	(X)	(D)
	Multiplex equipment, including channel banks:					
36613 30	Analog.....	6	(X)	<sup>a</sup> 31,649	(X)	<sup>a</sup> 46,527
36613 33	Digital, all copper wire <sup>5</sup> .....	26	(X)	(D)	(X)	(D)
36613 36	Digital, optical input or output <sup>5</sup> .....	6	(X)	(D)	(X)	(D)
	Other subscriber loop carrier terminal and line equipment:					
36613 41	Analog <sup>6</sup> .....	4	(X)	(D)	(X)	(D)
36613 45	Digital, all copper wire <sup>6</sup> .....	18	(X)	(D)	(X)	(D)
36613 49	Digital, optical input or output <sup>6</sup> .....	5	(X)	(D)	(X)	(D)
	Other carrier line equipment:					
36613 51	Analog <sup>4</sup> .....	5	(X)	(D)	(X)	(D)
	Digital:					
36613 55	Meeting or exceeding T1 standard (1.5 mbps) <sup>4</sup> .....	13	(X)	(D)	(X)	(D)
36613 59	Other <sup>4</sup> .....	10	(X)	(D)	(X)	(D)
	Modems.....	(NA)		6,065,771		1,115,297
36613 61	Up through 10,000 bps.....	(NA)		(D)	<sup>a</sup> 1,067,846	<sup>1</sup> 289,162
36613 62	Consumer.....	19		1,985,506	(NA)	(NA)
36613 63	Nonconsumer <sup>7</sup> .....	4		(D)	(NA)	(NA)
	Over 10,000 bps.....	(NA)		(D)	<sup>1</sup> 6,416,713	<sup>1</sup> 1,252,855
37713 66	Consumer.....	18	<sup>b</sup> 3,113,424	702,830	(NA)	(NA)
36613 67	Nonconsumer <sup>7</sup> .....	6	(D)	(D)	(NA)	(NA)
36614 —	Other telephone and telegraph equipment and components.....	(NA)	(X)	17,846,866	(X)	14,030,923
	Telephone sets:					
36614 21	Single line and ISDN sets <sup>8</sup> .....	10		2,387,546	(D)	(D)
36614 25	Key sets <sup>9</sup> .....	7		477,352	(D)	(D)
36614 29	Public pay telephone equipment.....	8	<sup>a</sup> 491,806	<sup>b</sup> 114,296	<sup>1</sup> 394,668	94,580
36614 36	Cordless handsets <sup>9</sup> .....	3	(D)	(D)	(D)	(D)
36614 38	Other telephone sets and accessories (e.g., handsets).....	14	(X)	(D)	(X)	(D)
	Other data communications equipment:					
36614 41	Routers and gateways <sup>10</sup> .....	21	(X)	(D)	(X)	5,803,890
36614 43	Bridges.....	11	(X)	<sup>a</sup> 108,047	(X)	<sup>1</sup> 114,744
36614 45	Terminal servers <sup>10 11</sup> .....	9	(X)	(D)	(X)	(D)
36614 47	Concentrators <sup>10 11</sup> .....	9	(X)	(D)	(X)	(D)
36614 49	Other data communications equipment (front end processors, translators, etc.) <sup>10</sup> .....	36	(X)	(D)	(X)	<sup>1</sup> 869,021
36614 51	Voice frequency equipment.....	13	(X)	41,680	(X)	<sup>1</sup> 57,409
36614 55	Telephone key systems equipment <sup>12 13</sup> .....	5	(X)	(D)	(X)	(D)
36614 59	Video teleconferencing equipment (video CODECS and other systems equipment) <sup>12</sup> .....	15	(X)	(D)	(X)	522,120
	Voice/call message processing equipment, including answering devices:					
36614 61	Voice mail equipment.....	11	(X)	<sup>b</sup> 463,080	(X)	<sup>1</sup> 372,475
36614 63	Voice response equipment <sup>14</sup> .....	13	(X)	(D)	(X)	(D)
36614 65	Automated attendance equipment <sup>14</sup> .....	5	(X)	(D)	(X)	(D)
36614 67	Automatic call distributors <sup>14</sup> .....	3	(X)	(D)	(X)	(D)

See footnotes at end of table.

Table 17. **Quantity and Value of Shipments of Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment by Product Code: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
	Other telephone and telegraph equipment and components—Con.					
36614 69	Other voice or call processing equipment . . . . .	25	(X)	<sup>b</sup> 235,395	(X)	219,186
36614 91	Facsimile communication equipment (complete) <sup>12 13</sup> . . . . .	6	(X)	(D)	(X)	(D)
36614 96	Telephone transformers . . . . .	-	(X)	-	(X)	(NA)
36614 97	Other telephone/telegraph equipment <sup>12 13</sup> . . . . .	39	(X)	(D)	(X)	(D)
36614 99	Parts, components, and subassemblies for other telephone equipment . . . . .	28	(X)	308,502	(X)	295,034
36631 —	Communications systems and equipment (except broadcast) . . . . .	(NA)	(X)	28,550,916	(X)	25,332,469
	Radio station type <sup>15</sup> . . . . .	(NA)	(X)	19,856,991	(X)	17,787,717
36631 15	Amateur . . . . .	11	(X)	<sup>b</sup> 8,917	(X)	<sup>r</sup> 14,163
36631 17	Broadcast (sound and television) <sup>16</sup> . . . . .	5	(X)	(D)	(X)	(D)
36631 19	Earth exploration <sup>16</sup> . . . . .	1	(X)	(D)	(X)	(D)
36631 21	Meteorological . . . . .	5	(X)	<sup>b</sup> 11,981	(X)	<sup>b</sup> 12,113
36631 23	Fixed . . . . .	29	(X)	2,561,864	(X)	2,037,990
36631 25	Intersatellite <sup>16</sup> . . . . .	15	(X)	(D)	(X)	(D)
36631 27	Telecommand . . . . .	5	(X)	<sup>a</sup> 19,626	(X)	53,494
36631 29	Telemetry . . . . .	15	(X)	<sup>b</sup> 72,123	(X)	111,652
36631 31	Radionavigational and locational . . . . .	9	(X)	536,535	(X)	<sup>a</sup> <sup>r</sup> 258,117
36631 33	Aeronautical communications <sup>16</sup> . . . . .	9	(X)	(D)	(X)	(D)
	Mobile:					
	Cellular system equipment (report switching equipment in 36611 51):					
36631 34	Analog <sup>17</sup> . . . . .	8	(X)	(D)	(X)	(D)
36631 35	Digital <sup>17</sup> . . . . .	11	(X)	(D)	(X)	(D)
36631 42	Other conventional and trunked system equipment <sup>17</sup> . . . . .	15	(X)	(D)	(X)	(D)
36631 44	Other mobile <sup>17</sup> . . . . .	14	(X)	(D)	(X)	(D)
36631 46	Other <sup>16</sup> . . . . .	14	(X)	(D)	(X)	(D)
36631 48	Other type . . . . .	(NA)	(X)	8,693,925	(X)	7,544,752
	Checkout, monitoring, evaluation, and other electronic support equipment for communications systems . . . . .	52	(X)	<sup>a</sup> 714,316	(X)	<sup>r</sup> 552,938
	Antenna systems (sold separately):					
36631 53	Below 890 MHz . . . . .	47	(X)	765,864	(X)	<sup>r</sup> 702,317
36631 55	890 MHz and above . . . . .	43	(X)	<sup>a</sup> 416,403	(X)	<sup>r</sup> 355,249
	Fiber optics equipment, excluding connectors, cable, photodiode and laser diode components, microwave equipment, and multiplexers:					
	Equipment meeting SONET standards:					
36631 57	OC-1 equipment <sup>18</sup> . . . . .	2	(X)	(D)	(X)	(D)
36631 59	OC-2 and 3 equipment <sup>18</sup> . . . . .	6	(X)	(D)	(X)	(D)
36631 61	OC-4 through OC-9 equipment <sup>18</sup> . . . . .	1	(X)	(D)	(X)	(D)
36631 63	Greater than OC-9 equipment <sup>18</sup> . . . . .	4	(X)	(D)	(X)	(D)
36631 69	Equipment not meeting SONET standards . . . . .	21	(X)	611,100	(X)	<sup>r</sup> 618,642
36631 73	Other carrier equipment, n.e.c. <sup>18</sup> . . . . .	16	(X)	(D)	(X)	(D)
36631 79	Other communications systems and equipment . . . . .	165	(X)	5,415,668	(X)	<sup>b</sup> <sup>r</sup> 4,672,603
36632 —	Broadcast, studio, and related electronic equipment . . . . .	(NA)	(X)	3,350,487	(X)	3,000,164
	Audio equipment, excluding consumer and PA types:					
36632 12	Amplifiers and preamplifiers . . . . .	26	<sup>b</sup> 632,313	<sup>a</sup> 253,435	688,353	<sup>b</sup> 305,617
36632 13	Control consoles and switchers . . . . .	21	<sup>a</sup> 40,637	<sup>a</sup> 96,578	36,406	92,306
36632 17	Other (power supplies, terminal equipment, broadcast recorders, etc.) . . . . .	35	(X)	<sup>b</sup> 365,231	(X)	<sup>a</sup> <sup>r</sup> 325,751
	Video equipment, excluding consumer and PA types:					
36632 22	Amplifiers <sup>19</sup> . . . . .	7	(D)	(D)	(D)	(D)
36632 24	Television cameras <sup>19</sup> . . . . .	4	(D)	(D)	(D)	(D)
36632 25	Video tape recorders <sup>19</sup> . . . . .	3	(X)	(D)	(X)	(D)
36632 28	Other (power supplies, synchronization equipment, terminal equipment monitors, telecine chains, control consoles and switchers, film equipment, and television outside vans) . . . . .	23	(X)	489,208	(X)	<sup>r</sup> 477,966
36632 31	Transmitters, translators, RF power amplifiers, and related equipment:					
	AM and FM transmitters . . . . .	11	(X)	67,792	(X)	63,573

See footnotes at end of table.

Table 17. **Quantity and Value of Shipments of Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment by Product Code: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36632 —	Broadcast, studio, and related electronic equipment—Con.					
	Transmitters, translators, RF power amplifiers, and related equipment —Con.					
36632 34	Television transmitters . . . . .	9	(X)	126,093	(X)	122,676
36632 37	Other (broadcast transmission line equipment, phasing equipment, television boosters and repeaters (translators), etc.) . . . . .	23	(X)	614,685	(X)	347,951
36632 39	Studio transmission links (STL) and remote pickup equipment. . . . .	5	(X)	78,628	(X)	64,700
	Cable television (master antennae and CATV equipment):					
36632 41	Head end equipment (antennae baluns, carrier generators, head end control units, single and broadband preamplifiers and strip amplifiers, converters, modulators and demodulators; splitting filters and traps, power supplies, switches, etc.) . . .	22	(X)	<sup>a</sup> 265,455	(X)	304,715
36632 46	Subscriber converters . . . . .	-	(X)	-	(X)	-
36632 49	Subscriber equipment (decoders, switchers; wall outlet taps; distribution amplifiers; power suppliers; directional couplers, splitters, alternators, and equalizers) <sup>20</sup> . . . . .	5	(X)	(D)	(X)	(D)
36632 43	Broadcasting transmitting antennae and community antennae systems. . . . .	8	(X)	59,218	(X)	29,925
36632 44	Closed circuit television systems and equipment, (specially designed cameras, monitors, video recorders, receivers, scan converters and control consoles), excluding broadcast and consumer products <sup>20</sup> . . . . .	25	(X)	(D)	(X)	(D)
36632 45	Other broadcast, studio, theatre, and commercial sound equipment (sold separately), excluding studio lighting equipment, radiating and supporting towers . .	5	(X)	<sup>a</sup> 227,741	(X)	<sup>a</sup> 250,218
36632 59	Parts and accessories for broadcast, studio, and related electronic equipment, sold separately . . . . .	13	(X)	16,210	(X)	14,144
36691 —	Alarm systems . . . . .	(NA)	(X)	1,921,083	(X)	1,802,779
	Intrusion detection:					
36691 48	Local . . . . .	23	(X)	146,023	(X)	123,798
36691 49	Central station . . . . .	16	(X)	<sup>a</sup> 446,425	(X)	389,442
36691 50	Direct connect . . . . .	9	(X)	<sup>b</sup> 11,975	(X)	12,108
36691 51	Hold-up systems (commercial and industrial) <sup>21</sup> . . . . .	4	(X)	(D)	(X)	(D)
36691 52	Automotive . . . . .	8	(X)	<sup>b</sup> 204,935	(X)	<sup>b</sup> 208,468
	Fire detection and prevention:					
	Smoke and heat detection alarms:					
36691 53	Ionization chamber type . . . . .	9	(X)	123,945	(X)	116,411
36691 54	Other, including photo cell type . . . . .	17	(X)	355,701	(X)	320,115
36691 56	Central station . . . . .	11	(X)	117,185	(X)	121,059
36691 57	Direct connect . . . . .	14	(X)	179,828	(X)	<sup>a</sup> 186,438
36691 59	Other intercommunication and alarm systems, including electric sirens, and horns (marine, industrial, and air raid), and security locking systems <sup>21</sup> . . . . .	32	(X)	(D)	(X)	(D)
36692 —	Vehicular and pedestrian traffic control equipment, electrical railway signal, and attachments . . . . .	(NA)	(X)	805,484	(X)	761,991
	Vehicular and pedestrian traffic control equipment:					
36692 42	Signal heads, including parts and accessories . . . . .	11	(X)	<sup>a</sup> 75,770	(X)	72,741
36692 43	Electronic and electromechanical controllers, detectors, and sensors, including parts and accessories . . . . .	29	(X)	320,993	(X)	274,327
	Railway signals and attachments, electric:					
36692 45	Railway highway grade crossing signals, excluding relays and other control apparatus <sup>22</sup> . . . . .	5	(X)	(D)	(X)	(D)
36692 46	Other railway signal systems and safety control equipment <sup>22</sup> . . . . .	9	(X)	(D)	(X)	(D)

See footnotes at end of table.

**Table 17. Quantity and Value of Shipments of Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment by Product Code: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36693 —	Intercommunications systems, including inductive paging systems (selective calling).....	(NA)	(X)	252,650	(X)	277,765
36693 12	Wired.....	38	(X)	<sup>b</sup> 205,798	(X)	<sup>a</sup> 208,256
36693 13	Nonwired.....	9	(X)	<sup>b</sup> 46,852	(X)	<sup>b</sup> 69,509
36991 —	Electronic teaching machines, teaching aids, trainers, and simulators.....	(NA)	(X)	809,931	(X)	865,742
36991 81	Electronic trainers and simulators.....	35	(X)	<sup>b</sup> 772,827	(X)	828,830
36991 85	Other electronic teaching machines and teaching aids.....	9	(X)	<sup>a</sup> 37,104	(X)	<sup>a</sup> 36,912
36992 —	Laser sources.....	(NA)	(X)	1,020,917	(X)	<sup>r</sup> 843,839
	Gas lasers:					
36992 12	5 watts or less.....	7	(X)	<sup>a</sup> 59,581	(X)	<sup>a</sup> 52,485
36992 16	6 watts to 100 watts <sup>23</sup> .....	7	(X)	(D)	(X)	(D)
36992 22	101 watts to 500 watts <sup>23</sup> .....	2	(X)	(D)	(X)	(D)
36992 26	Over 500 watts <sup>23</sup> .....	6	(X)	(D)	(X)	(D)
	Solid-state lasers:					
36992 32	100 watts or less.....	14	(X)	<sup>a</sup> 60,967	(X)	<sup>b</sup> 62,963
36992 36	101 watts to 500 watts <sup>24</sup> .....	5	(X)	(D)	(X)	(D)
36992 42	Over 500 watts <sup>24</sup> .....	2	(X)	(D)	(X)	(D)
36992 60	Other lasers, including dye lasers <sup>24</sup> .....	15	(X)	(D)	(X)	(D)
36995 —	Ultrasonic equipment, n.e.c.....	21	(X)	187,755	(X)	184,315
36999 —	Other electronic systems and equipment, n.e.c.....	(NA)	(X)	1,431,776	(X)	<sup>r</sup> 1,346,332
36999 51	Consumer electronic equipment, n.e.c.....	20	(X)	<sup>b</sup> 350,673	(X)	<sup>a</sup> 357,044
36999 55	Scientific electronic equipment, n.e.c.....	20	(X)	<sup>a</sup> 66,574	(X)	132,182
36999 61	Industrial electronic equipment, n.e.c.....	36	(X)	<sup>b</sup> 130,101	(X)	<sup>a</sup> 123,000
36999 65	All other electronic equipment, n.e.c.....	98	(X)	<sup>a</sup> 884,428	(X)	734,106

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. <sup>r</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Product codes 36611 23 and 36611 28 have a combined total value of 6,173,868 for 1997 and 5,228,560 for 1996.

<sup>2</sup>Product codes 36611 41 and 36611 43 have a combined total value of 695,596 for 1997.

<sup>3</sup>Product code 36611 51 and 36611 55 have a combined total value of 1,055,252 for 1997 and 736,522 for 1996.

<sup>4</sup>Product codes 36613 01 and 36613 05, 36613 09, 36613 51, 36613 55, and 36613 59 have a combined total value of 3,371,023 for 1997 and 2,885,227 for 1996.

<sup>5</sup>Product codes 36613 33 and 36613 36 have a combined total of value 1,119,985 for 1997 and 1,308,266 for 1996.

<sup>6</sup>Product codes 36613 41, 36613 45, and 36613 49 have a combined value total of 2,049,741 for 1997 and 1,762,570 for 1996.

<sup>7</sup>Product codes 36613 63 and 36613 67 have a combined total quantity of 966,841 and combined total value of 232,671 for 1997.

<sup>8</sup>Product codes 36614 21 and 36614 25 have a combined total quantity of 3,552,560 and combined total value of 218,480 for 1996.

<sup>9</sup>Product codes 36614 36 and 36614 38 have a combined total value of 286,160 for 1997 and 273,099 for 1996.

<sup>10</sup>Product codes 36614 41, 36614 45, 36614 47, and 36614 49 have a combined total value of 12,344,171 for 1997.

<sup>11</sup>Product codes 36614 45 and 36614 47 have a combined total value of 2,411,927 for 1996.

<sup>12</sup>Product codes 36614 55, 36614 59, 36614 91, and 36614 97 have a combined total value of 2,908,064 for 1997.

<sup>13</sup>Product codes 36614 55, 36614 91, and 36614 97 have a combined total value of 2,077,416 for 1996.

<sup>14</sup>Product codes 36614 63, 36614 65, and 36614 67 have a combined total value of 799,419 for 1997 and 701,542 for 1996.

<sup>15</sup>Of this total, airborne and marine based accounted for \$548.5 million in 1997 and \$471.1 million in 1996; earth (fixed) based accounted for \$4.0 billion in 1997 and \$3.1 billion in 1996; space-based (satellite) and earth (mobile) based systems amounts are withheld to avoid disclosing data for individual companies.

<sup>16</sup>Product codes 36631 17, 36631 19, 36631 25, 36631 33, and 36631 46 have a combined total value of 5,111,768 for 1997 and 4,733,920 for 1996.

<sup>17</sup>Product codes 36631 34, 36631 35, 36631 42, and 36631 44 have a combined total value of 11,534,177 for 1997 and 10,566,268 for 1996.

<sup>18</sup>Product codes 36631 57, 36631 59, 36631 61, 3661 63, and 36631 73 have a combined total value of 770,574 for 1997 and 643,003 for 1996.

<sup>19</sup>Product codes 36632 22, 36632 24, and 36632 25 have a combined total value of 77,594 for 1997 and 71,547 for 1996.

<sup>20</sup>Product codes 36632 49 and 36632 44 have a combined total value of 612,619 for 1997 and 529,075 for 1996.

<sup>21</sup>Product codes 36691 51 and 36691 59 have a combined total value of 335,066 for 1997 and 324,940 for 1996.

<sup>22</sup>Product codes 36692 45 and 36692 46 have a combined total value of 408,721 for 1997 and 414,923 for 1996.

<sup>23</sup>Product codes 36992 16, 36992 22, and 36992 26 have a combined total value of 290,766 for 1997 and 189,781 for 1996.

<sup>24</sup>Product codes 36992 36, 36992 42, and 36992 60 have a combined total value of 609,603 for 1997 and 538,610 for 1996.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item has been estimated. <sup>b</sup>Over 25 percent of this item has been estimated.



**Table 18. Shipments, Imports, and Exports of Communications Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment: 1997**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption (value) <sup>2</sup>
36611 41, 43, 45, 49	Private branch telephonic exchange switching apparatus . . . . .	952,981	238,362	66,779
36611 23, 28	Central office telephonic switching apparatus . . . . .	6,173,868	374,981	104,963
36611 51, 55, 91	Telephonic switching apparatus, n.e.c. . . . .	3,139,057	197,482	95,893
36611 98	Parts, components, and subassemblies for telephone switching and switchboard apparatus . . . . .	352,201	914,997	819,390
36613 01, 05, 09	Repeaters and line transceivers, carrier line equipment <sup>3</sup> . . . . .	(D)	30,151	15,202
36613 30, 33, 36, 41, 45, 49, 51, 55, 59	Carrier line equipment, n.e.c. <sup>3</sup> . . . . .	(D)	1,062,450	696,614
36614 21, 25, 29, 36, 38	Telephone sets, including cordless handset telephones . . . . .	638,508	1,859,199	1,851,207
36613 62, 63, 66, 67	Modems, including auxiliary sets . . . . .	1,115,297	1,025,255	533,502
36614 41, 43, 45, 47, 49, 51, 59, 97	Telephone and telegraphic equipment, n.e.c., including voice frequency equipment <sup>4</sup> . . . . .	(D)	894,033	344,212
36614 55	Telephone key systems <sup>4</sup> . . . . .	(D)	14,762	18,484
36614 61, 63, 65, 67, 69	Telephone answering devices . . . . .	1,497,894	97,482	211,390
36614 91	Facsimile communication equipment (complete) <sup>4</sup> . . . . .	(D)	(NA)	859,469
36614 99	Parts, components, and subassemblies for other telephone equipment . . . . .	308,502	1,450,471	848,530
36632 12	Audio amplifiers and preamplifiers (except consumer and PA types) . . . . .	253,435	260,421	360,146
36632 31, 34, 37	Transmitters, translators, RF power amplifiers, and related equipment . . . . .	808,570	683,750	156,992
36631 34, 35, 42, 44	Mobile radio systems and equipment, including transceivers, and portable receivers, transmitter and receiver, hand held . . . . .	11,534,177	6,411,075	2,648,651
36693 12, 13	Intercommunications systems, including inductive paging systems . . . . .	252,650	157,302	106,641
36632 24	Television cameras (except consumer and PA types) . . . . .	(D)	104,442	24,697
36631 53, 55, 36632 43	Antennae systems, including broadcasting, transmitting, and community antennae systems . . . . .	1,241,485	753,284	242,277
36632 41, 44, 46, 49	Cable television and closed circuit television systems and equipment, including AM and FM transmitters . . . . .	878,074	739,147	659,472
36691 48, 49, 50, 51, 52, 59	Intrusion detection alarm systems . . . . .	1,144,424	69,332	211,401
36691 53	Smoke detection alarms, ionization type . . . . .	123,945	12,493	84,863
36691 54	Smoke detection alarms, n.e.c., including photo cell type . . . . .	355,701	48,981	41,889
36691 56-57	Central station and direct connect fire detection and prevention alarm systems . . . . .	297,013	171,204	90,692

See footnotes at end of table.

Table 18. **Shipments, Imports, and Exports of Communications Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment: 1997**—Con.

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption (value) <sup>2</sup>
36692 42-43	Vehicular and pedestrian traffic control equipment. ....	396,763	61,854	44,249
36692 45-46	Railway signals and attachments, electric. ....	408,721	20,201	3,927
36991 81	Electronic trainers and simulators. ....	772,827	185,107	99,726
36995 00	Ultrasonic equipment, n.e.c. ....	187,755	213,830	5,205

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Data for product codes 36613 01, 36613 05, 36613 09, 36613 30, 36613 33, 36613 36 36613 41, 36613 45, 36613 49, 36613 51, 36613 55, and 36613 59 have a combined total for "manufacturers' shipments" of 6,571,508 for 1997.

<sup>4</sup>Product codes 36614 41, 36614 43, 36614 45, 36614 47, 36614 49, 36614 51, 36614 55, 36614 59, 36614 91 and 36614 97 have a combined total for "manufacturers' shipments" of 15,401,962 for 1997.

### HISTORICAL NOTE

Data on selected electronic and associated products have been collected by the Census Bureau since 1961 on survey MA36N, Selected Electronics and Associated Products. In 1985, survey MA36N was divided into three annual surveys: MA36P, Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment; MA36Q, Semiconductors, Printed Circuit Boards, and Other Electronic Components; and MA38R

(formerly MA36R), Electromedical Equipment and Irradiation Equipment (Including X-Ray). Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

### CONTACT FOR DATA USERS

For additional information about these data, contact Cynthia Ramsey, 301-457-4823.

# SEMICONDUCTORS, PRINTED CIRCUIT BOARDS, AND RELATED EQUIPMENT (MA36Q)

## INTRODUCTION

These data cover all significant manufacturers of semiconductors, printed circuit boards, and other electronic components. The mailing panel included all establishments with 20 employees or more for industries 3671, 3672, 3674, 3675, 3676, 3677, 3678, and 3679.

The statistics were collected by mail on Census Bureau annual Form MA36Q, Semiconductors, Printed Circuit Boards, and Other Electronic Components. The survey panel includes all known producers of these products, except the firms excluded from the scope of the survey. Approximately 3,480 companies are included. No estimate is derived for the small firms excluded from the survey.

## SUMMARY OF FINDINGS

During 1997, the total value of shipments of semiconductors, printed circuit boards, and other electronic components totaled \$128,099.1 million. This represents a 4.9-percent increase from the revised 1996 total of \$122,169.3 million. The 1997 data include electron tubes and parts, \$4,293.7 million, an increase of 6.4 percent from 1996; printed circuit boards, \$8,784.6 million, an

increase of 6.9 percent from 1996; semiconductors and related devices, \$68,725.3 million, an increase of 5.0 percent over the revised total from 1996. Capacitors increased 24.4 percent to \$2,006.6 million; resistors increased by 8.9 percent, to \$992.8 million; coils and transformers had a 1.1-percent increase to \$1,450.8 million; electronic connectors had \$4,955.7 million in 1997, compared to \$4,542.5 million in 1996, an increase of 9.1 percent; and other electronic components increased to \$36,889.6 million, from a revised 1996 total of \$35,949.9 million, an increase of 2.6 percent.

## EXPLANATION OF TERMS

**Research and development.** Dollar shipments reflect income development, design, and engineering services performed by the reporting plant in connection with the manufacture of the products shipped, whether included in a single production contract, or contracted for separately, but intended as preparation for the manufacture of the specific products.

Table 19. **Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components by Class of Product: 1992 to 1997**

[Value in million of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992
36713	Transmittal, industrial, and special-purpose electron tubes (except X-ray) .....	699.1	611.4	854.9	854.9	677.6	868.4
36714	Receiving type electron tubes and cathode ray picture tubes .....	3,433.6	3,272.0	2,907.0	2,627.1	2,258.6	2,047.4
36715	Electron tube parts .....	161.0	153.1	120.2	114.9	160.1	129.5
36720	Printed circuit boards .....	8,784.6	8,216.8	8,367.3	6,812.3	6,273.0	5,721.7
36741	Integrated microcircuits (semiconductor networks) ..	56,866.1	52,639.3	48,437.9	36,020.4	23,636.1	20,065.4
36742	Transistors .....	801.2	945.9	942.5	834.6	704.5	674.8
36743	Diodes and rectifiers .....	786.5	861.4	1,066.7	829.5	640.7	652.2
36749	Other semiconductor devices .....	10,271.5	10,976.1	12,639.4	9,915.4	6,908.2	5,899.2
36750	Capacitors for electronic applications .....	2,006.6	1,653.4	1,785.3	1,512.3	1,294.3	1,288.0
36760	Resistors .....	992.8	911.9	953.2	869.5	716.5	708.3
36770	Coils, transformers, reactors, and chokes for electronic applications .....	1,450.8	1,435.6	1,411.8	1,250.7	1,121.4	1,095.3
36781	Coaxial connectors .....	624.5	656.9	731.6	642.4	419.0	424.5
36782	Cylindrical connectors .....	586.2	642.5	552.9	511.3	482.8	503.9
36783	Rack and panel connectors .....	673.3	530.7	540.5	545.6	427.6	461.9
36784	Printed circuit connectors .....	1,276.2	1,095.3	1,026.4	923.4	859.4	855.2
36785	Other connectors, including parts .....	1,795.5	1,617.1	1,401.9	1,377.2	1,152.8	1,123.3
36791	Filters (except microwave) and piezoelectric devices .....	692.6	719.3	729.2	674.1	534.3	448.8
36793	Microwave components and devices .....	1,238.5	1,251.4	1,233.4	1,227.2	1,136.3	1,258.4
36795	Transducers, electrical/electronic input or output. ...	1,209.2	1,104.8	1,111.3	970.5	832.5	810.3
36796	Switches, mechanical types for electronic circuitry ..	828.3	738.0	666.3	621.5	572.6	541.7
36798	Printed circuit assemblies .....	25,283.4	24,937.3	24,447.7	17,514.8	15,087.1	13,745.8
36799	All other electronic components, n.e.c. ....	7,637.6	7,199.1	6,978.1	6,149.7	5,257.6	5,260.3

n.e.c. Not elsewhere classified.

**Table 20. Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3671—	Electron tubes .....	(NA)	(X)	4,293,660	(X)	4,036,475
36713 —	Transmittal, industrial, and special-purpose electron tubes (except X-ray) .....	38	(X)	699,060	(X)	611,445
36713 15	Power and special-purpose tubes: High vacuum tubes, including triodes, multigrid external and internal anodes, diodes, and other .....	7	144	66,954	166	77,229
36713 24	Gas and vapor tubes, including ignitron, gas duplexers, spark gaps, and other .....	9	286	36,152	352	39,480
36713 34	Klystrons, including amplifier, reflex, and other .....	6	512	47,760	465	42,372
36713 47	Magnetrons, including pulsed, fixed, tunable, cross-field, continuous wave, and other .....	7	53	46,082	41	31,165
	Traveling wave tubes (TWT): Forward wave: Continuous wave (CW): Up to and including 10 watts CW power output rating <sup>1</sup> .....	2	(D)	(D)	(D)	(D)
36713 55	Over 10 watts CW power output rating <sup>1</sup> .....	5	2,553	80,352	1,862	69,140
36713 61	Pulsed power: Up to and including 1 kW peak power output rating <sup>2</sup> .....	3	(D)	(D)	(D)	(D)
36713 65	Over 1 kW peak power output rating <sup>2</sup> .....	4	827	87,581	437	49,809
36713 66	Backward wave <sup>2</sup> .....	1	(D)	(D)	(D)	(D)
36713 92	Light sensing tubes: Camera tubes, photo emissive and photo conductive <sup>3</sup> .....	4	(D)	(D)	(D)	(D)
36713 70	Image intensifiers and converters <sup>3</sup> .....	2	(D)	(D)	(D)	(D)
36713 73	Photo multipliers and other <sup>3</sup> .....	3	86	105,061	107	87,505
36713 76	Light emitting devices, including storage tubes all sizes, cathode ray tubes, color and monochrome (industrial and military), special display devices, including alphanumeric readout tubes, figure indicating tubes, and other .....	12	3,651	119,747	4,283	106,973
36713 83	Miscellaneous special-purpose tubes (reference cavities, radiation detection (geiger, neutron counters, etc.), beam deflection, decade counters, orbital beam, vacuum gauges, vacuum capacitors, switches, relays, etc.) .....	8	(X)	109,371	(X)	107,772
36713 96	Receiving type electron tubes and cathode ray picture tubes .....	(NA)	(X)	3,433,613	(X)	3,271,980
36714 —	Receiving type electron tubes, all types, including rebuilt .....	4	(D)	(D)	(D)	(D)
36714 01	Television tubes, including any defective tube that has been rebuilt: Color having a video display diagonal of: 50 cm and under (20 inches and under) .....	10	10,916	816,306	11,755	922,159
36714 09	Over 50 cm, but not exceeding 63 cm (21 through 25 inches) .....	4	4,370	476,634	3,890	436,140
36714 12	Exceeding 63 cm (26 inches and over) .....	8	10,495	2,080,908	9,531	1,863,776
36714 14	Other, including rebuilt color and new and rebuilt black and white .....	3	(D)	(D)	(D)	(D)
36714 27	Electron tube parts (except glass blanks): bases, getters, cathodes, headers, and guns .....	17	(X)	160,987	(X)	153,050
36715 57	Printed-circuit (wiring) boards .....	558	(X)	8,784,649	(X)	8,216,763
36720 —	Single-sided glass printed .....	285	(X)	302,976	(X)	285,916
36720 12	Double-sided glass printed .....	378	(X)	1,410,852	(X)	1,312,352
36720 14	Multilayer glass printed .....	367	(X)	4,549,388	(X)	3,908,027
36720 16	Single-sided flex printed .....	45	(X)	180,611	(X)	131,259
36720 20	Double-sided flex printed .....	47	(X)	119,937	(X)	104,855
36720 23	Multilayer flex and rigid/flex printed .....	57	(X)	452,443	(X)	444,947
36720 27	All paper/mat/composite printed boards .....	20	(X)	107,493	(X)	148,591
36720 29						

See footnotes at end of table.

Table 20. **Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36720—	Printed-circuit (wiring) boards—Con.					
36720 31	Other substitute printed boards .....	51	(X)	1,030,391	(X)	1,209,580
36720 40	Receipts for contract work on printed circuit boards (etching, dip-soldering, imprinting, etc.) but not printed board assembly .....	74	(X)	630,558	(X)	1,671,236
3674—	Semiconductors and related devices .....	(NA)	(X)	68,725,259	(X)	65,422,692
36741—	Monolithic integrated circuits .....	180	13,404,311	56,866,050	12,598,207	52,639,339
	Monolithic integrated circuits, digital, nonsilicon (e.g., gallium arsenide):					
36741 19	Memory .....	6	8,574	133,665	10,141	144,212
36741 28	Logic and other .....	10	175,657	995,559	(D)	(D)
	Monolithic integrated circuits, digital, silicon:					
	Bipolar transistors, memory:					
36741 07	Static read-write random access (SRAM) .....	7	(D)	(D)	(D)	(D)
36741 09	Other memory .....	5	31,556	121,891	(D)	(D)
	Other bipolar transistors, including logic:					
36741 13	Transistor-transistor logic (TTL) .....	14	2,034,317	1,006,511	2,550,814	1,320,166
36741 14	Emitter coupled logic (ECL) .....	8	(D)	(D)	291,847	188,527
36741 15	Other .....	12	821,979	1,190,329	869,638	1,219,078
	Metal oxide semiconductor (MOS) field effect transistors:					
	Volatile memory DRAM (dynamic read-write random access):					
36741 81	Not over 80 k <sup>4</sup> .....	6	(D)	(D)	(D)	(D)
36741 82	Over 80 k but not over 300 k <sup>4</sup> .....	4	(D)	(D)	(D)	(D)
36741 83	Over 300 k but not over 3 MB <sup>4</sup> .....	10	87,510	844,188	134,658	1,825,354
36741 84	Over 3 MB but not over 15 MB .....	9	111,639	432,176	318,052	1,946,348
36741 85	Over 15 MB .....	10	304,757	2,747,450	66,944	1,447,939
	Volatile memory SRAM (static read-write random access):					
36741 91	Not over 40 k .....	10	32,724	217,480	38,741	291,346
36741 92	Over 40 k but not over 80 k .....	13	42,056	125,325	42,483	147,446
36741 93	Over 80 k but not over 300 k <sup>5</sup> .....	15	(D)	(D)	164,841	1384,119
36741 94	Over 300 k but not over 3 MB <sup>5</sup> .....	11	(D)	(D)	(D)	(D)
36741 95	Over 3 MB <sup>5</sup> .....	5	133,322	1,339,316	124	5,671
	Nonvolatile EEPROM's (electrically erasable programmable read-only memory):					
36741 96	Not over 80 k .....	6	368,165	279,664	417,532	302,878
36741 97	Over 80 k but not over 900 k .....	7	59,844	242,609	49,144	204,714
36741 98	Over 900 k .....	4	(D)	(D)	(D)	(D)
	Nonvolatile EPROMs (erasable, except electrically, programmable read-only memory):					
36741 86	Not over 80 k .....	7	20,045	91,726	18,094	70,910
36741 87	Over 80 k but not over 900 k .....	10	173,064	641,429	175,143	641,510
36741 88	Over 900 k .....	7	(D)	(D)	(D)	(D)
36741 90	Other nonvolatile memory .....	13	263,312	1,344,769	169,476	1,188,555
	Other, including microprocessors, controllers, application specific integrated circuits (ASICs), and programmable logic arrays (PLAs):					
36741 36	Microprocessors having an internal data bus of 8 bits or less .....	14	900,797	2,901,278	733,063	3,242,874
36741 38	Microprocessors having an internal data bus of 16 bits .....	14	123,646	1,507,077	148,800	1,385,453
36741 39	Microprocessors having an internal data bus of 32 bits or more .....	13	(D)	(D)	(D)	(D)
36741 18	Other (microcontrollers, ASICs, PLAs, etc.) .....	37	1,360,359	14,670,879	1,525,453	6,367,393
	Other digital, silicon, including bipolar combined with MOS:					
36741 20	Complementary BiMOS (BiCMOS) .....	3	(D)	(D)	(D)	(D)
36741 21	Other complementary (BiCMOS), including logic .....	10	940,711	422,780	532,239	375,857
36741 26	Other digital silicon ICs .....	27	23,211	1,218,809	210,833	936,493

See footnotes at end of table.

Table 20. **Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3674— 36741—	Semiconductors and related devices—Con. Monolithic integrated circuits—Con. Nondigital silicon monolithic integrated circuits (e.g., linear and analog):					
36741 49	Radio frequency .....	7	(D)	(D)	<sup>1</sup> 129,340	<sup>1</sup> 222,638
36741 02	Other, analog .....	25	2,282,573	3,059,803	<sup>1</sup> 1,870,881	<sup>1</sup> 2,377,434
36741 03	Other, including mixed signal (analog and digital), logic .....	5	(D)	(D)	(D)	(D)
36741 04	Other, including mixed signal (analog and digital), other .....	13	352,387	1,875,476	364,989	1,969,614
	Hybrid integrated circuits:					
36741 08	Radio frequency .....	20	60,820	432,599	<sup>1</sup> 97,946	363,036
36741 31	Other .....	53	70,822	820,799	<sup>1</sup> 76,743	<sup>1</sup> 923,777
36741 06	Other .....	45	1,744,937	4,693,663	<sup>1</sup> 899,268	<sup>1</sup> 4,730,352
36742—	Transistors .....	36	(X)	801,176	(X)	945,930
36742 63	Signal (less than 1 watt dissipation) .....	21	(X)	251,989	(X)	346,616
36742 64	Power (1 watt or greater dissipation) .....	31	(X)	549,187	(X)	<sup>1</sup> 599,314
36743—	Diodes and rectifiers. ....	50	3,243,466	786,549	3,511,406	861,370
36743 22	Signal diodes and assemblies thereof (maximum current 0.5 amps) .....	19	42,814	14,538	44,922	16,002
36743 42	Semiconductor rectifiers/power diodes and assemblies thereof (current rating greater than 0.5 amps) .....	26	970,661	293,061	<sup>1</sup> 1,031,256	<sup>1</sup> 309,921
36743 94	Zener diodes (voltage regulator and voltage reference diodes) <sup>6</sup> .....	20	(D)	(D)	(D)	(D)
36743 12	Selenium rectifiers <sup>6</sup> .....	4	1,848,961	225,714	2,030,100	251,883
36743 83	Microwave diodes (mixers, detectors, varactors, parametric, harmonic generators, etc.) .....	13	381,030	253,236	<sup>1</sup> 405,128	283,564
36749—	Other semiconductor devices .....	161	(X)	10,271,484	(X)	10,976,053
	Light-sensitive and light-emitting devices:					
36749 12	Solar cells .....	13	(X)	86,326	(X)	82,256
36749 13	Photovoltaic modules .....	8	(X)	56,236	(X)	(D)
	Light-emitting diodes (LEDs):					
36749 14	Discrete, infrared and laser .....	18	(X)	424,206	(X)	(D)
36749 16	Alpha or numeric displays .....	8	(X)	74,591	(X)	60,642
36749 22	Photodiodes, including infrared detectors .....	18	(X)	87,514	(X)	<sup>1</sup> 74,919
36749 24	Optical coupled isolators, including sensors and emitters .....	7	(X)	(D)	(X)	149,782
36749 29	Other light sensitive and light-emitting devices, including photovoltaic devices and photoelectric-magnetic devices .....	12	(X)	153,291	(X)	<sup>1</sup> 145,806
	Other semiconductor devices:					
36749 85	Thyristors (SCRs, triacs, PNP diodes) .....	9	(X)	168,701	(X)	154,245
36749 86	Hall effect devices .....	1	(X)	(D)	(X)	(D)
36749 87	All other semiconductor devices (tunnel diodes, thermoelectric semiconductor junctions, metal-oxide varistors, solidstate transducers, and special semiconductor devices, n.e.c.) .....	22	(X)	2,074,694	(X)	2,001,217
	Semiconductor parts:					
	Chips and wafers:					
36749 94	For integrated circuits (ICs) .....	46	(X)	4,154,435	(X)	4,156,586
36749 96	For discrete semiconductors .....	34	(X)	1,360,410	(X)	1,165,218
36749 97	All other semiconductor parts (headers, packages, heat sinks, other accessories, etc.) ..	41	(X)	1,468,764	(X)	<sup>1</sup> 2,561,695
36291—	Paper, plastics (film), metalized, and dual (film/paper) dielectric capacitors, fixed .....	(NA)	85,647	161,232	81,956	142,733
	Ac types:					
36291 11	Less than 300 volts .....	18	16,792	29,230	12,339	22,418
36291 13	300 volts to 599 volts .....	17	56,558	98,990	58,926	95,274
36291 15	600 volts to 999 volts .....	12	8,085	16,194	6,544	11,842
36291 17	1,000 volts or over .....	11	4,212	16,818	4,147	13,199

See footnotes at end of table.

Table 20. **Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36750 —	Capacitors .....	87	(X)	2,006,611	(X)	1,653,402
	Capacitors having a reactive power handling capacity of 0.5 kVAR or less:					
	Dc types/other:					
36750 19	Axial lead .....	23	38,140	42,343	37,883	39,801
36750 21	Radial lead .....	12	109,202	24,116	114,673	24,218
36750 24	Chips and other leaded devices .....	2	(D)	(D)	(D)	(D)
	Tantalum electrolytic:					
36750 26	Metal case, including foil and wet .....	8	26,596	50,543	25,243	47,751
36750 28	Dipped <sup>7</sup> .....	3	(D)	(D)	(D)	(D)
36750 31	Chips <sup>7</sup> .....	4	(D)	(D)	(D)	(D)
36750 33	Other leaded (molded axial and molded radial) <sup>7</sup> .....	3	835,260	180,063	737,329	144,406
	Aluminum electrolytic:					
36750 38	Less than 18 mm through 35 mm <sup>8</sup> .....	5	(D)	(D)	(D)	(D)
36750 41	Small can style (over 35 mm through 51 mm) <sup>8</sup> .....	3	(D)	(D)	(D)	(D)
36750 43	Other can style (over 51 mm) .....	6	7,169	59,086	6,667	58,971
36750 45	Ac motor start <sup>8</sup> .....	1	80,963	102,253	77,455	105,348
	Ceramic dielectric, single layer:					
36750 54	Axial and radial <sup>9</sup> .....	7	(D)	(D)	(D)	(D)
36750 51	Chips <sup>9</sup> .....	2	141,853	25,027	132,798	23,185
	Ceramic dielectric, multilayer:					
36750 53	Axial leads <sup>10</sup> .....	3	(D)	(D)	(D)	(D)
36750 55	Radial leads <sup>10</sup> .....	8	4,415,964	213,107	2,892,546	148,184
36750 57	Chips .....	11	42,899,966	722,493	30,594,837	585,942
	Other:					
36750 59	Mica dielectric .....	8	12,048	11,019	11,508	11,816
36750 61	All other fixed .....	18	167,380	82,547	168,425	77,811
	Variable:					
36750 63	Mica, ceramic or glass dielectric .....	3	(D)	(D)	(D)	(D)
36750 69	Other .....	6	1,153	6,749	1,081	5,670
36750 75	Parts of capacitors, including unfinished chips for further finishing and assembly .....	8	(X)	(D)	(X)	(D)
36760 —	Resistors .....	88	(X)	992,788	(X)	911,863
36760 11	Fixed carbon resistors, composition or film types .....	10	111,535	46,100	116,892	48,888
	Other fixed resistors (power capacity 20W or less):					
	Surface mounted, having two terminals:					
36760 24	Flat resistor chips .....	19	612,868	62,355	437,747	57,275
36760 25	Cylindrical leadless resistors, including metal film, metal oxide, and thick cermet film .....	7	(D)	(D)	(D)	(D)
	Surface mounted, having more than two terminals (resistor networks):					
36760 28	Dual-in-line package .....	8	121,680	38,713	99,643	33,759
36760 32	Other, including flat packs .....	8	107,214	45,384	98,114	43,663
	Resistors, having two leads:					
36760 34	Wirewound .....	23	106,077	70,239	185,297	79,852
36760 36	Other, including metal film, metal oxide, and thick cermet film .....	16	927,718	99,899	1,300,447	98,564
	Resistor networks, having more than two leads:					
36760 38	Single-in-line .....	13	209,464	49,158	<sup>†</sup> 208,838	<sup>†</sup> 49,735
36760 42	Dual-in-line .....	8	33,563	13,435	40,014	15,275
36760 44	Other .....	9	7,272	23,568	<sup>†</sup> 10,957	26,895
	Variable, nonwirewound:					
	Trimmers:					
36760 51	Single-turn, carbon and other film .....	8	16,549	12,861	18,493	14,573
36760 54	Multiturn, carbon and other film .....	6	(D)	(D)	(D)	(D)
36760 58	Surface mounted .....	1	(D)	(D)	(D)	(D)
	Potentiometers:					
36760 57	Precision type .....	15	18,768	85,633	17,069	77,629
36760 62	Panel type .....	4	7,625	14,781	9,811	15,566
36760 72	Variable wirewound (except potentiometers), including nonprecision and trimmers .....	5	3,488	4,965	3,481	4,748

See footnotes at end of table.

Table 20. **Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36760 —	Resistors—Con.					
	Variable, wirewound:					
36760 67	Potentiometers, precision type .....	11	1,900	22,643	1,937	22,502
36760 74	Potentiometers, panel type .....	4	2,825	13,165	2,208	6,728
	Miscellaneous:					
36760 75	Varistors .....	6	(D)	(D)	(D)	(D)
36760 77	Thermistors, bead type, disc, rod .....	14	210,040	103,222	205,694	102,976
36760 79	Parts for resistors .....	10	(X)	(D)	(X)	(D)
36770 —	Coils, transformers, reactors, and chokes for electronic applications .....	254	(X)	1,450,816	(X)	1,435,588
36770 32	Audio frequency (AF) transformers .....	91	60,195	156,468	47,421	142,641
36770 33	Low frequency (LF) chokes .....	93	8,165	65,543	11,486	76,967
36770 41	Plate and filament transformers, including autotransformers (except toroidal) .....	66	16,411	144,054	14,653	127,709
36770 61	Pulse transformers, computer, and other types .....	87	37,378	129,100	37,425	134,065
36770 12	Radio frequency (RF) chokes .....	37	85,559	32,407	88,526	45,351
36770 13	Radio frequency (RF) coils .....	42	208,715	95,603	210,745	88,085
36770 14	Intermediate frequency (IF) transformers .....	34	6,777	48,096	6,293	42,438
36770 71	Television transformers and reactors (horizontal output, vertical deflection, focus coils, deflection yokes, etc.) .....	18	14,684	116,913	12,491	107,888
36770 91	Toroidal windings (transformers and reactors) (except complete magnetic amplifiers) .....	117	37,084	181,620	38,435	181,647
36770 92	Other (balun coils, permeability tuning devices, etc.) .....	96	(X)	481,012	(X)	488,797
3678 —	Electronic connectors .....	(NA)	(X)	4,955,668	(X)	4,542,507
36781 —	Coaxial (RF) connectors .....	48	544,107	624,487	597,115	656,930
36781 21	Miniature (BNC, PNC, MHB) .....	22	52,260	76,185	64,244	84,449
36781 22	Subminiature (SMA, SMB, SMC) .....	24	35,355	95,132	36,658	93,822
36781 24	Other standard and precision .....	36	456,492	453,170	496,213	478,659
36782 —	Cylindrical connectors .....	40	198,163	586,158	177,404	642,509
36782 25	Heavy duty and standard .....	31	83,104	309,897	88,311	325,397
36782 29	Miniature .....	16	12,857	102,390	15,715	112,480
36782 31	Subminiature .....	12	102,202	173,871	73,378	204,632
36783 —	Rack and panel (rectangular) connectors .....	35	1,615,262	673,342	964,463	530,690
36783 35	Integral shell, Mil-C-22857 (8434) and similar types .....	19	355,660	156,702	210,240	155,088
	Subminiature:					
36783 42	Ribbon, including planar cable type .....	6	(D)	(D)	(D)	(D)
36783 44	D-Subminiature, including planar cable type .....	14	(D)	(D)	(D)	(D)
36783 46	Microminiatures .....	14	8,884	56,526	22,559	82,977
36784 —	Printed circuit connectors .....	49	3,823,888	1,276,152	1,972,340	1,095,253
36784 44	Card insertion types .....	22	238,865	141,267	489,684	202,488
	Two-piece types:					
36784 48	Post, header and receptacle type .....	29	2,988,594	640,998	1,095,404	365,338
36784 49	Other two-piece types .....	22	596,429	493,887	387,252	527,427
36785 —	Other connectors, including parts .....	81	(X)	1,795,529	(X)	1,617,125
36785 41	Hermetic sealed (except single-contact and coaxial types) .....	23	263,007	134,777	178,764	115,721
36785 51	Plate module types .....	4	10,348	32,464	8,451	29,499
36785 53	Fiber optic connectors .....	9	37,900	192,043	29,630	194,370
36785 59	Other planar cable (flat conductor or ribbon cable), excluding rack and panel (rectangular types) .....	13	1,004,808	359,661	1,036,895	401,407
36785 54	Miscellaneous special purpose .....	48	2,197,249	922,007	1,109,992	728,674
36785 56	Parts for connectors (connectors shipped but still requiring further manufacture) .....	20	(X)	154,577	(X)	147,454
3679 —	Electronic components and subassemblies, n.e.c. ....	(NA)	(X)	36,889,725	(X)	35,896,801
36791 —	Filters (except microwave) and piezoelectric devices .....	107	212,689	692,597	172,131	719,264
36791 10	Filters (except microwave) .....	(NA)	135,597	288,271	111,432	339,966
36791 11	Mechanical, excluding optical lenses (germanium silicon, fused quartz, rock salt, and other) .....	6	182	18,231	8,483	64,096

See footnotes at end of table.



**Table 20. Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3679—	Electronic components and subassemblies, n.e.c.—Con.					
36791—	Filters (except microwave) and piezoelectric devices—Con.					
36791 10	Filters (except microwave)—Con. Radio frequency interference/ electromagnetic interference (RFI/EMI) control filters:					
36791 13	Ceramic dielectric . . . . .	13	111,010	112,795	76,058	131,528
36791 15	Combination or other dielectric. . . . .	16	23,779	133,147	26,470	119,903
36791 21	Electronic wave filters (LC band and high pass) . . . . .	22	626	24,098	421	24,439
36791 30	Piezoelectric devices . . . . .	(NA)	77,092	404,326	60,699	379,298
	Oscillator crystals:					
36791 31	AT-cut . . . . .	27	9,311	47,961	10,643	44,476
36791 33	Other . . . . .	11	41,525	69,836	28,920	57,824
	Crystal oscillators:					
36791 35	Oven . . . . .	9	159	23,925	93	20,986
36791 37	TCXO/VCXO . . . . .	11	424	26,403	500	28,860
36791 39	Hybrid . . . . .	11	3,301	31,425	3,712	28,764
36791 41	Other . . . . .	9	2,605	26,925	2,658	29,069
	Crystal filters:					
36791 43	Monolithic, including filter crystals and/or monolithic filter units not assembled into filters . . . . .	6	979	15,783	770	10,806
36791 45	Packaged AT-cut, including monolithic, tandem monolithic, and resonator filter assemblies . . . . .	11	236	7,774	341	10,598
36791 47	Other . . . . .	5	7,763	76,213	3,232	73,904
	Crystal blanks:					
36791 51	AT-cut . . . . .	7	3,049	6,508	3,156	6,731
36791 55	Other . . . . .	12	7,740	71,573	6,674	67,280
36793—	Microwave components and devices (except antenna), tubes, and semiconductors . . . . .	125	(X)	1,238,529	(X)	1,251,437
36793 11	Ferrite, including yttrium garnets, microwave components (circulators, isolators, phase shifters, attenuators, equalizers, limiters, mixers, etc.) . . . . .	41	(X)	286,304	(X)	340,006
	Microwave devices, other than ferrite and solid state:					
36793 21	Attenuators (dummy loads, high- and low-power terminations, etc.) . . . . .	39	(X)	92,473	(X)	68,399
36793 23	Cavities (amplifier cavities, coaxial tuned cavities, etc.) . . . . .	14	(X)	45,410	(X)	46,598
36793 25	Couplers (directional couplers, hybrid junctions, etc.) . . . . .	30	(X)	61,163	(X)	54,805
36793 27	Reactive microwave components, n.e.c. . . . .	37	(X)	120,270	(X)	114,436
36793 29	Switches, coaxial and waveguide . . . . .	33	(X)	140,617	(X)	61,241
36793 31	Rigid waveguide and fittings (bend and twists, couplings, flanges, other simple waveguide components, n.e.c.) . . . . .	24	(X)	(D)	(X)	(D)
36793 33	Flexible waveguides and fittings . . . . .	13	(X)	(D)	(X)	(D)
36793 51	Other microwave components (except ferrite devices) (coaxial to waveguide and other transitions, duplexers and diplexers, holders and mounts, linear and circular polarizers, magnetron test plumbing, rotary joints and sector scan joints, mixer arrays, shutters, tuners, windows, etc.) . . . . .	40	(X)	188,459	(X)	140,208
36793 71	Microwave subassemblies, including parametric amplifiers and other solid-state assemblies . . . . .	25	(X)	201,978	(X)	324,428
36795—	Transducers, electrical/electronic I/O, n.e.c. . . . .	88	111,131	1,209,235	106,037	1,104,823
36795 11	Electroacoustic (sonar, ultrasonic, vibration*, etc.) . . . . .	18	24,078	129,404	19,873	114,825
	Electromechanical:					
36795 21	Accelerometers* . . . . .	11	3,702	120,810	14,381	136,431

See footnotes at end of table.

Table 20. **Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3679—	Electronic components and subassemblies, n.e.c.—Con.					
36795 —	Transducers, electrical/electronic I/O, n.e.c.—Con. Electromechanical—Con.					
36795 23	Pressure* .....	38	51,894	532,660	46,025	476,529
36795 25	Strain gauges and other mechanical* .....	22	911	136,882	1,096	129,046
36795 31	Thermoelectric (pyrometers, thermocouples*, etc.) ..	8	1,993	59,264	1,881	54,166
36795 98	Other (optical, chemical, magnetic, nuclear*, etc.) ..	26	28,553	230,215	22,781	193,826
36796 —	Switches, mechanical types for electronic circuitry ...	66	(X)	828,320	(X)	737,964
36796 15	Slide, including rocker, miniature and subminiature* .....	11	(X)	58,872	(X)	63,165
36796 19	Rotary selector, including lever and jog-lever, miniature, and subminiature* .....	20	(X)	74,985	(X)	79,412
36796 21	Keyboard* .....	8	(X)	51,578	(X)	51,502
36796 25	Pushbutton* .....	21	(X)	70,675	(X)	59,906
36796 29	Snap-action* .....	11	(X)	25,006	(X)	16,040
36796 31	Thumbwheel* .....	6	(X)	22,920	(X)	(D)
36796 14	Membrane .....	16	(X)	85,300	(X)	73,782
36796 12	Toggle standard type .....	11	(X)	41,027	(X)	35,404
36796 13	Toggle miniature and subminiature .....	5	(X)	(D)	(X)	(D)
36796 33	DIP .....	6	(X)	(D)	(X)	(D)
36796 39	Other .....	31	(X)	309,827	(X)	271,762
36798 —	Printed circuit assemblies (loaded boards, subassemblies and modules) <sup>11</sup> .....	694	(X)	25,283,420	(X)	24,937,307
36798 51	Computer and peripheral printed board assemblies <sup>11</sup> .....	278	(X)	11,335,201	(X)	12,310,246
36798 53	Communications printed board assemblies <sup>11</sup> .....	233	(X)	4,377,701	(X)	3,732,540
36798 55	Industrial process control board assemblies <sup>11</sup> .....	178	(X)	570,351	(X)	439,994
36798 57	Instrumentation printed board assemblies (except industrial process) <sup>11</sup> .....	176	(X)	3,402,880	(X)	3,269,342
36798 59	Search and detection printed board assemblies <sup>11</sup> ..	40	(X)	49,418	(X)	44,412
36798 61	Consumer electronics, printed board assemblies <sup>11</sup> ..	115	(X)	513,743	(X)	521,026
36798 90	Other electronics, printed board assemblies, including office equipment and point of sales <sup>11</sup> ...	273	(X)	5,034,126	(X)	4,619,747
36799 —	Electronic components and subassemblies, n.e.c. ....	547	(X)	7,637,624	(X)	7,146,006
	Antenna systems (except structural towers sold separately):					
36799 07	Home antenna .....	10		20,010	25,724	267,092
36799 08	Auto antenna .....	12		19,762	16,279	58,722
36799 09	Antenna accessories, sold separately (pedestals, drives, passive reflectors, rotators, radomes, etc.) .....	21	(X)	177,668	(X)	187,476
36799 11	Delay lines (distributed constant, lumped constant, magnetostrictive, ultrasonic, etc.) .....	17		6,679	5,004	22,733
36799 13	Oscillators (except instrumentation and crystal types) .....	19		9,856	9,273	157,527
36799 20	Magnetic recording and reproducing heads, including audio, video, digital, and instrumentation .....	15	(D)	(D)	31,669	681,720
	Static power supply converters for electronic applications, sold separately:					
36799 21	Regulated .....	91		78,924	61,277	1,216,679
36799 22	Other (unregulated, variable frequency, ac, dc, converters and inverters, vibrator, etc.) .....	51	(X)	626,651	(X)	609,128
36799 31	Electronic cable harnesses and cable assemblies ..	242	(X)	1,804,426	(X)	1,714,545
36799 33	Cryogenic cooling devices (cryostats, etc.) for infrared detectors, masers .....	6	(X)	14,956	(X)	30,653
36799 51	Liquid crystal displays (LCDs) and other liquid devices .....	14	(X)	104,402	(X)	88,669
36799 55	Magnetic cores .....	16	(X)	346,818	(X)	309,005
	Electronic parts, n.e.c. and specialized electronic hardware:					
	Sockets for electronic component insertion:					
36799 66	Integrated circuit sockets .....	12	(X)	173,124	(X)	192,273

See footnotes at end of table.

Table 20. **Quantity and Value of Shipments of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3679—	Electronic components and subassemblies, n.e.c.—Con.					
36799—	Electronic components and subassemblies, n.e.c.—Con.					
	Electronic parts, n.e.c. and specialized electronic hardware:					
	Sockets for electronic component insertion:					
36799 62	Other, including tube, relay, discrete semiconductors, ac and dc converters and inverters, etc. ....	14	(X)	92,331	(X)	<sup>1</sup> 100,726
36799 89	Electronic control modular chips for motor vehicles**	1	(X)	(D)	(X)	(NA)
36799 98	All other electronic parts and specialized electronic hardware, n.e.c. ....	125	(X)	1,508,937	(X)	<sup>1</sup> 1,509,058
	Electronic research, development, testing, and evaluation (receipts or billings, not reported as shipments of specific products):					
99980 42	Systems	19	(X)	122,268	(X)	<sup>1</sup> 132,058
99980 43	Equipment and subassemblies	36	(X)	229,043	(X)	<sup>2</sup> 214,484
99980 44	Component parts	36	(X)	114,226	(X)	<sup>1</sup> 130,283
99980 46	Basic scientific electronic research	22	(X)	81,008	(X)	<sup>7</sup> 78,194
99980 47	Design and engineering services	50	(X)	114,555	(X)	<sup>1</sup> 79,160
99980 48	Software	9	(X)	7,529	(X)	<sup>1</sup> 4,025
99980 49	Testing	5	(X)	10,506	(X)	<sup>1</sup> 8,605
99980 50	Supplies and accessories sold with components	5	(X)	2,185	(X)	1,381

\*Similar products are collected on Current Industrial Report forms MA36A, "Switchgear, Switchgear Apparatus, Relays, and Industrial Controls and MA36K, Wiring Devices and Supplies." \*\*New item for 1997. D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Product code 36713 55 is combined with product code 36713 61 to avoid disclosing data for individual companies.

<sup>2</sup>Product codes 36713 55 and 36713 92 are combined with product code 36713 66 to avoid disclosing data for individual companies.

<sup>3</sup>Product codes 36713 70 and 36713 73 are combined with product code 36713 76 to avoid disclosing data for individual companies.

<sup>4</sup>Product codes 36741 81 and 36741 82 are combined with product code 36741 83 to avoid disclosing data for individual companies.

<sup>5</sup>Product code 36741 93 for 1997 and product code 36741 94 for 1997 and 1996 are combined with product code 36741 95 to avoid disclosing data for individual companies.

<sup>6</sup>Product code 36743 94 is combined with product code 36743 12 to avoid disclosing data for individual companies.

<sup>7</sup>Product codes 36750 28 and 36750 31 are combined with product code 36750 33 to avoid disclosing data for individual companies.

<sup>8</sup>Product codes 36750 38 and 36750 41 are combined with product code 36750 45 to avoid disclosing data for individual companies.

<sup>9</sup>Product code 36750 54 is combined with product code 36750 51 to avoid disclosing data for individual companies.

<sup>10</sup>Product code 36750 53 is combined with product code 36750 55 to avoid disclosing data for individual companies.

<sup>11</sup>These data are collected on two Current Industrial Report forms, MA35R, "Computer and Office and Accounting Machines," and MA36Q, "Semiconductors, Printed Circuit Boards, and Other Electronic Components."

**Table 21. Shipments, Imports, and Exports of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value, f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption <sup>2</sup>
36713 15	High vacuum tubes .....	66,954	38,960	16,051
36713 24	Gas and vapor tubes. ....	36,152	10,000	731
36713 34	Klystrons, including amplifiers, reflex, and other .....	47,760	54,745	117,278
36713 47	Magnetrons, including pulsed, fixed, tunable, cross-field, continuous wave and other .....	46,082	4,859	57,297
36713 70, 73	Light sensing tubes, including camera tubes, photo emissive and photo conductive, and image intensifiers and converters .....	(D)	180,398	28,768
36713 76	Light sensing tubes, n.e.c., including photo multipliers .....	(D)	16,776	22,729
36714 01	Receiving type electron tubes, including rebuilt .....	(D)	9,593	7,646
36714 09, 12, 14, 27	Television tubes, color and black and white, new and rebuilt .....	(D)	1,700,831	252,762
36715 57	Electron tube parts (except glass blanks) .....	160,987	118,598	430,745
36720 12, 14, 16, 20, 23, 27, 29, 31	Printed circuit boards .....	8,784,649	2,006,791	2,180,973
36741 28	Monolithic integrated circuits, digital (except memory and silicon) .....	995,559	1,005,697	119,944
36741 19	Monolithic integrated circuits, digital, memory (except silicon) .....	133,665	173,187	224,853
36741 07	Monolithic integrated circuits, digital, silicon, bipolar transistors, memory, static random access memory (SRAM) .....	(D)	18,872	10,522
36741 09	Monolithic integrated circuits, digital, silicon, bipolar transistors, memory (except static random access memory (SRAM)) .....	121,891	38,755	55,418
36741 14	Monolithic integrated circuits, digital, silicon, bipolar transistors (except memory, emitter logic (ECL)) .....	161,371	29,918	61,573
36741 13	Monolithic integrated circuits, digital, silicon, bipolar transistors (except memory, transistor-transistor logic (TTL)) .....	1,006,511	52,472	258,600
36741 15	Monolithic integrated circuits, digital, silicon, bipolar transistors (except memory, n.e.c.) .....	1,190,329	96,559	117,791
	Monolithic integrated circuits, digital, silicon, metal oxide (MOS) field effect transistors:			
36741 81-82	With volatile memory DRAM, not over 300 k <sup>3</sup> .....	(D)	104,178	98,050
36741 83-85	With volatile memory DRAM, over 300 k <sup>3</sup> .....	4,023,814	1,213,527	6,343,575
36741 91-93	With volatile memory SRAM, not over 300 k <sup>4</sup> .....	(D)	91,048	524,712
36741 94-95	With volatile memory SRAM, over 300 k <sup>4</sup> .....	1,682,121	102,717	856,232
36741 96-98	Except volatile memory, electrically (EEPROM) .....	(D)	557,577	1,497,613
36741 86-88	Except volatile memory (except electrically (EEPROM)) .....	(D)	244,111	660,572
36741 90	Except volatile memory, n.e.c. ....	1,344,769	656,613	1,051,370
	Monolithic integrated circuits, digital, silicon, metal oxide (MOS) field effect transistors (except memory type):			
36741 36	Microprocessors 8 bits or less .....	2,901,278	244,950	1,383,065
36741 38	Microprocessors 16 bits .....	1,507,077	129,783	562,054
36741 39	Microprocessors 32 bits or more .....	(D)	1,045,072	2,940,617
36741 18	Other (microcontrollers, ASICs, PLAs, etc.) .....	14,670,879	1,883,183	8,293,249
36741 20	Monolithic integrated circuits, digital, silicon, metal oxide (MOS) field effect transistors, complementary BiMOS, memory type .....	(D)	25,350	146,886
36741 21	Monolithic integrated circuits, digital, silicon, metal oxide (MOS) field effect transistors, complementary BiMOS (except memory type) .....	422,780	50,924	436,249
36741 26	Monolithic integrated circuits, digital, silicon, metal oxide (MOS) field effect transistors, complementary BiMOS, n.e.c., including logic type (except memory types) .....	1,218,809	458,400	166,558
36741 49, 02-04	Monolithic integrated circuits, nondigital, silicon, including linear, analog, radio frequency, etc. ....	(D)	1,418,569	4,130,482
36741 08, 31	Hybrid integrated circuits .....	1,253,398	654,686	698,597
36750 26	Capacitors, fixed, tantalum electrolytic, metal case, including foil and wet .....	50,543	15,028	15,905
36750 28	Capacitors, fixed, tantalum electrolytic, dipped <sup>5</sup> .....	(D)	8,157	31,931
36750 31	Capacitors, fixed, tantalum electrolytic, chips <sup>5</sup> .....	(D)	133,471	272,910
36750 33	Capacitors, fixed, tantalum electrolytic, n.e.c., including leaded <sup>5</sup> .....	180,063	37,241	33,056
36750 38	Capacitors, fixed, aluminum electrolytic, not exceeding 35 mm <sup>6</sup> .....	(D)	50,845	269,128

See footnotes at end of table.

Table 21. **Shipments, Imports, and Exports of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997—Con.**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value, f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption <sup>2</sup>
36750 41, 43, 45	Capacitors, fixed, aluminum electrolytic, over 35 mm <sup>6</sup> .....	161,339	9,319	33,294
36750 51	Capacitors, fixed, ceramic dielectric, single layer, chips <sup>7</sup> .....	(D)	32,407	5,329
36750 54	Capacitors, fixed, ceramic dielectric, single layer, axial and radial <sup>7</sup> .....	25,027	9,902	34,721
36750 53	Capacitors, fixed, ceramic dielectric, multilayer, axial <sup>8</sup> .....	(D)	24,064	39,782
36750 55	Capacitors, fixed, ceramic dielectric, multilayer, radial <sup>8</sup> .....	213,107	34,382	64,333
36750 57	Capacitors, fixed, ceramic dielectric, multilayer, chips.....	722,493	405,348	289,506
36750 59	Capacitors, fixed, mica dielectric.....	11,019	1,365	3,663
36750 61	Capacitors, fixed, n.e.c.....	82,547	404,049	55,083
36750 63	Capacitors, variable, mica/ceramic/glass dielectric.....	(D)	16,330	9,463
36750 69	Capacitors, variable, n.e.c.....	6,749	46,403	18,937
36750 75	Capacitors, parts, including unfinished chips for further finishing..	(D)	347,608	35,423
36291 11	Capacitors, fixed, ac type, less than 300 volts.....	29,230	4,827	45,463
36291 13	Capacitors, fixed, ac type, 300-599 volts.....	98,990	4,762	27,867
36291 15	Capacitors, fixed, ac type, 600-999 volts.....	16,194	115	2,490
36291 17	Capacitors, fixed, ac type, 1,000 volts or more.....	16,818	19,942	1,442
36750 19	Capacitors, fixed, dc type, axial.....	42,343	960	4,983
36750 21	Capacitors, fixed, dc type, radial.....	24,116	488	46,675
36750 24	Capacitors, fixed, dc type, chips and other leaded.....	(D)	7,599	25,962
36742 63	Transistors, signal, less than 1 watt dissipation.....	251,989	105,061	354,703
36742 64	Transistors, power, 1 watt or greater dissipation.....	549,187	20,756	753,467
36743 22	Signal diodes and assemblies.....	14,538	8,390	93,948
36743 94	Zener diodes <sup>9</sup> .....	(D)	31,065	96,877
36743 42, 12	Diodes and rectifiers, n.e.c. <sup>9</sup> .....	518,775	216,455	435,968
36743 83	Microwave diodes.....	253,236	64,351	19,976
36749 12	Solar cell.....	86,326	126,775	60,350
36749 14, 16	Light emitting diodes.....	498,797	83,561	434,621
36749 24	Optical coupled isolators.....	(D)	6,200	106,357
36749 29	Other light-sensitive and light-emitting devices.....	153,291	80,041	187,862
36749 85	Thyristors, SCRs, triacs, and PNP diodes.....	168,701	25,899	166,238
36749 94	Chips and wafers for integrated circuits.....	4,154,435	14,640,720	1,568,179
36749 96	Chips and wafers for discreet semiconductors.....	1,360,410	1,559,221	221,260
36749 97	Other semiconductor parts.....	1,468,764	235,100	179,762
36760 11	Carbon resistors, fixed, composition or film types, designed for surface mounting (SMD) by contact, having two terminals, cylindrical leadless having two leads, carbon composition and carbon film.....	46,100	31,283	46,203
36760 24, 25	Carbon resistors, fixed, with a power capacity of 20 watts or less, surface mounted (SMD), having two terminals, including both flat resistor chips, and cylindrical leadless resistors.....	(D)	32,333	108,707
36760 28, 32	Carbon resistors, fixed, with a power capacity of 20 watts or less, surface mounted (SMD), having more than two terminals, resistor, and resistor-capacitor networks.....	84,097	11,276	31,159
36760 34	Resistors, fixed, with a power capacity of 20 watts or less, wirewound, having two leads.....	70,239	12,893	27,314
36760 36	Resistors, fixed, with a power capacity of 20 watts or less, other than wirewound, having two leads.....	99,899	38,884	54,927
36760 38, 42, 44	Resistors, fixed, with a power capacity of 20 watts or less, resistor networks, having more than two leads.....	86,161	27,066	72,254
36760 67, 72, 74	Resistors, variable, wirewound, including rheostats and potentiometers, for a power handling capacity not exceeding 20 watts.....	40,773	6,479	23,399
36760 51, 54, 58, 57, 62, 75, 77	Resistors, variable, n.e.c.....	(D)	96,384	199,284
36760 79	Resistors, parts.....	(D)	163,632	11,168
36791 31, 33, 35, 37, 39, 41, 43, 45, 47	Piezoelectric devices (except crystal blanks).....	326,245	175,638	620,097
36791 51, 55	Piezoelectric devices, crystal blanks.....	78,081	30,138	11,855

See footnotes at end of table.

Table 21. **Shipments, Imports, and Exports of Semiconductors, Printed Circuit Boards, and Other Electronic Components: 1997—Con.**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value, f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption <sup>2</sup>
36770 71	Television transformers and reactors . . . . .	116,913	25,482	144,005
36770 32, 41, 61, 13, 14, 91, 92	Coils, transformers, reactors, and chokes for electronic applications, n.e.c. . . . .	1,235,953	321,195	721,919
36781	Connectors, coaxial . . . . .	624,487	99,754	67,155
36782	Connectors, cylindrical . . . . .	586,158	40,380	48,556
36783	Connectors, rack and panel . . . . .	673,342	105,389	9,865
36784	Connectors, printed circuit . . . . .	1,276,152	333,436	161,120
36799 07-09	Antenna systems (except structural towers, sold separately) . . . . .	512,743	62,508	37,582
36799 20	Magnetic recording and reproducing heads . . . . . (D)	(D)	12,993	39,133
36796 19	Switches, rotary selector . . . . .	74,985	17,147	16,957
36796 25	Switches, pushbutton . . . . .	70,675	36,111	73,058
36796 15	Switches, slide, including rocker, miniature and subminiature . . . . .	58,872	8,516	8,719
36796 29	Switches, snap-action . . . . .	25,006	37,201	38,260
36796 21, 31, 12-14, 33, 39	Switches, other . . . . .	598,782	672,324	524,589

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *General Imports for Consumption*.

<sup>3</sup>Manufacturers' shipments for "Volatile memory, DRAM, not over 300 k" and "Volatile memory, DRAM, over 300 k" are combined to avoid disclosing data for individual companies.

<sup>4</sup>Manufacturers' shipments for "Volatile memory, SRAM, not over 300 k" and "Volatile memory, SRAM, over 300 k" are combined to avoid disclosing data for individual companies.

<sup>5</sup>Manufacturers' shipments for "Capacitors, fixed, tantalum electrolytic, dipped," "Capacitors, fixed, tantalum electrolytic, chips," and "Capacitors, fixed, tantalum electrolytic, n.e.c., including leaded" are combined to avoid disclosing data for individual companies.

<sup>6</sup>Manufacturers' shipments for "Capacitors, fixed, aluminum electrolytic, not exceeding 35 mm" and "Capacitors, fixed, aluminum electrolytic, over 35 mm" are combined to avoid disclosing data for individual companies.

<sup>7</sup>Manufacturers' shipments for "Capacitors, fixed, ceramic dielectric, single layer, chips" and "Capacitors, fixed, ceramic dielectric, single layer, axial and radial" are combined to avoid disclosing data for individual companies.

<sup>8</sup>Manufacturers' shipments for "Capacitors, fixed, ceramic dielectric, multilayer, axial" and "Capacitors, fixed, ceramic dielectric, multilayer, radial" are combined to avoid disclosing data for individual companies.

<sup>9</sup>Manufacturers' shipments for "Zener diodes" and "Diodes and rectifiers, n.e.c." are combined to avoid disclosing data for individual companies.

## HISTORICAL NOTE

Data on selected electronic and associated products have been collected by the Census Bureau since 1961 on survey MA36N, Selected Electronics and Associated Products. In 1985, survey MA36N was divided into three annual surveys: MA36P, Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment; MA36Q, Semiconductors, Printed Circuit Boards, and Other Electronic Components; and MA38R

(formerly MA36R), Electromedical Equipment and Irradiation Equipment (Including X-ray). Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

## CONTACT FOR DATA USERS

For additional information about these data, contact Philippe Morris, 301-457-4819.

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## SELECTED INSTRUMENTS AND RELATED PRODUCTS (MA38B)

### INTRODUCTION

These data cover firms engaged in the manufacture of instruments and related products, except very small firms (generally less than 20 employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies.

The statistics were collected by mail on Census Bureau annual Form MA38B, Selected Instruments and Related Products. The survey panel includes all known producers of these products, except the very small firms excluded from the scope of the survey. Approximately 2,196 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments of selected instruments and related products totaled \$71.8 billion, up 4.2 percent from the 1996 value of \$68.9 billion. The 1997 figure includes automatic regulating, control, and solenoid valves, \$2.6 billion, up 7.4 percent from 1996; search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment, \$29.2 billion, an increase of 3 percent from 1996; laboratory apparatus and furniture, \$1.9 billion, up 4.6 percent from 1996; controls for monitoring residential and commercial environments, and appliance regulating controls, \$2.7 billion, up 1 percent from 1996; process control instruments, \$6.8 billion, unchanged from 1996; fluid meters and counting devices including motor vehicle instruments, \$3.7 billion, up 5.7 percent from 1996; test equipment and instruments to measure electricity, \$11.9 billion, an increase of 5.2 percent from 1996; analytical and scientific instruments (except optical), \$5.9 billion, an increase of 7.7 percent from 1996; optical instruments and lenses,

\$2.6 billion, an increase of 9 percent from 1996; test equipment, instruments, and measuring and controlling devices, not elsewhere classified (n.e.c.), \$4.5 billion, an increase of 6.9 percent from 1996.

### EXPLANATION OF TERMS

**Electronic systems—unified architecture.** Includes system-type control, display, and computing instruments actuated from standardized electrical transmission signals in which control and signal conditioning are integral with the display/operator interface.

**Electronic systems—nonunified architecture.** Includes system-type instruments and related equipment actuated from standardized electrical transmission signals in which control and signal conditioning are separated from the display/operator interface. Equipment includes single-loop and multiloop controllers, dedicated operator stations, shared CRT-based operator work stations, process I/O equipment, communication equipment, and other related miscellaneous equipment such as power supplies, racks, panels, cables, console furniture, printers, tape drives, mounting hardware, shelves, nests, calibrators, and testors. Does not include multifunction process computers reported in product code 38230 12.

**Industrial multifunction process computers.** Includes the hardware and standard software of the CPU and all peripheral equipment of the computers that provide centralized processing intelligence for two or more of the following functions: data manipulation and reporting, supervisory control and data acquisition, calculations using control algorithms, database management, use of a high-level programming language, and operator interface.

Table 22. **Value of Shipments of Selected Instruments and Related Products by Product Code: 1991 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991
34918	Automatic regulating and control valves . . . . .	2,056.8	1,892.6	1,860.4	1,807.1	1,647.5	1,579.3	1,537.4
34919	Solenoid-operated valves (except nuclear and fluid power transfer) . . . . .	536.3	521.8	463.8	452.3	406.0	404.7	360.1
38121	Aeronautical, nautical, and navigational instruments . . . . .	2,535.8	2,274.3	2,124.5	1,858.9	2,121.2	2,517.4	2,671.6
38122	Search and detection, navigation and guidance systems and equipment . . . . .	26,644.1	<sup>1</sup> 26,093.9	24,697.4	25,566.7	28,604.4	31,311.2	31,773.8
38210	Laboratory apparatus and laboratory furniture . . . . .	1,881.3	<sup>1</sup> 1,799.3	1,836.9	1,811.1	1,597.8	1,714.8	1,612.0
38220	Controls for monitoring residential and commercial environments and appliance regulating controls . . . . .	2,678.9	2,647.5	2,533.4	2,520.9	2,309.9	2,196.6	1,982.2
38230	Process control instruments . . . . .	6,787.6	6,745.1	6,438.5	6,240.0	5,934.9	5,731.4	5,229.6
38242	Integrating and totalizing meters for gas and liquids . . . . .	1,079.1	962.8	915.2	859.1	777.0	727.4	697.8
38243	Counting devices . . . . .	427.6	367.0	363.8	354.9	285.4	273.4	226.3
38244	Motor vehicle instruments . . . . .	2,245.1	2,218.8	2,193.1	2,092.0	1,768.1	1,576.3	1,329.5
38251	Integrating instruments, electrical . . . . .	457.3	<sup>1</sup> 458.0	445.0	440.3	461.0	439.3	389.6
38252	Test equipment for testing electrical, radio and communication circuits, and motors . . . . .	10,979.0	10,389.5	9,255.0	7,582.0	6,571.6	6,493.0	6,524.5
38253	Instruments to measure electricity . . . . .	504.1	<sup>1</sup> 499.8	554.9	554.4	525.8	557.9	584.0
38260	Analytical and scientific instruments (except optical) . . . . .	5,902.2	<sup>1</sup> 5,478.4	5,737.2	5,534.0	4,766.1	4,885.9	4,519.1
38271	Sighting, tracking, and fire control equipment, optical type . . . . .	575.1	612.9	655.4	652.1	768.6	770.9	547.2
38274	Optical instruments and lenses <sup>1</sup> . . . . .	1,999.4	1,748.9	1,579.1	1,596.7	1,455.8	1,322.4	1,292.3
38291	Aircraft engine instruments (except flight) . . . . .	553.6	<sup>1</sup> 529.7	429.7	430.4	551.6	590.3	682.0
38292	Physical properties and kinematic testing equipment . . . . .	1,490.1	1,368.9	1,374.4	1,199.3	1,174.7	1,148.6	1,023.7
38294	Nuclear radiation detection and monitoring instruments . . . . .	478.3	496.5	501.2	489.1	519.4	533.4	570.4
38295	Commercial, geophysical, meteorological, and general-purpose instruments . . . . .	1,614.2	1,451.6	1,373.2	1,344.0	1,271.4	1,361.0	1,335.1
38296	Surveying and drafting instruments . . . . .	365.6	<sup>1</sup> 364.8	355.9	324.3	301.4	255.1	234.6

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Beginning in 1992, product codes 38272, "Binoculars and astronomical instruments," and 38273, "Other optical instruments and lenses (except sighting, tracking, and fire control)" have been combined into product code 38274, "Optical instruments and lenses;" 1991 has been restated.



**Table 23. Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
34918 —	Automatic valves (regulating and control type, except nuclear) . . .	141	(X)	2,056,827	(X)	1,892,635
	Automated control valves:					
	Pneumatic actuated . . . . .	(NA)	(X)	602,458	(X)	546,301
	Sliding stem valves . . . . .	(NA)	(S)	306,333	(S)	249,488
34918 01	Globe body . . . . .	23	138,853	202,970	<sup>r</sup> 130,289	<sup>r</sup> 164,314
34918 02	All other types . . . . .	20	(S)	<sup>a</sup> 103,363	(S)	<sup>a</sup> 85,174
	Rotary valves . . . . .	(NA)	(S)	129,658	(S)	140,579
34918 03	Ball . . . . .	15	<sup>a</sup> (S)	78,012	(S)	81,967
34918 04	Butterfly . . . . .	12	21,326	25,152	<sup>a</sup> 27,107	30,966
34918 07	All other rotary valves, including eccentric disk . . . . .	10	<sup>b</sup> 17,341	26,494	<sup>b</sup> 18,003	27,646
34918 08	All other pneumatic power-operated control valves . . . . .	19	<sup>a</sup> (S)	<sup>b</sup> 45,156	(S)	44,794
34918 09	Parts for pneumatic-actuated valves, sold separately . . . . .	23	(X)	121,311	(X)	111,440
	All other actuation, including electric-actuated and electrohydraulic-actuated . . . . .	(NA)	(X)	311,444	(X)	290,788
	Sliding stem valves . . . . .	(NA)	(S)	60,714	(S)	49,827
34918 11	Globe body . . . . .	8	8,252	13,046	8,070	12,724
34918 12	All other types . . . . .	15	(S)	<sup>a</sup> 47,668	(S)	<sup>a</sup> 37,103
	Rotary valves . . . . .	(NA)	(S)	60,957	(S)	57,960
34918 13	Ball <sup>1</sup> . . . . .	11	(D)	(D)	(D)	(D)
34918 14	Butterfly <sup>1</sup> . . . . .	8	(D)	(D)	(D)	(D)
34918 17	All other rotary valves, including eccentric disk <sup>1</sup> . . . . .	1	(S)	60,957	(S)	57,960
34918 18	All other power-operated (except pneumatic) control valves <sup>2</sup> . . . . .	18	4,250	163,940	4,223	157,979
34918 21	Parts for all other power-operated (except pneumatic) control valves . . . . .	11	(X)	25,833	(X)	25,022
34918 23	Valve actuators, sold separately . . . . .	22	192,568	118,658	<sup>r</sup> 167,882	103,675
	Regulator valves:					
34918 25	Remote-sensing direct-actuated temperature regulators <sup>2</sup> . . . . .	20	(S)	80,807	(S)	84,124
34918 30	Self-contained direct-actuated pressure regulators (except instrument type and safety relief valves) <sup>2</sup> . . . . .	33	7,158	255,903	7,110	219,683
34918 35	Pilot (internal and external)-actuated pressure regulators <sup>2</sup> . . . . .	31	217	71,395	<sup>a</sup> 212	77,503
34918 41	Self-contained direct-acting precision and instrument-type pneumatic (air and gas) pressure regulators <sup>2</sup> . . . . .	14	<sup>b</sup> 535	<sup>b</sup> 59,517	<sup>b</sup> <sup>r</sup> 498	<sup>b</sup> 50,552
34918 45	Flow regulators for gas, vapors, or liquids <sup>2</sup> . . . . .	43	17,003	213,042	16,916	210,104
34918 48	Other regulator valves <sup>2</sup> . . . . .	29	(X)	285,374	(X)	<sup>r</sup> 252,869
34918 49	Parts for regulator valves, sold separately . . . . .	32	(X)	58,229	(X)	<sup>r</sup> 57,036
34919 —	Solenoid-operated valves (except nuclear and fluid power transfer) . . . . .	48	(X)	536,303	(X)	521,829
	Solenoid-operated valves (except nuclear and fluid power transfer valves):					
	Commercial/industrial types:					
34919 56	Two-way <sup>2</sup> . . . . .	35	6,497	257,103	6,663	248,588
34919 58	Three-way <sup>2</sup> . . . . .	16	1,244	36,794	1,211	37,359
34919 59	Other <sup>2 3</sup> . . . . .	15	(D)	(D)	(D)	(D)
34919 61	Household appliance type <sup>2 3</sup> . . . . .	3	16,168	195,604	16,673	<sup>r</sup> 190,035
34919 79	Parts, components, and operators for solenoid-operated valves (except nuclear and fluid power transfer valves, sold separately) . . . . .	20	(X)	46,802	(X)	<sup>r</sup> 45,847
38121 —	Aeronautical, nautical, and navigational instruments (except aircraft engine instruments) . . . . .	86	(X)	2,535,780	(X)	2,274,312
	Flight and navigation sensors, transmitters, and displays:					
38121 01	Compasses (all types) . . . . .	14	(X)	<sup>a</sup> 243,550	(X)	231,754
38121 08	Altimeters (except radio and radar altimeters) . . . . .	9	(X)	23,978	(X)	<sup>r</sup> 24,486
38121 10	Airspeed indicators, including machmeters and air data computers . . . . .	15	(X)	294,661	(X)	<sup>r</sup> 263,221
38121 12	Acceleration indicators and systems components <sup>4</sup> . . . . .	8	(D)	(D)	(D)	(D)
38121 13	Rate-of-climb indicators <sup>5</sup> . . . . .	5	(D)	(D)	(D)	(D)
38121 15	Angle-of-attack indicators <sup>5</sup> . . . . .	8	(S)	22,639	(S)	21,995

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38121 —	Aeronautical, nautical, and navigational instruments (except aircraft engine instruments)—Con. Flight and navigation sensors, transmitters, and displays—Con.					
38121 18	Artificial horizon flight instruments .....	6	<sup>b</sup> 6,707	14,704	<sup>b</sup> 6,798	<sup>r</sup> 17,791
38121 20	Other aerospace and navigational instruments <sup>4</sup> .....	30	(X)	664,670	(X)	541,743
	Gyroscopes, sold separately:					
38121 21	Vertical .....	6	<sup>a</sup> 2,089	<sup>b</sup> 10,491	<sup>r</sup> 2,606	<sup>r</sup> 13,235
38121 23	Directional .....	6	(S)	6,850	(S)	<sup>b</sup> <sup>r</sup> 10,065
38121 25	Free, torqued and untorqued <sup>6</sup> .....	2	(X)	(D)	(X)	(D)
38121 26	Rate, inertial grade <sup>6</sup> .....	2	(X)	<sup>b</sup> 91,143	(X)	114,478
38121 28	Rate, noninertial grade .....	5	(X)	53,381	(X)	57,014
	Airframe equipment instruments:					
38121 61	Position indicators (mechanical, as for landing gear, cowl flaps, stabilizers, etc.) .....	13	(X)	23,890	(X)	<sup>a</sup> 17,528
38121 63	Hydraulic system (both electrical and mechanical measuring means, as for liquid level and temperature and pressure indicators) .....	10	(X)	<sup>a</sup> 34,893	(X)	<sup>b</sup> 30,123
38121 64	Cabin environmental measuring and control instruments (air-conditioning and heating, cabin pressure, oxygen, etc.) .....	10	(X)	<sup>a</sup> 65,403	(X)	65,139
38121 80	Other aerospace flight instruments .....	24	(X)	781,076	(X)	<sup>r</sup> 686,746
38121 85	Nautical instruments (all types, including temperature, speed, pitch, and roll instruments and system components, etc.) .....	12	<sup>b</sup> 262,886	<sup>a</sup> 68,485	<sup>r</sup> 279,378	<sup>b</sup> <sup>r</sup> 58,433
38121 89	Parts and components for aeronautical, nautical, and navigational instruments (except aircraft engine instruments, sold separately) .....	26	(X)	135,966	(X)	<sup>r</sup> 120,561
38122 —	Search and detection systems and navigation and guidance systems and equipment .....	209	(X)	26,644,117	(X)	<sup>r</sup> 26,093,893
38122 11	Light reconnaissance and surveillance electronic systems and equipment (infrared, ultraviolet, and visible light) .....	37	(X)	2,442,811	(X)	<sup>r</sup> 3,408,834
38122 13	IFF equipment .....	10	(X)	185,453	(X)	108,552
38122 15	Proximity fuses .....	4	(X)	(D)	(X)	<sup>r</sup> 100,764
	Radar systems and equipment:					
	Search, detection, and acquisition radar systems and equipment (BMEWS, airborne and other early warning radar, air traffic control radar, air defense and fighter control radar, ship radar, harbor control radar, meteorological radar, etc.):					
38122 17	Airborne and missile/space radar .....	18	(X)	1,930,643	(X)	<sup>r</sup> 1,783,119
38122 19	Ship (marine) radar <sup>7</sup> .....	11	(X)	(D)	(X)	(D)
38122 21	Ground radar <sup>7</sup> .....	16	(X)	1,262,856	(X)	<sup>r</sup> 1,112,737
	Tracking radar systems and equipment (fire control, bombing, bombing navigational radar, aircraft, and missile tracking radar, etc.):					
38122 23	Airborne and missile/space radar .....	10	(X)	1,453,623	(X)	<sup>r</sup> 1,181,165
38122 25	Ship (marine) radar .....	12	(X)	(D)	(X)	<sup>r</sup> 484,810
38122 27	Ground radar .....	18	(X)	432,159	(X)	<sup>r</sup> 381,136
	Instrumentation radar systems and equipment (altimeters, highway speed control radar, missile and space satellite tracking range radar, GCA and other precision approach radar, etc.):					
38122 29	Airborne, missile/space, and ship (marine) radar .....	8	(X)	90,380	(X)	85,081
38122 31	Ground radar .....	8	(X)	85,748	(X)	<sup>r</sup> 132,352
38122 33	Electronic checkout, monitoring, evaluation, and other electronic support equipment for radar systems .....	13	(X)	161,822	(X)	133,254

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38122 —	Search and detection systems and navigation and guidance systems and equipment—Con.					
	Sonar search, detection, tracking, and communication systems and equipment, including ASW (sonar telephone communication equipment, depth finding, fire control, fusing, guidance, hydrophones, mapping, sonabuys, navigation, sonar fish finders, sonar range instrumentation, and other):					
38122 35	Surface ship applications (destroyers, destroyer escort, etc.) . . . . .	23	(X)	341,501	(X)	314,233
38122 37	Submarine applications . . . . .	17	(X)	509,549	(X)	<sup>1</sup> 514,510
38122 39	Airborne . . . . .	15	(X)	169,365	(X)	165,693
38122 41	Electronic checkout, monitoring, evaluation, and other electronic support equipment for sonar systems and submerged fixed systems . . . . .	8	(X)	156,812	(X)	<sup>1</sup> 147,297
38122 43	Specialized command and control data processing and display equipment, sold separately from complete systems . . . . .	20	(X)	947,131	(X)	896,058
38122 45	Search, detection, identification, and tracking systems and equipment, n.e.c. . . . .	25	(X)	2,369,575	(X)	<sup>1</sup> 2,080,465
	Electronic warfare systems and equipment:					
	Countermeasures equipment:					
38122 47	Jamming equipment, communications, and radar . . . . .	20	(X)	1,081,995	(X)	1,123,756
38122 49	Underwater countermeasures equipment . . . . .	5	(X)	74,954	(X)	115,407
38122 51	Other active countermeasures equipment, excluding passive materials such as chaff, window, needles, and rope . . . . .	12	(X)	236,337	(X)	<sup>1</sup> 251,060
38122 53	Specialized electronic and communication intelligence equipment, including specially designed DF equipment, signal reduction and processing equipment, and signal analyzers and display equipment . . . . .	32	(X)	2,124,672	(X)	<sup>1</sup> 2,016,474
	Missile and space vehicle systems and equipment (beam riders, command guidance, inertial systems, infrared homing systems, radar systems, stellar trackers, television systems, combination systems, etc.):					
38122 55	Missile-borne and space-vehicle-borne equipment . . . . .	35	(X)	4,406,326	(X)	<sup>1</sup> 4,597,796
38122 57	Nonmissile and space vehicle guidance equipment (ground, ship, or airborne command guidance systems, etc.) . . . . .	11	(X)	553,167	(X)	524,229
38122 59	Electronic checkout, launching, and other missile and space vehicle support systems (ground, ship, and air) . . . . .	16	(X)	450,151	(X)	<sup>1</sup> 220,967
	Navigation systems and equipment, navigational aids for aircraft, ship, and ground navigation (autopilots, beacons, transponders, collision warning devices, DECCA, DME, ILS, Doppler navigation systems, inertial navigation systems, optical/laser LORAN, radio compasses and direction finders, SHORAN, TACAN, VOR, VORTAC equipment, etc.):					
	Airborne navigational systems:					
38122 61	Radio navigation receivers and displays, including OMNI, radio magnetic, glide slope/localizer, and DME . . . . .	19	(X)	<sup>a</sup> 569,930	(X)	579,283
38122 63	Airborne integrated data systems/flight recorders . . . . .	9	(X)	126,283	(X)	<sup>a</sup> 121,901
38122 65	Distance measuring equipment (DME) . . . . .	4	(X)	(D)	(X)	(D)
38122 67	Flight directors/situation display . . . . .	6	(X)	(D)	(X)	<sup>1</sup> 333,498
38122 69	Heads-up display (HUD) systems . . . . .	7	(X)	140,244	(X)	<sup>1</sup> 148,667
38122 71	Inertial navigation systems . . . . .	8	(X)	<sup>b</sup> 401,811	(X)	<sup>1</sup> 391,133
38122 73	Proximity warning/collision avoidance equipment . . . . .	6	(X)	195,294	(X)	<sup>b</sup> 171,218
38122 75	Complete automatic pilots . . . . .	6	(X)	282,820	(X)	<sup>1</sup> 263,465
38122 77	Other airborne navigational systems . . . . .	24	(X)	950,426	(X)	<sup>1</sup> 935,997
38122 79	Surface (ship and ground) navigational systems . . . . .	34	(X)	<sup>b</sup> 396,785	(X)	460,811
38122 81	Underwater navigational systems . . . . .	4	(X)	(D)	(X)	(D)
38122 83	Electronic checkout, monitoring, evaluation, and other electronic support equipment for navigational systems and equipment . . . . .	32	(X)	635,524	(X)	<sup>1</sup> 532,179

See footnotes at end of table.

**Table 23. Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38210 —	Laboratory apparatus and laboratory furniture . . . . .	148	(X)	<sup>a</sup> 1,881,342	(X)	<sup>a</sup> 1,799,329
	Laboratory balances and scales:					
38210 11	Sensitivity of 5 centigrams or better <sup>8</sup> . . . . .	8	(D)	(D)	(D)	(D)
38210 13	Sensitivity of less than 5 centigrams <sup>8</sup> . . . . .	7	<sup>b</sup> 173,156	<sup>b</sup> 65,532	<sup>b</sup> 77,530	<sup>b</sup> 44,783
38210 15	Laboratory furnaces and ovens . . . . .	19	(X)	<sup>a</sup> 32,907	(X)	<sup>b</sup> 35,776
	Laboratory centrifuges:					
38210 17	Table-top type <sup>9</sup> . . . . .	14	(D)	(D)	(D)	(D)
38210 19	Floor type <sup>9</sup> . . . . .	6	28,618	150,281	31,268	<sup>r</sup> 150,420
38210 25	Laboratory distillation apparatus and rectifying apparatus <sup>10</sup> . . . . .	3	(X)	(D)	(X)	(D)
38210 26	Laboratory vacuum pumps <sup>10</sup> . . . . .	2	(S)	7,344	(S)	2,685
38210 28	Laboratory sterilizers and autoclaves . . . . .	11	(X)	<sup>a</sup> 154,021	(X)	<sup>a</sup> 130,270
38210 51	Laboratory filtering or purifying apparatus <sup>11</sup> . . . . .	3	(X)	(D)	(X)	(D)
38210 29	Laboratory burners and hotplates . . . . .	10	(X)	<sup>a</sup> 7,635	(X)	<sup>a</sup> 7,460
38210 30	Laboratory heat exchangers . . . . .	-	(X)	-	(X)	-
38210 31	Laboratory granulators, mills, and other particle size reduction apparatus . . . . .	6	(X)	1,686	(X)	1,490
38210 32	Laboratory drying and evaporation apparatus . . . . .	11	(X)	21,910	(X)	<sup>r</sup> 21,498
38210 35	Laboratory blenders, mixers, shakers, dispensers, fraction collectors, and other liquid sample preparation apparatus . . . . .	30	(X)	<sup>b</sup> 127,760	(X)	<sup>b</sup> 115,861
38210 36	Laboratory incubators . . . . .	12	<sup>a</sup> 31,763	<sup>a</sup> 56,217	<sup>a</sup> 27,896	<sup>b</sup> 53,571
38210 37	Environmental test chambers . . . . .	20	(S)	<sup>a</sup> 138,150	(S)	<sup>b</sup> 127,821
38210 38	Laboratory freezers . . . . .	8	9,902	46,648	9,656	43,772
38210 42	Microtomes <sup>11</sup> . . . . .	4	(D)	(D)	487	6,081
38210 81	Laboratory furniture, including cabinets, cases, benches, tables, stools, and reagent shelves <sup>12</sup> . . . . .	20	(X)	<sup>a</sup> 265,934	(X)	<sup>a</sup> 264,411
38210 88	Parts and components for laboratory furniture, sold separately <sup>12</sup> . . . . .	4	(X)	(D)	(X)	4,920
38210 97	All other laboratory apparatus, n.e.c. <sup>11</sup> . . . . .	77	(X)	<sup>a</sup> 625,485	(X)	<sup>a</sup> 613,470
38210 99	Components, parts and accessories for laboratory and scientific apparatus, sold separately . . . . .	56	(X)	179,832	(X)	<sup>r</sup> 175,040
38220 —	Controls for monitoring residential and commercial environments and appliance regulating controls . . . . .	100	(X)	<sup>a</sup> 2,678,943	(X)	2,647,547
	Automatic controls of the type principally used as components of air-conditioning, refrigeration, and comfort heating, including pneumatic controls:					
	Temperature responsive (thermostats):					
38220 21	Electric <sup>13</sup> . . . . .	33	45,876	411,247	40,691	364,865
38220 22	Pneumatic <sup>13</sup> . . . . .	4	(D)	(D)	3,238	44,849
38220 25	Pressure responsive (pressurestats) <sup>2</sup> . . . . .	11	<sup>a</sup> 2,476	<sup>a</sup> 34,831	4,980	<sup>r</sup> 48,516
38220 30	Hydronic responsive <sup>2</sup> . . . . .	5	2,242	49,124	2,245	46,598
38220 35	Humidity responsive (humidistats) <sup>2 14</sup> . . . . .	7	(D)	(D)	(D)	(D)
38220 40	Light responsive <sup>2 14</sup> . . . . .	2	<sup>b</sup> 6,135	<sup>b</sup> 25,084	<sup>b</sup> 6,204	<sup>b</sup> 23,096
38220 50	Liquid level <sup>2</sup> . . . . .	8	(S)	<sup>b</sup> 16,103	(S)	16,177
38220 60	Igniters <sup>2 15</sup> . . . . .	8	(D)	(D)	(D)	(D)
38220 65	Inherent motor protectors <sup>2 15</sup> . . . . .	4	580,229	364,093	<sup>b</sup> 636,159	347,519
38220 66	Microprocessor-based load programmers for buildings: energy control <sup>2</sup> . . . . .	10	(S)	<sup>a</sup> 51,470	(S)	<sup>a</sup> 48,035
38220 70	Computerized energy control systems for buildings . . . . .	10	(S)	443,109	(S)	404,942
38220 74	Other . . . . .	21	(X)	<sup>a</sup> 527,631	(X)	<sup>r</sup> 519,806
	Controls for major appliances such as domestic laundry and cooking appliances, refrigerators and freezers, vending machines, and air-conditioners:					
38220 75	Temperature responsive <sup>2</sup> . . . . .	19	<sup>b</sup> 241,789	<sup>a</sup> 306,706	237,731	<sup>r</sup> 299,830
38220 81	All other controls for appliances <sup>2</sup> . . . . .	15	(S)	276,763	27,614	<sup>r</sup> 284,311
38220 98	Parts and components for controls monitoring residential and commercial environments and for appliance regulating controls, sold separately . . . . .	24	(X)	<sup>a</sup> 172,782	(X)	<sup>r</sup> 199,003

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38230 —	Process control instruments. . . . .	525	(X)	<sup>a</sup> 6,787,616	(X)	<sup>a</sup> 6,745,094
	General-purpose control system instruments (commonly called receiver-type), operating from standardized transmission signals (electrical types ac or dc milliampere, millivolt, or telemetering signals; pneumatic types, 3 to 15 and 3 to 27 p.s.i. signals):					
	Electronic systems—unified architecture type:					
38230 35	Controllers (recording, indicating, or blind) . . . . .	38	213,680	<sup>a</sup> 171,526	<sup>a</sup> 217,911	<sup>a</sup> 173,498
38230 36	Recorders, with or without self-contained set-point stations. . . . .	21	(S)	100,950	(S)	<sup>r</sup> 97,461
38230 37	Indicators, with or without self-contained set-point stations. . . . .	24	107,978	28,627	<sup>r</sup> 106,515	27,489
38230 38	Auxiliary stations and analog computing devices associated with the above, including manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, and integrators . . . . .	13	(S)	<sup>a</sup> 74,715	(S)	<sup>a</sup> 80,686
38230 07	Electronic systems—nonunified architecture type . . . . .	68	(X)	1,440,160	(X)	1,546,014
38230 12	Industrial multifunction process computers . . . . .	67	(X)	<sup>a</sup> 393,296	(X)	<sup>a</sup> 384,433
	Pneumatic systems, including all system-type control, display, and computing instruments actuated from standardized pneumatic transmission signals:					
38230 39	Controllers (recording, indicating, or blind) . . . . .	14	125,851	60,784	<sup>a</sup> 123,674	61,113
38230 40	Recorders, with or without self-contained set-point stations <sup>16</sup> . . . . .	5	(D)	(D)	(D)	(D)
38230 41	Indicators, with or without self-contained set-point stations <sup>16</sup> . . . . .	7	(S)	26,381	(S)	<sup>r</sup> 20,032
38230 42	Auxiliary stations and analog computing devices associated with the above, including manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, and integrators . . . . .	5	53,921	8,565	<sup>b</sup> 63,055	<sup>a</sup> 11,046
38230 43	Receiver-type gauges, analog and digital . . . . .	9	(S)	8,482	(S)	7,416
38230 44	Annunciators, industrial; electromechanical and solid-state types . . . . .	9	<sup>a</sup> 23,720	<sup>a</sup> 20,633	23,282	<sup>a</sup> 22,398
	Temperature measuring instruments, excluding general-purpose, receiver-type instruments:					
	Electrical and electronic measuring types (thermocouple, resistance temperature detector, radiation, optical, thermistor, and other electrical sensors):					
38230 45	Direct-deflecting types (controllers for all types of electrical temperature sensors) . . . . .	7	(S)	<sup>a</sup> 7,535	(S)	6,107
38230 46	Direct-deflecting types (indicators and recorders for all types of electrical temperature sensors) . . . . .	10	(S)	<sup>b</sup> 5,867	(S)	<sup>b</sup> 5,771
38230 47	Electromechanical self-balancing types (electric or pneumatic controllers for all types of electrical temperature sensors) <sup>17</sup> . . . . .	2	(D)	(D)	(D)	(D)
38230 48	Electromechanical self-balancing types (indicators, recorders, and integrators for all types of electrical temperature sensors) <sup>17</sup> . . . . .	3	(S)	<sup>a</sup> 6,721	(S)	<sup>r</sup> 6,846
38230 49	Electronic controllers for all types of electrical temperature sensors . . . . .	24	<sup>a</sup> 416,588	<sup>a</sup> 110,999	<sup>a</sup> 481,508	<sup>a</sup> 100,204
38230 50	Digital indicators for all types of electrical temperature sensors, excluding data loggers . . . . .	35	<sup>a</sup> 73,674	<sup>a</sup> 28,717	<sup>a</sup> 96,581	<sup>a</sup> 30,040
	Transmitters, producing standardized electric or pneumatic analog transmission signals for all types of electrical temperature sensors:					
38230 54	Electric . . . . .	23	132,255	42,515	<sup>b</sup> 172,268	54,215
38230 55	Pneumatic . . . . .	4	523	902	<sup>b</sup> 539	<sup>r</sup> 880
	Mechanical measuring types, filled systems (liquid filled, vapor pressure, gas filled, and mercury filled types):					
38230 52	Indicating or recording controllers . . . . .	9	(S)	16,843	(S)	<sup>r</sup> 20,937
38230 53	Recorders, noncontrol . . . . .	11	(S)	<sup>a</sup> 15,975	(S)	14,723
38230 56	Indicators only, excluding indoor-outdoor and other household or appliance type thermometers . . . . .	15	<sup>a</sup> 487,358	<sup>a</sup> 14,779	<sup>a</sup> 487,159	<sup>a</sup> 14,753
38230 57	Transmitters producing standardized electric or pneumatic analog transmission signals . . . . .	11	<sup>a</sup> 47,013	<sup>b</sup> 15,114	<sup>b</sup> 44,734	<sup>b</sup> 11,524

See footnotes at end of table.

**Table 23. Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38230 —	Process control instruments—Con.					
38230 59	Primary temperature sensors, excluding aircraft types:					
38230 60	Thermocouples and thermocouple lead wire . . . . .	67	(X)	226,778	(X)	215,251
	All other types (resistance temperature detectors, radiation and optical sensors, thermistors, etc.) . . . . .	46	(X)	<sup>a</sup> 103,457	(X)	<sup>a</sup> 95,101
	Pressure (gauge, absolute vacuum) and draft measuring instruments, excluding general-purpose, receiver-type instruments:					
38230 61	Indicating or recording controllers. . . . .	17	<sup>b</sup> 160,829	<sup>a</sup> 52,009	<sup>b</sup> <sup>r</sup> 128,257	45,320
38230 62	Recorders, noncontrol. . . . .	7	<sup>a</sup> 13,856	<sup>a</sup> 5,685	14,389	6,036
	Indicators only, excluding receiver-type gauges:					
38230 20	3-inch diameter and over <sup>2</sup> . . . . .	20	<sup>a</sup> 3,829	129,230	<sup>a</sup> 3,759	<sup>r</sup> 115,053
38230 21	Under 3-inch diameter <sup>2</sup> . . . . .	18	28,300	<sup>a</sup> 114,400	27,892	<sup>a</sup> 106,804
	Transmitters producing standardized analog transmission signals:					
38230 24	Transmitters producing standardized electronic analog transmission signals <sup>2</sup> . . . . .	32	(S)	208,493	(S)	209,211
38230 25	Transmitters producing standardized pneumatic analog transmission signals. . . . .	6	(S)	<sup>a</sup> 3,839	(S)	<sup>a</sup> 5,194
	Flow and liquid level measuring instruments, excluding general-purpose, receiver-type instruments:					
	Differential pressure types:					
38230 65	Indicating or recording controllers. . . . .	10	50,342	27,728	<sup>r</sup> 48,094	<sup>r</sup> 26,751
38230 66	Recorders, noncontrol; and indicators, noncontrol . . . . .	13	58,105	28,606	<sup>r</sup> 57,855	26,037
	Transmitters producing standardized analog transmission signals:					
38230 27	Transmitters producing standardized electronic analog transmission signals. . . . .	23	302,052	317,224	<sup>b</sup> <sup>r</sup> 275,788	<sup>r</sup> 309,581
38230 28	Transmitters producing standardized pneumatic analog transmission signals. . . . .	10	<sup>b</sup> 20,560	<sup>a</sup> 12,004	<sup>b</sup> <sup>r</sup> 21,892	<sup>a</sup> <sup>r</sup> 15,480
38230 29	Primary pressure sensors (load cells, strain gauges, etc.) . . . . .	10	69,411	22,300	63,479	20,965
38230 68	Primary flow elements, including orifice plates, venturi tubes, flow tubes, flow nozzles, and pitot tubes . . . . .	18	<sup>b</sup> 403,744	56,479	<sup>b</sup> 360,005	<sup>r</sup> 54,493
	Electromagnetic flowmeters:					
38230 03	Primary device (magnetic flow tube) . . . . .	13	<sup>a</sup> 62,680	<sup>a</sup> 109,063	<sup>b</sup> 63,744	<sup>a</sup> 105,645
38230 01	Secondary device (magnetic transmitter, recorder, indicator, or controller that receives signal directly from primary device) . . . . .	13	<sup>a</sup> 46,464	<sup>a</sup> 33,364	<sup>b</sup> 44,616	<sup>r</sup> 32,205
38230 04	Capacitance, ultrasonic, and other electronic types, including magnetic resonance, vortex-precession, and vortex-shedding type elements . . . . .	40	<sup>b</sup> 209,249	<sup>a</sup> 166,187	<sup>b</sup> 188,668	<sup>a</sup> 154,816
38230 71	Variable area-controlling, recording, indicating, and transmitting instruments and associated primary flow elements <sup>2</sup> . . . . .	15	<sup>a</sup> 646	<sup>b</sup> 91,884	631	100,003
38230 72	Float and displacement (controlling, recording, indicating, and transmitting instruments and associated primary flow elements) <sup>2</sup> . . . . .	25	<sup>a</sup> 1,788	100,388	<sup>a</sup> 1,673	95,248
38230 81	Turbine and propeller: controlling, recording, indicating, and transmitting instruments and associated primary flow elements . . . . .	11	<sup>a</sup> 79,220	<sup>a</sup> 32,494	<sup>a</sup> 80,471	<sup>a</sup> 29,448
38230 82	Mass flow, i.e., controlling, thermal-controlling, recording, indicating, and transmitting instruments and associated primary flow elements. . . . .	15	57,880	223,171	59,502	207,893
38230 83	Other types: controlling, recording, indicating, and transmitting instruments and associated primary flow elements . . . . .	16	<sup>a</sup> 167,645	<sup>a</sup> 56,851	<sup>a</sup> <sup>r</sup> 147,360	<sup>a</sup> <sup>r</sup> 52,695
38230 74	Humidity instruments (controlling, recording, indicating, and transmitting, and associated primary humidity elements, excluding home and general-purpose type). . . . .	14	(S)	39,831	(S)	<sup>a</sup> 35,664

See footnotes at end of table.

**Table 23. Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38230 —	Process control instruments—Con. Continuous process instruments for on-stream gas and liquid analysis, including indicators, recorders, controllers, and analysis electrodes and cells; excluding laboratory analysis types:					
38230 75	Chromatographic analyzers . . . . .	12	3,216	78,428	<sup>r</sup> 3,041	<sup>r</sup> 89,650
38230 76	Infrared analyzers . . . . .	13	10,398	66,559	<sup>r</sup> 12,208	<sup>r</sup> 70,669
38230 77	Oxygen analyzers . . . . .	20	<sup>b</sup> 23,974	<sup>a</sup> 62,859	<sup>b</sup> 27,722	<sup>a</sup> 64,541
38230 78	Other gas analyzers . . . . .	27	50,787	110,527	<sup>b</sup> 39,768	<sup>b</sup> 104,731
38230 79	Ph analyzers . . . . .	18	<sup>a</sup> 75,875	<sup>a</sup> 44,802	<sup>b</sup> 74,355	<sup>a</sup> 42,383
38230 80	Other liquid analyzers . . . . .	23	87,213	67,847	86,881	<sup>r</sup> 67,259
	Instruments for all process variables not listed above (speed, weight, position, sequence, density, specific gravity, mechanical load, electrical load, and millivolts): Electrical and electronic measuring types:					
38230 06	Direct-deflecting type controllers, indicators, and recorders <sup>18</sup> . . . . .	3	(D)	(D)	3,041	9,327
38230 08	Electromechanical self-balancing electric or pneumatic controllers, indicators, recorders, and integrators . . . . .	4	(S)	<sup>b</sup> 2,352	(S)	<sup>b</sup> 2,449
38230 85	Digital indicators . . . . .	18	<sup>b</sup> 148,039	<sup>b</sup> 39,641	<sup>b</sup> 143,996	<sup>r</sup> 36,421
38230 86	Transmitters producing standardized electric or pneumatic analog transmission signals . . . . .	11	55,640	32,047	<sup>a</sup> 78,046	<sup>r</sup> 32,894
	Mechanical measuring types:					
38230 84	Indicating or recording controllers and recorders, noncontrol . . . . .	4	9,643	<sup>a</sup> 2,864	<sup>r</sup> 11,153	<sup>a</sup> 3,297
38230 89	Indicators only . . . . .	4	(S)	13,038	(S)	<sup>r</sup> 11,964
38230 90	Transmitters producing standardized electric or pneumatic analog transmission signals . . . . .	14	295,009	55,189	263,910	<sup>r</sup> 49,237
	All other industrial process instruments:					
38230 91	Other temperature instruments . . . . .	27	(X)	<sup>a</sup> 133,449	(X)	129,928
38230 92	Other flow and liquid level instruments . . . . .	29	(X)	<sup>a</sup> 176,217	(X)	<sup>a</sup> 163,372
38230 93	Other continuous process instruments . . . . .	35	(X)	<sup>b</sup> 345,623	(X)	<sup>b</sup> 330,944
38230 94	Other industrial type instruments <sup>18</sup> . . . . .	62	(X)	<sup>a</sup> 431,536	(X)	<sup>a</sup> 403,268
	Parts, supplies, accessories, other primary sensors, n.e.c., panelboards, and other equipment associated with process control instrumentation:					
38230 95	Primarily designed for temperature instruments . . . . .	19	(X)	41,436	(X)	<sup>r</sup> 34,335
38230 96	Primarily designed for flow and liquid level instruments . . . . .	29	(X)	<sup>a</sup> 89,045	(X)	82,302
38230 97	Primarily designed for continuous process instruments . . . . .	28	(X)	128,841	(X)	149,881
38230 99	Primarily designed for industrial type instruments . . . . .	39	(X)	<sup>a</sup> 103,765	(X)	<sup>a</sup> 103,762
38242 —	Integrating and totalizing meters for gas and liquids . . . . .	45	(X)	1,079,083	(X)	962,827
	Gas meters, consumption registering: Diaphragm type; positive displacements; aluminum, iron, and tin case:					
38242 22	Residential size (up to 400 cu. ft/hr of 0.64 specific gravity gas, at 0.5 inches water drop) <sup>2</sup> . . . . .	5	2,497	121,137	2,319	110,231
38242 24	Other sizes, including commercial and industrial . . . . .	7	140,490	43,294	138,931	<sup>a</sup> 41,718
38242 28	Turbine type (all sizes) <sup>19</sup> . . . . .	8	(D)	(D)	(D)	(D)
38242 29	Other gas meters, consumption registering <sup>19</sup> . . . . .	2	<sup>a</sup> 52,388	<sup>a</sup> 67,769	<sup>a</sup> 45,033	<sup>a</sup> 57,867
	Liquid meters, positive displacement with registers and counters: Water meters, consumption registering:					
38242 33	Small meters, up to and including 1 inch <sup>2</sup> . . . . .	9	4,715	220,719	4,392	206,478
38242 35	Intermediate meters, over 1 inch, up to and including 2 inches . . . . .	12	(S)	43,273	(S)	39,388
38242 37	Large meters, over 2 inches . . . . .	11	(S)	77,885	(S)	68,243
38242 41	Liquid fuel dispensing meters, excluding service station dispensing pumps <sup>20</sup> . . . . .	7	(D)	(D)	(D)	(D)
38242 98	Other liquid meters; industrial bulk plants, pipeline, batching, and treatment facilities <sup>20</sup> . . . . .	17	967,197	277,162	<sup>a</sup> 819,229	<sup>a</sup> 243,369
38242 99	Parts, components, and accessories for gas and liquid meters, sold separately . . . . .	32	(X)	227,844	(X)	195,533

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38243 —	Counting devices, excluding motor vehicle instruments . . . . .	42	(X)	427,562	(X)	366,952
38243 21	Mechanical input <sup>2</sup> . . . . .	8	(S)	42,306	(S)	37,431
38243 23	Electrical input <sup>2</sup> . . . . .	14	1,140	<sup>a</sup> 32,504	948	<sup>a</sup> 29,566
38243 25	Electronic input . . . . .	15	629,244	60,091	777,365	54,614
38243 85	All other counting devices not specified above, including toll meters, fare collection equipment (systems), and parking lot systems, but excluding parking meters . . . . .	13	(X)	285,224	(X)	238,816
38243 88	Components and parts for counting devices (except parking meters, sold separately) . . . . .	7	(X)	7,437	(X)	6,525
38244 —	Motor vehicle instruments . . . . .	30	(X)	2,245,148	(X)	2,218,777
	Speedometers (speedometers, including odometers, are classified as speedometers) . . . . .	9	(X)	18,459	(X)	<sup>a</sup> 25,164
38244 21	Tachometers . . . . .	8	(X)	23,981	(X)	22,739
38244 31	Odometers (speedometers, including odometers, are classified as speedometers) . . . . .	5	(X)	1,750	(X)	(D)
38244 41	Fuel level gauges . . . . .	7	(X)	8,786	(X)	13,831
38244 45	Water temperature gauges . . . . .	10	(X)	28,659	(X)	<sup>f</sup> 27,651
38244 51	Ammeters . . . . .	8	(X)	5,797	(X)	(D)
38244 55	Oil pressure gauges . . . . .	6	(X)	9,857	(X)	<sup>f</sup> 7,493
38244 60	Instrument panels, including cluster modules . . . . .	14	(X)	2,082,170	(X)	2,040,705
38244 99	Other motor vehicle instruments . . . . .	18	(X)	65,689	(X)	<sup>f</sup> 64,125
38251 —	Integrating instruments, electrical . . . . .	20	(X)	457,275	(X)	<sup>f</sup> 458,034
	Ac watt hour meters:					
38251 12	Single phase <sup>2</sup> . . . . .	7	5,470	134,569	<sup>f</sup> 5,244	<sup>f</sup> 134,453
38251 15	Polyphase . . . . .	7	(S)	31,776	(S)	<sup>f</sup> 36,787
38251 35	Demand meters (kW and kVA), combined watt-hour and demand meters (single phase and polyphase), and combined watt-hour and time switch meters . . . . .	9	626,062	134,878	584,645	130,846
38251 51	Other electrical integrating meters, including dc watt-hour meters, ampere-hour meters, and other miscellaneous integrating instruments not included in the above classifications . . . . .	8	(X)	<sup>a</sup> 62,231	(X)	<sup>f</sup> 51,417
38251 61	Parts and accessories for electric integrating meters, including meter mountings and registers, sold separately . . . . .	9	(X)	93,821	(X)	<sup>f</sup> 104,531
38252 —	Test equipment for testing electrical, radio and communication circuits, and motors . . . . .	373	(X)	10,979,048	(X)	10,389,520
	Voltage, current, and resistance measuring equipment (except multimeters):					
	Electronic:					
38252 20	Digital . . . . .	28	(X)	397,720	(X)	345,853
38252 21	Analog . . . . .	26	(X)	<sup>a</sup> 51,095	(X)	42,888
38252 22	Electrical, excluding panel meters . . . . .	14	(X)	61,508	(X)	53,874
	Multimeters:					
38252 23	Electronic, digital and analog <sup>21</sup> . . . . .	13	(X)	(D)	(X)	(D)
38252 30	Electrical <sup>21</sup> . . . . .	5	(X)	<sup>a</sup> 145,742	(X)	141,290
	Power and energy measuring equipment:					
	Electronic:					
38252 25	Analog . . . . .	8	(X)	6,573	(X)	6,000
38252 26	Digital . . . . .	14	(X)	(D)	(X)	<sup>b</sup> 71,409
38252 27	Electrical power measuring equipment, excluding electrical integrating instruments, sold separately . . . . .	4	(X)	(D)	(X)	(D)
	Frequency counters, timers, and other frequency and time measuring equipment, excluding standards:					
38252 31	Universal counters with time interval measuring capability <sup>22</sup> . . . . .	6	(X)	(D)	(X)	(D)
38252 33	Other frequency counters <sup>22</sup> . . . . .	7	(X)	20,921	(X)	19,918
38252 34	Frequency meters <sup>23</sup> . . . . .	6	(X)	(D)	(X)	(D)
38252 39	Other frequency counting and time measuring equipment <sup>23</sup> . . . . .	9	(X)	136,394	(X)	<sup>a</sup> <sup>f</sup> 122,392
	Waveform measuring and/or analyzing equipment:					
38252 13	Oscilloscopes and plug-in accessories <sup>24</sup> . . . . .	9	(X)	(D)	(X)	(D)
38252 18	Spectrum analyzers <sup>24</sup> . . . . .	7	(X)	(D)	(X)	(D)
38252 16	Other waveform measuring and analyzing equipment <sup>24</sup> . . . . .	18	(X)	1,014,776	(X)	<sup>f</sup> 984,433

See footnotes at end of table.



Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38252 —	Test equipment for testing electrical, radio, and communication circuits, and motors—Con.					
	Signal generating equipment:					
38252 56	Audio . . . . .	13	(X)	<sup>a</sup> 21,115	(X)	<sup>r</sup> 18,524
38252 58	RF (over 20 KHz to 890 MHz) <sup>25</sup> . . . . .	13	(X)	(D)	(X)	(D)
38252 59	Microwave (890 MHz and above) <sup>25</sup> . . . . .	11	(X)	436,483	(X)	492,920
	Field strength and intensity measuring equipment, including RFI measuring equipment:					
38252 91	Electronic . . . . .	12	(X)	125,480	(X)	<sup>r</sup> 117,593
38252 92	Electrical field measuring equipment . . . . .	4	(X)	7,504	(X)	<sup>r</sup> 7,693
	Impedance and standing wave ratio measuring equipment (transfer function measuring equipment):					
38252 93	Electronic impedance and related measuring equipment . . . . .	9	(X)	<sup>b</sup> 20,258	(X)	<sup>b</sup> 20,979
38252 94	Standing wave measuring equipment (slotted lines, sliding shorts, reflectometers, and other SWR equipment) . . . . .	5	(X)	8,940	(X)	8,337
38252 97	X-Y plotters (recorders), electronic . . . . .	3	(X)	(D)	(X)	(D)
	Automatic test and measuring equipment:					
38252 44	Combination and/or group test sets . . . . .	41	(X)	1,635,377	(X)	<sup>a</sup> 1,676,539
	Component part test sets:					
38252 45	Electron tube test equipment . . . . .	4	(X)	652	(X)	497
	Semiconductor component test equipment:					
38252 61	Memory . . . . .	19	(X)	<sup>a</sup> 243,468	(X)	<sup>b</sup> 207,305
38252 63	Linear . . . . .	13	(X)	164,525	(X)	<sup>r</sup> 195,156
38252 65	Microprocessor . . . . .	12	(X)	621,052	(X)	<sup>r</sup> 711,590
38252 67	Other semiconductor component test equipment . . . . .	39	(X)	1,136,403	(X)	<sup>r</sup> 1,023,614
38252 69	Circuit board loaded test equipment . . . . .	15	(X)	<sup>b</sup> 206,076	(X)	<sup>b</sup> 206,777
38252 47	Other component part test sets and equipment . . . . .	25	(X)	727,971	(X)	<sup>r</sup> 518,333
38252 48	Equipment and subassembly test equipment, n.e.c., including disc drive testers, and power supply testers, etc. . . . .	22	(X)	<sup>a</sup> 257,578	(X)	<sup>a</sup> 234,928
	Standards and calibration equipment for test measuring equipment, including laboratory types (metered benchtop, rack mountable, or plug-in equipment):					
38252 72	Electronic <sup>26</sup> . . . . .	30	(X)	(D)	(X)	157,883
38252 74	Electrical <sup>26</sup> . . . . .	6	(X)	285,572	(X)	<sup>r</sup> 126,267
	Analyzers for testing characteristics of internal-combustion engines, excluding aircraft:					
38252 37	Portable . . . . .	6	(X)	227,146	(X)	<sup>b</sup> <sup>r</sup> 169,355
38252 38	Other . . . . .	6	(X)	79,247	(X)	<sup>r</sup> 85,320
	Communications test equipment, n.e.c.:					
38252 81	Network analyzers . . . . .	17	(X)	549,362	(X)	<sup>r</sup> 475,906
38252 83	Cable backplane and other continuity testers . . . . .	13	(X)	<sup>a</sup> 79,954	(X)	<sup>a</sup> 52,260
38252 85	Fiber optics test equipment (OTDR, optical S/N meters, etc.) . . . . .	11	(X)	170,798	(X)	<sup>r</sup> 142,237
38252 87	Other communications test, monitoring, and control equipment (except microwave) . . . . .	39	(X)	625,902	(X)	<sup>r</sup> 572,510
38252 52	Microwave test equipment, n.e.c. (1,300 MHz and above) . . . . .	8	(X)	33,636	(X)	<sup>r</sup> 34,448
	Logic test, development, and analysis equipment:					
38252 01	Logic analyzers, and similar logic state, timing, and signature analyzers <sup>27</sup> . . . . .	4	(X)	(D)	(X)	(D)
38252 03	Microprocessor development systems <sup>27</sup> . . . . .	7	(X)	251,533	(X)	<sup>r</sup> 261,157
38252 05	Pulse, function, and data generators and similar metered frequency synthesizers . . . . .	11	(X)	115,113	(X)	122,689
38252 06	Portable instrument transformers . . . . .	11	(X)	132,878	(X)	96,603
38252 08	Other field service test and measurement equipment, logic probes, clips, and pulsers . . . . .	8	(X)	<sup>a</sup> 35,873	(X)	<sup>a</sup> <sup>r</sup> 31,345
38252 02	Other measuring and checking instruments for testing electrical, radio, and communication circuits, and motors <sup>28</sup> . . . . .	30	(X)	(D)	(X)	(D)
38252 19	Other analyzing instruments for checking electrical quantities <sup>28</sup> . . . . .	8	(X)	550,633	(X)	<sup>r</sup> 594,876
38252 99	Parts and components for test equipment for testing electrical, radio, and communication circuits, and motors, sold separately . . . . .	38	(X)	<sup>a</sup> 244,080	(X)	<sup>a</sup> 230,126

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38253 —	Instruments to measure electricity . . . . .	86	(X)	<sup>b</sup> 504,075	(X)	<sup>a</sup> <sup>r</sup> 499,826
	Electrical indicating instruments:					
	Panel type instruments:					
38253 08	Digital panel meters (DPMs) between 0.05 percent and 1 percent, plus or minus one-digit accuracy, excluding precision DVMS and electronic counters . . . . .	21	700,230	101,774	637,142	98,627
38253 10	Analog solid state panel meters (generally of plus or minus 2-percent accuracy) with LED, LCD, or neon gas discharge display . . . . .	7	<sup>b</sup> 30,761	<sup>b</sup> 4,536	<sup>r</sup> 37,414	<sup>b</sup> 4,433
	Panel types other than ruggedized or sealed (generally of 2-percent accuracy):					
38253 12	Ac, including moving iron vane and dynamometer types . . . . .	9	<sup>a</sup> 294,845	<sup>b</sup> 6,956	292,028	6,475
38253 13	Dc, including rectifier- and self-contained thermocouple types <sup>2</sup> . . . . .	13	<sup>a</sup> 1,065	<sup>a</sup> 26,220	1,003	<sup>r</sup> 23,460
38253 11	Panel types ruggedized or sealed (generally of 2-percent accuracy) . . . . .	8	<sup>a</sup> 42,633	<sup>b</sup> 8,874	62,565	<sup>b</sup> 9,419
38253 14	Panel types with control or signal initiating means, including instrument relays . . . . .	5	<sup>b</sup> 19,080	<sup>b</sup> 2,849	<sup>b</sup> <sup>r</sup> 17,685	<sup>b</sup> <sup>r</sup> 2,651
38253 19	All other panel type instruments, including ammeters and voltmeters for motor vehicles <sup>2</sup> . . . . .	13	<sup>b</sup> 4,173	<sup>b</sup> 42,721	<sup>b</sup> 4,238	<sup>b</sup> 41,740
	Switchboard instruments that are generally of 1-percent accuracy:					
38253 23	Ac, including moving iron vane and dynamometer types <sup>29</sup> . . . . .	2	(D)	(D)	(D)	(D)
38253 25	Dc, including rectifier and thermocouple types <sup>29</sup> . . . . .	4	26,885	3,091	28,234	<sup>b</sup> 3,252
38253 27	Elapsed time meters (with or without) <sup>2</sup> . . . . .	7	(S)	<sup>b</sup> 22,910	(S)	<sup>b</sup> <sup>r</sup> 22,307
38253 24	Portable instruments that are generally capable of accuracies within plus or minus 2 percent of full scale indication, and can be enclosed in a case so that they can be moved and used at various locations, and that are an end product . . . . .	16	507,235	51,545	369,279	38,040
	Electrical recording instruments (portable and for panel mounting):					
38253 50	Direct deflecting (direct acting) (except temperature calibrated instruments) . . . . .	4	(S)	<sup>b</sup> 4,158	(S)	<sup>b</sup> 3,576
38253 60	Oscillographic recorders, pen or stylus, and light beam type <sup>30</sup> . . . . .	5	(X)	(D)	(X)	(D)
38253 72	Other electrical recording instruments <sup>30</sup> . . . . .	19	(X)	<sup>b</sup> 145,746	(X)	<sup>a</sup> <sup>r</sup> 154,172
	Parts and accessories for indicating and recording instruments:					
38253 74	Transducers for volts, amperes, watts, vars, frequency, temperature, and power factor . . . . .	19	(X)	<sup>a</sup> 36,699	(X)	<sup>a</sup> 44,948
38253 75	Tachometer generators (except aerospace types) <sup>31</sup> . . . . .	4	(X)	(D)	(X)	(D)
38253 76	Other, including instrument shunts <sup>31</sup> . . . . .	16	(X)	45,996	(X)	46,726
38260 —	Analytical and scientific instruments (except optical) . . . . .	294	(X)	5,902,207	(X)	<sup>r</sup> 5,478,369
	Electrochemical instruments:					
38260 01	Ph electrodes and meters . . . . .	19	(X)	<sup>b</sup> 60,436	(X)	<sup>b</sup> 60,337
38260 03	Ion selective electrodes and meters . . . . .	10	(X)	<sup>b</sup> 29,422	(X)	<sup>b</sup> <sup>r</sup> 34,946
38260 04	Electrophoresis instruments . . . . .	17	(X)	81,869	(X)	81,000
38260 05	Other (except process type), including photometers . . . . .	11	(X)	<sup>b</sup> 14,885	(X)	13,783
	Chromatographic instruments:					
38260 07	Gas <sup>32</sup> . . . . .	15	(D)	(D)	(D)	(D)
38260 08	Liquid . . . . .	25	(S)	546,950	(S)	493,694
38260 09	Other, including paper, gel, and thin layer <sup>32</sup> . . . . .	4	(X)	264,394	(X)	<sup>r</sup> 237,113
	Spectrophotometric instruments:					
38260 24	Atomic absorption <sup>33</sup> . . . . .	4	(X)	(D)	(X)	(D)
38260 25	Optical emission, including spark, arc, and glow, spectrographs, and all other (except ICP) <sup>33</sup> . . . . .	7	(X)	(D)	(X)	(D)
38260 27	Optical emission, including laser excited source, which includes laser microprobe source emission, laser source Raman, and laser microprobe source Raman spectrometers <sup>33</sup> . . . . .	5	(X)	(D)	(X)	(D)

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38260 —	Analytical and scientific instruments (except optical)—Con.					
38260 28	Spectrophotometric instruments—Con.					
	Optical emission with inductively coupled plasma, ICP <sup>33</sup> . . . . .	3	(X)	169,750	(X)	<sup>r</sup> 210,518
38260 30	Infrared, including Fourier transfer methods . . . . .	18	(X)	<sup>b</sup> 177,951	(X)	<sup>a</sup> <sup>r</sup> 188,236
38260 31	Ultraviolet, visible and colorimeters . . . . .	22	(X)	161,254	(X)	<sup>r</sup> 162,800
38260 33	Fluorescent instruments, including fluorometers (except chemicals) . . . . .	13	(X)	39,448	(X)	<sup>r</sup> 35,802
38260 35	Color measuring devices . . . . .	9	(X)	<sup>a</sup> 84,818	(X)	86,382
38260 36	Other, including vacuum ultraviolet, Raman, light scattering reflectors, helium glow, and light measuring . . . . .	12	(X)	<sup>a</sup> 30,789	(X)	<sup>r</sup> 32,032
38260 37	Thermal analysis instruments, including thermogravimetric analyzers (TGA), quantitative thermal analyzers (QTA) and differential thermal analyzers (DTA) . . . . .	10	(X)	197,351	(X)	<sup>r</sup> 188,896
38260 38	Nuclear magnetic resonance spectrometers, including electron paramagnetic spin types (EP) <sup>34</sup> . . . . .	3	(D)	(D)	(D)	(D)
38260 39	Microscopes, scanning type, including electron and proton . . . . .	6	687	<sup>a</sup> 94,666	<sup>r</sup> 770	<sup>r</sup> 88,717
38260 53	Particle beam excitation instruments, including electron microprobes, augers, energy ion spectroscopes, secondary ion mass spectrometers (SIMS), and ion microprobes <sup>34</sup> . . . . .	3	450	150,291	<sup>r</sup> 437	128,963
38260 55	Photon excitation analyzers, including: X-ray fluorescence, simultaneous; X-ray fluorescence, sequential; X-ray fluorescence, sequential with diffraction; X-ray fluorescence, diffraction; X-ray diffraction; and energy dispersive systems (EDSs) . . . . .	12	<sup>a</sup> 2,037	<sup>b</sup> 56,043	<sup>a</sup> <sup>r</sup> 2,668	<sup>b</sup> <sup>r</sup> 60,615
38260 61	Mass spectroscopy instrumentation . . . . .	16	(X)	372,136	(X)	<sup>r</sup> 285,996
	Clinical laboratory instrumentation, including instruments used in the clinical laboratory for measuring, analyzing, and processing clinical specimens . . . . .	(NA)	(X)	1,097,999	(X)	1,107,999
38260 71	Chemistry (measure and identify substances, e.g., metabolites, enzymes, and drugs) . . . . .	13	13,334	<sup>a</sup> 250,131	<sup>r</sup> 11,475	<sup>a</sup> <sup>r</sup> 216,309
38260 72	Hematology (measure and identify substances or cells contained in blood or substances influencing the development and clotting of blood, e.g., cell counting coagulation factors) . . . . .	9	33,128	312,857	13,412	291,865
38260 73	Microbiology (enumerate or identify pathogenic organisms or measure their susceptibility to antimicrobial agents) <sup>35</sup> . . . . .	5	(D)	(D)	(D)	(D)
38260 74	Histology (process tissue and cells, e.g., tissue processors and cell stainers) <sup>35</sup> . . . . .	2	(D)	(D)	(D)	(D)
38260 75	Blood bank and immunology (process blood and specimens for testing; measure and identify, using immunoassay, substances in clinical specimens) <sup>35</sup> . . . . .	7	(S)	375,791	(S)	<sup>r</sup> 457,214
38260 76	Other clinical laboratory instrumentation not specified above . . . . .	13	<sup>a</sup> 68,041	159,220	<sup>r</sup> 68,308	142,611
38260 78	Organic elemental analysis instruments, including carbon, hydrogen, nitrogen, oxygen, and sulphur . . . . .	14	<sup>b</sup> 13,007	<sup>a</sup> 84,150	<sup>b</sup> 14,471	<sup>a</sup> 80,245
38260 92	Amino acid, protein, and/or peptide analyzers, including chromatographic type . . . . .	6	872	52,205	848	51,734
38260 93	Gas detectors . . . . .	23	105,539	<sup>a</sup> 91,630	86,259	<sup>a</sup> 75,356
38260 94	Other analytical and scientific instruments, n.e.c., including molecular weight, monochrometers (analytical type), nephelometers (except meteorological), osmometers, particle size analyzers, photo multipliers, surface area analyzers, turbidometers, and breatholyzers . . . . .	107	(X)	<sup>a</sup> 871,630	(X)	<sup>a</sup> <sup>r</sup> 785,413
38260 98	Parts, components, and accessories for analytical and scientific instruments, sold separately, including photo tubes, thermal conductivity sensors, and thermopiles . . . . .	117	(X)	1,172,140	(X)	<sup>r</sup> 987,792

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38271 — 38271 01	Sighting, tracking, and fire control equipment, optical type . . . . . Made from lenses, prisms, etc., produced in the same plant . . . . .	42 10	(X) (X)	575,106 70,252	(X) (X)	612,884 r79,288
38271 02	Made from purchased lenses, prisms, etc. . . . .	28	(X)	a458,994	(X)	a r485,179
38271 99	Parts and accessories. . . . .	15	(X)	45,860	(X)	a r48,417
38274 — 38274 01	Optical instruments and lenses . . . . . Binoculars, prismatic and nonprismatic, and terrestrial and celestial telescopes . . . . .	161 11	(X) (X)	1,999,400 39,868	(X) (X)	1,748,878 r30,298
38274 03	Other astronomical instruments, excluding radio astronomy <sup>36</sup> . . . . .	5	(X)	(D)	(X)	(D)
38274 09	Parts and accessories, including mountings, for binoculars, optical telescopes and other astronomical equipment <sup>36</sup> . . . . .	12	(X)	26,898	(X)	19,791
38274 12	Optical test and inspection equipment, including standard sources, modulators, optical comparators, and interferometers (except optical microscopes) . . . . .	41	(X)	213,330	(X)	a r201,750
38274 15	Optical microscopes . . . . .	11	(X)	a59,786	(X)	r53,734
38274 17	Optical components: Filters, including parts and accessories thereof . . . . .	33	(X)	a77,597	(X)	a r67,657
38274 21	Lenses (except ophthalmic focus lenses): Unmounted lenses . . . . .	40	(X)	a140,354	(X)	a127,714
38274 22	Mounted lenses: Photographic lenses . . . . .	5	(X)	b1,153	(X)	a1,124
38274 23	Other mounted lenses . . . . .	17	(X)	a271,252	(X)	a r252,589
38274 29	Other (prisms, mirrors, etc.) . . . . .	48	(X)	184,164	(X)	r164,029
38274 59	Other optical instruments, including optical alignment and display instruments; excluding analytical instruments and binoculars and astronomical instruments listed above, and sighting and fire control equipment . . . . .	43	(X)	786,044	(X)	656,183
38274 39	Parts and accessories for other optical microscopes . . . . .	10	(X)	b20,071	(X)	a r19,099
38274 49	Parts and accessories for other optical instruments . . . . .	22	(X)	178,883	(X)	154,910
38291 — 38291 45	Aircraft engine instruments (except flight) . . . . . Temperature sensors, transmitters, and displays . . . . .	40 22	(X) (X)	553,614 146,314	(X) (X)	r529,658 r139,188
38291 46	Pressure ratio sensors, displays, and controls <sup>37</sup> . . . . .	6	(X)	(D)	(X)	(D)
38291 47	Pressure and vacuum sensors, transmitters, and displays <sup>37</sup> . . . . .	11	(X)	59,562	(X)	r60,112
38291 58	Fuel and oil flow rate sensors, transmitters, and displays, including mixture controls <sup>38</sup> . . . . .	9	(X)	33,844	(X)	(D)
38291 60	Fuel and oil quantity sensors, transmitters, and displays, including densitometers <sup>38</sup> . . . . .	8	(X)	86,960	(X)	r112,826
38291 62	Tachometer generators and indicators . . . . .	9	(X)	a7,625	(X)	7,700
38291 98	All other not specified above . . . . .	16	(X)	206,003	(X)	r197,893
38291 99	Parts and components for aircraft engine instruments, (except flight), sold separately . . . . .	9	(X)	13,306	(X)	11,939
38292 —	Physical properties testing and inspection equipment and kinematic testing and measuring equipment . . . . .	159	(X)	a1,490,066	(X)	1,368,943
38292 32	Physical properties testing equipment, including hardness, tensile, stress, strain, abrasion, strength, torsion, wear, and similar testing equipment; including components and parts, sold separately: For testing of metals . . . . .	27	(X)	367,013	(X)	340,807
38292 34	Other . . . . .	50	(X)	a284,357	(X)	a270,700
38292 39	Parts for physical properties testing equipment, sold separately . . . . .	28	(X)	a27,123	(X)	a23,645

See footnotes at end of table.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38292 —	Physical properties testing and inspection equipment and kinematic testing and measuring equipment—Con.					
	Physical properties inspection equipment, including flaw detection, thickness measuring, and similar inspection equipment; including components and parts, sold separately:					
38292 52	For testing of metals .....	22	(X)	<sup>a</sup> 197,823	(X)	<sup>a</sup> 187,796
38292 54	Measuring and checking flow of fluids .....	14	(X)	64,714	(X)	<sup>r</sup> 59,670
38292 56	Other .....	39	(X)	281,015	(X)	<sup>r</sup> 234,985
38292 58	Parts for physical properties inspection equipment, sold separately .....	21	(X)	<sup>b</sup> 46,041	(X)	<sup>a</sup> 40,113
38292 90	Kinematic testing and measuring equipment, including vibration, acceleration, and other motion testing equipment .....	30	(X)	219,279	(X)	208,640
38292 98	Parts for kinematic testing and measuring equipment, sold separately .....	6	(X)	<sup>b</sup> 2,701	(X)	<sup>b</sup> 2,587
38294 —	Nuclear radiation detection and monitoring instruments .....	54	(X)	478,338	(X)	496,522
38294 02	Radiation detecting elements, including ion chambers .....	20	129,071	65,020	170,794	69,098
38294 04	Solid state detectors <sup>39</sup> .....	6	(D)	(D)	(D)	(D)
38294 06	Nuclear monitoring instruments, including environmental, personal dosimetry, and medical monitors, both stationary and portable types .....	15	97,350	114,079	<sup>r</sup> 134,486	<sup>r</sup> 134,347
38294 09	Sample and flow counting systems, manual and automatic .....	9	(X)	21,056	(X)	21,136
38294 19	Scalers <sup>40</sup> .....	7	(D)	(D)	(D)	(D)
38294 21	Special amplifiers for nuclear applications <sup>40</sup> .....	4	8,680	5,859	<sup>b</sup> 10,009	5,825
	Pulse analyzers, including nuclear spectrometers:					
38294 22	Single channel pulse height analyzers <sup>41</sup> .....	5	(D)	(D)	(D)	(D)
38294 23	Multichannel pulse height analyzers <sup>41</sup> .....	4	(S)	6,439	(S)	<sup>r</sup> 6,733
38294 25	Count rate meters .....	10	(S)	(D)	(S)	(D)
38294 29	Measurement and control devices using beta, gamma, or neutron gauge technology .....	12	(X)	<sup>a</sup> 95,909	(X)	98,519
38294 30	Nuclear power supplies <sup>42</sup> .....	6	(X)	(D)	(X)	(D)
38294 32	Neutron and photon activation analysis systems .....	5	(X)	(D)	(X)	(D)
38294 34	Nuclear instrument modules, n.e.c. <sup>42</sup> .....	12	(X)	36,384	(X)	<sup>a</sup> 35,524
38294 39	Other nuclear radiation detection and monitoring instruments <sup>39</sup> .....	12	(X)	90,991	(X)	<sup>r</sup> 91,605
38294 98	Parts and components for nuclear radiation detection and monitoring instruments, sold separately .....	14	(X)	34,514	(X)	28,110
38295 —	Commercial, geophysical, meteorological, and general-purpose instruments .....	156	(X)	1,614,212	(X)	1,451,637
38295 20	Barometers and barographs, aneroid and mercurial types, including recorders, wall, pendant, meteorological, hygrometers, and barometer-thermometer-humidity combinations .....	15	(X)	<sup>b</sup> 7,340	(X)	11,379
38295 21	Hydrometers, glass, all types, including thermohydrometers <sup>2</sup> .....	7	<sup>b</sup> 252	<sup>b</sup> 2,279	<sup>a</sup> 277	<sup>a</sup> 2,487
	Liquid-in-glass thermometers:					
38295 22	Engraved (etched) stem, thermoregulators, deep-sea reversing, laboratory, encased glass, ASTM standards, pocket case, and max-min registering (except clinical thermometers) .....	14	(X)	<sup>a</sup> 5,790	(X)	<sup>a</sup> 7,058
38295 23	Threaded and flanged types, fixed and adjustable angle, inline and duct installations, for process, food, air-conditioning, and refrigeration installations <sup>2</sup> .....	12	<sup>b</sup> 583	<sup>b</sup> 10,173	<sup>b</sup> 583	<sup>b</sup> 8,706
38295 24	Household and commercial thermometers such as wall, outdoor, domestic science, cupcase, filled systems, and indoor-outdoor <sup>2 43</sup> .....	13	(D)	(D)	(D)	(D)
38295 34	Medical thermometers, <sup>2 43</sup> .....	1	8,523	12,223	7,316	12,438

See footnotes at end of table.

**Table 23. Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
38295 —	Commercial, geophysical, meteorological, and general-purpose instruments—Con.					
	Bimetal thermometers:					
38295 25	Threaded and flanged types, for pipeline and duct installations, including general and pocket test <sup>2</sup> . . . . .	17	<sup>a</sup> 1,432	30,336	<sup>a</sup> 1,280	<sup>a</sup> 31,779
38295 26	Domestic science, commercial general test, indoor, outdoor, desk models, oven, and refrigerator <sup>2</sup> . . . . .	11	6,147	17,789	6,691	<sup>r</sup> 17,939
38295 28	Humidity indicating and recording instruments such as bi-hygroscopic and hygroscopic element, indicators, psychrometers, wet and dry bulb, hygrographs, and indicating hygrometers . . . . .	17	79	10,664	62	10,722
38295 29	Other thermometers (infrared, meteorological, commercial, and industrial) . . . . .	20	(X)	<sup>b</sup> 58,491	(X)	<sup>a</sup> 55,031
38295 51	Meteorological electronics equipment and radio astronomy equipment (automatic weather stations and weather tracking equipment, ceilometers, transimeters, space satellite meteorological systems, and specialized meteorological telemetering equipment) . . . . .	20	(X)	244,822	(X)	<sup>r</sup> 182,619
38295 31	Other meteorological instruments, including speed and direction instruments, rain gauges, thermographs, and parts, sold separately . . . . .	16	(X)	<sup>b</sup> 44,652	(X)	<sup>a</sup> <sup>r</sup> 43,263
38295 40	Seismic instruments . . . . .	12	(X)	<sup>a</sup> 403,357	(X)	<sup>a</sup> <sup>r</sup> 393,019
38295 45	All other geophysical instruments and equipment . . . . .	22	(X)	299,011	(X)	<sup>r</sup> 219,808
38295 33	Other commercial and industrial instruments (except aircraft), including compasses, altimeters, test equipment for hydraulic and pneumatic systems and controls, and environmental gas detectors, sold separately . . . . .	43	(X)	448,201	(X)	437,200
38295 39	Parts and accessories for meteorological and commercial and industrial instruments . . . . .	19	(X)	<sup>a</sup> 19,084	(X)	18,189
38296 —	Surveying and drafting instruments and associated equipment . . . . .	31	(X)	<sup>b</sup> 365,642	(X)	<sup>r</sup> 364,840
38296 11	Surveying instruments, including alidades, transits, plumb bobs, sextants, theodolites, surveyors, compasses, surveyor's levels, and tapes . . . . .	16	(X)	<sup>b</sup> 324,791	(X)	319,540
38296 19	Parts and components for surveying instruments, sold separately . . . . .	5	(X)	(D)	(X)	(D)
38296 21	Drafting instruments and machines, manual and automatic, drafting tables, plotting instruments, slide rules, T-squares, drafting templates, rules, etc. . . . .	14	(X)	<sup>a</sup> 26,923	(X)	<sup>b</sup> <sup>r</sup> 32,966
38296 29	Parts and components for drafting instruments and machines, sold separately . . . . .	1	(X)	(D)	(X)	(D)
38296 31	Photogrammetric and geodetic equipment, excluding cameras . . . . .	1	(X)	(D)	(X)	(D)
38296 39	Parts and components for photogrammetric and geodetic equipment, sold separately . . . . .	2	(X)	(D)	(X)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified.

<sup>r</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

<sup>1</sup>Product codes 34918 13 and 34918 14 are combined with product code 34918 17 to avoid disclosing data for individual companies.

<sup>2</sup>Quantity for this product code is in thousands of units.

<sup>3</sup>Product code 34919 59 is combined with product code 34919 61 to avoid disclosing data for individual companies.

<sup>4</sup>Product code 38121 12 is combined with product code 38121 20 to avoid disclosing data for individual companies.

<sup>5</sup>Product code 38121 13 is combined with product code 38121 15 to avoid disclosing data for individual companies.

<sup>6</sup>Product code 38121 25 is combined with product code 38121 26 to avoid disclosing data for individual companies.

<sup>7</sup>Product code 38122 19 is combined with product code 38122 21 to avoid disclosing data for individual companies.

<sup>8</sup>Product code 38210 11 is combined with product code 38210 13 to avoid disclosing data for individual companies.

<sup>9</sup>Product code 38210 17 is combined with product code 38210 19 to avoid disclosing data for individual companies.

<sup>10</sup>Product code 38210 25 is combined with product code 38210 26 to avoid disclosing data for individual companies.

<sup>11</sup>Product codes 38210 51 and 38210 42 are combined with product code 38210 97 to avoid disclosing data for individual companies.

<sup>12</sup>1997 "Value" for product code 38210 81 is combined with product code 38210 88 to avoid disclosing data for individual companies.

<sup>13</sup>1997 "Value" for product code 38220 21 is combined with product code 38220 22 to avoid disclosing data for individual companies.

Table 23. **Quantity and Value of Shipments of Selected Instruments and Related Products: 1997 and 1996—Con.**

- <sup>14</sup>Product code 38220 35 is combined with product code 38220 40 to avoid disclosing data for individual companies.
- <sup>15</sup>Product code 38220 60 is combined with product code 38220 65 to avoid disclosing data for individual companies.
- <sup>16</sup>Product code 38230 40 is combined with product code 38230 41 to avoid disclosing data for individual companies.
- <sup>17</sup>Product code 38230 47 is combined with product code 38230 48 to avoid disclosing data for individual companies.
- <sup>18</sup>Product code 38230 06 is combined with product code 38230 94 to avoid disclosing data for individual companies.
- <sup>19</sup>Product code 38242 28 is combined with product code 38242 29 to avoid disclosing data for individual companies.
- <sup>20</sup>Product code 38242 41 is combined with product code 38242 98 to avoid disclosing data for individual companies.
- <sup>21</sup>Product code 38252 23 is combined with product code 38252 30 to avoid disclosing data for individual companies.
- <sup>22</sup>Product code 38252 31 is combined with product code 38252 33 to avoid disclosing data for individual companies.
- <sup>23</sup>Product code 38252 34 is combined with product code 38252 39 to avoid disclosing data for individual companies.
- <sup>24</sup>Product codes 38252 13 and 38252 18 are combined with product code 38252 16 to avoid disclosing data for individual companies.
- <sup>25</sup>Product code 38252 58 is combined with product code 38252 59 to avoid disclosing data for individual companies.
- <sup>26</sup>1997 "Value" for product codes 38252 72 is combined with product code 38252 74 to avoid disclosing data for individual companies.
- <sup>27</sup>Product code 38252 01 is combined with product code 38252 03 to avoid disclosing data for individual companies.
- <sup>28</sup>Product code 38252 02 is combined with product code 38252 19 to avoid disclosing data for individual companies.
- <sup>29</sup>Product code 38253 23 is combined with product code 38253 25 to avoid disclosing data for individual companies.
- <sup>30</sup>Product code 38253 60 is combined with product code 38253 72 to avoid disclosing data for individual companies.
- <sup>31</sup>Product code 38253 75 is combined with product code 38253 76 to avoid disclosing data for individual companies.
- <sup>32</sup>Product code 38260 07 is combined with product code 38260 09 to avoid disclosing data for individual companies.
- <sup>33</sup>Product codes 38260 24, 38260 25 and 38260 27 are combined with product code 38260 28 to avoid disclosing data for individual companies.
- <sup>34</sup>Product code 38260 38 is combined with product code 38260 53 to avoid disclosing data for individual companies.
- <sup>35</sup>Product codes 38260 73 and 38260 74 are combined with product code 38260 75 to avoid disclosing data for individual companies.
- <sup>36</sup>Product code 38274 03 is combined with product code 38274 09 to avoid disclosing data for individual companies.
- <sup>37</sup>Product code 38291 46 is combined with product code 38291 47 to avoid disclosing data for individual companies.
- <sup>38</sup>1996 "Value" for product code 38291 58 is combined with product code 38291 60 to avoid disclosing data for individual companies.
- <sup>39</sup>Product code 38294 04 is combined with product code 38294 39 to avoid disclosing data for individual companies.
- <sup>40</sup>Product code 38294 19 is combined with product code 38294 21 to avoid disclosing data for individual companies.
- <sup>41</sup>Product code 38294 22 is combined with product code 38294 23 to avoid disclosing data for individual companies.
- <sup>42</sup>Product code 38294 30 is combined with product code 38294 34 to avoid disclosing data for individual companies.
- <sup>43</sup>Product code 38295 24 is combined with product code 38295 34 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item has been estimated. <sup>b</sup>Over 25 percent of this item has been estimated.

**Table 24. Shipments, Imports and Exports of Selected Instruments and Related Products: 1997**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value of f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption (value) <sup>2</sup>
34918 01-04, 07-09	Pneumatic actuated automatic valves . . . . .	602,458	51,036	55,552
34918 11-14, 17-18, 21, 23	All other control valves, including electric and electrohydraulic . . . . .	430,102	436,597	414,212
34918 25, 30, 35, 41, 45, 48	Self-generating power-actuated regulator valves . . . . .	1,024,267	148,431	230,206
34919 56, 58-59, 61, 79	Solenoid-operated valves (except nuclear and fluid transfer) . . . . .	536,303	169,204	455,393
38121 01	Compasses (magnetic and gyroscopic) . . . . .	243,550	50,847	36,103
38121 08, 10, 12-13, 15, 18, 20-21, 23, 25-26, 28, 61, 63-64, 80, 85, 89, 38122 11, 13, 15	Search, detection, aeronautical, nautical, and navigational and guidance systems, equipment, and instruments, n.e.c. (except aircraft engine instruments) <sup>3</sup> . . . . .	4,920,494	701,607	316,980
38122 17, 19, 21, 23, 25, 27, 29, 31, 33	Radar systems and equipment <sup>4</sup> . . . . .	5,417,231	531,020	58,454
38122 61	Radio navigational aid receivers and displays . . . . .	569,930	310,656	225,018
38122 75	Automatic pilots . . . . .	282,820	49,370	15,258
38122 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 63, 65, 67, 69, 71, 73, 77, 79, 81, 83	Sonar search, detection, tracking, and communication systems and equipment, including ASW (sonar telephone, communication equipment, depth finding, fire control, fusing guidance, hydrophones, mapping, sonabuys, navigation, sonar fish finders, sonar range instrumentation, etc.) . . . . .	17,003,169	121,094	96,012
38220 21-22, 75	Temperature responsive automatic controls (thermostats) . . . . .	717,953	120,717	259,750
38220 25, 30, 35, 40, 50, 60, 65-66, 74, 81	Pressure responsive automatic, hydraulic automatic, pneumatic automatic, and automatic controls, n.e.c. . . . .	1,345,099	1,311,166	985,391
38220 98	Parts and components for automatic controls, sold separately . . . . .	172,782	(NA)	(NA)
38230 00	Process control instruments . . . . .	6,787,616	528,445	432,075
38242 22, 24, 28, 29	Gas meters, consumption registering (except parts) . . . . .	232,200	29,289	5,701
38242 33, 35, 37, 41, 98	Liquid meters (except parts) . . . . .	619,039	65,947	7,678
38242 99	Parts, components, and accessories for gas and liquid meters, sold separately . . . . .	227,844	85,437	37,845
38243 21, 23, 25, 85, 38244 00, 38253 00, 38291 00	Counting devices, n.e.c., including taxi meters and parts, parking meters and parts, and motor vehicle instruments . . . . .	3,722,962	320,976	872,164
38251 00	Electricity meters . . . . .	457,275	60,564	8,751
38252 20-22	Voltage, current, and resistance measuring equipment (except multimeters) . . . . .	510,323	364,222	188,255
38252 25-27	Power and energy testing equipment . . . . .	(D)	(NA)	(NA)
38252 37-38	Analyzers for testing characteristics of internal-combustion engines (except aircraft) . . . . .	244,675	213,128	54,924
38252 56, 58, 59	Signal generating equipment . . . . .	457,598	114,551	46,213
38252 01-03, 05, 13, 16, 18, 23, 30-31, 33-34, 39, 44-45, 47-48, 52, 61, 63, 65, 67, 69, 72, 74, 81, 83, 85, 87, 91-94	Test equipment for testing multimeters, electrical, radio, and communication circuits, and motors, n.e.c. . . . .	8,963,592	1,033,089	188,005
38210 00, 38260 00	Laboratory, analytical, and scientific instruments . . . . .	7,783,549	(NA)	(NA)

See footnotes at end of table.



Table 24. **Shipments, Imports and Exports of Selected Instruments and Related Products:**  
**1997—Con.**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value of f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption (value) <sup>2</sup>
38271 00	Sighting, tracking, and fire-control equipment, optical type . . . . .	575,106	39,996	80,255
38274 01, 03, 09	Binoculars and astronomical instruments and parts and accessories . . . . .	66,766	92,742	240,831
38274 12, 17, 21-23, 29, 39, 49, 59	Optical instruments and lenses, n.e.c. . . . .	1,872,848	321,608	14,270
38274 15	Microscopes, optical . . . . .	59,786	(NA)	(NA)
38292 00	Physical properties testing and inspection equipment, and kinematic testing and measuring equipment. . . . .	1,490,066	745,077	78,708
38294 00	Nuclear radiation detection and monitoring instruments, and equipment . . . . .	478,338	294,882	44,782
38295 34	Liquid-in-glass thermometers, clinical <sup>5</sup> . . . . .	(D)	(D)	(D)
38295 22-24	Liquid-in-glass thermometers, n.e.c. <sup>5</sup> . . . . .	28,186	15,440	13,822
38295 25-26, 29	Thermometers (except liquid-in-glass type) . . . . .	106,616	14,357	(NA)
38295 45	Geophysical instruments and equipment. . . . .	299,011	204,789	66,947
38295 40	Seismic instruments. . . . .	403,357	13,085	11,269
38295 20, 28, 51, 31	Commercial, geophysical, meteorological, and general-purpose instruments, n.e.c. . . . .	307,478	159,120	104,171
38296 11, 19	Surveying instruments (except photogrammetrical and geodetic equipment). . . . .	(D)	63,860	85,305
38296 21	Drafting instruments and machines, manual and automatic . . . . .	26,923	45,209	81,434

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified.

<sup>1</sup>Source: Census Bureau report, EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report, IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Product code 38121 15 is excluded from manufacturers' shipments to avoid disclosing data for individual companies.

<sup>4</sup>Product code 38122 25 is excluded from manufacturers' shipments to avoid disclosing data for individual companies.

<sup>5</sup>Product code 38295 34 has been combined with product codes 38295 22-24 to avoid disclosing data for individual companies.

**HISTORICAL NOTE**

Data on selected instruments and related products have been collected by the Census Bureau since 1961. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Chris Blackburn, 301-457-4817.

## ELECTROMEDICAL EQUIPMENT AND IRRADIATION EQUIPMENT (INCLUDING X-RAY) (MA38R)

### INTRODUCTION

These data cover manufacturers of electromedical and irradiation equipment (including X-ray), except very small firms (generally less than 20 employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies.

The statistics were collected by mail on Census Bureau annual Form MA38R, Electromedical Equipment and Irradiation Equipment (Including X-ray). The survey panel includes all known producers of these products, except the very small firms excluded from the scope of the survey. Approximately 271 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments of electromedical and irradiation equipment increased by 4.8 percent to \$11.8 billion, from the 1996 level of \$11.2 billion.

X-ray and other irradiation equipment increased 8.1 percent from its 1996 level. Electromedical equipment increased 3.7 percent to \$8.6 billion, from the 1996 level of \$8.3 billion.

### EXPLANATION OF TERMS

**Research and development.** Dollar shipments reflect income from development, design, and engineering services performed by the reporting plant in connection with the manufacture of the products shipped, whether included in a single production contract, or contracted for separately, but intended as preparation for the manufacture of the specific products.

Table 25. **Value of Shipments of Electromedical and Irradiation Equipment by Class of Product: 1992 to 1997**

[Value in millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992
38440	X-ray and other irradiation equipment. . . . .	3,137.1	2,900.9	2,698.1	2,458.2	2,480.0	2,270.2
38450	Electromedical equipment. . . . .	8,622.7	8,318.8	7,124.8	6,752.1	6,222.0	6,273.1

**Table 26. Quantity and Value of Shipments of Electromedical and Irradiation Equipment: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
	Electromedical and irradiation equipment . . . . .	259	(X)	11,759,717	(X)	11,219,683
	Medical diagnostic equipment:					
	X-ray equipment:					
38440 02	Digital radiography equipment . . . . .	6	6,400	159,840	7,268	147,883
38440 03	Computerized axial tomography (CT or CAT scan) . . . . .	6	2,660	543,091	2,483	524,526
38440 09	Dental and conventional . . . . .	14	22,811	520,549	22,713	487,225
38440 11	All other medical diagnostic X-ray equipment . . . . .	12	(X)	367,688	(X)	299,099
38440 06	Nuclear medicine equipment (all equipment used for nuclear in vivo studies) . . . . .	7	1,441	363,128	1,155	307,263
38450 18	Magnetic resonance imaging (MRI) equipment . . . . .	7	(D)	(D)	(D)	(D)
38450 17	Ultrasound scanning devices . . . . .	14	13,863	1,074,018	10,826	935,994
38450 11	Electrocardiograph (EKG) . . . . .	-	4,164	202,717	46,142	204,281
38450 13	Electroencephalograph (EEG) and electromyograph (EMG) <sup>1</sup> . . . . .	-	(D)	(D)	(D)	(D)
38450 21	Audiological equipment . . . . .	-	(X)	10,544	(X)	11,099
38450 23	Endoscopic equipment (bronchoscope, cystoscope, proctosigmoidoscope, colonoscope, etc.) . . . . .	-	(D)	(D)	(D)	(D)
38450 25	Respiratory analysis equipment . . . . .	5	4,477	39,291	5,295	48,541
38450 29	All other medical diagnostic equipment <sup>1</sup> . . . . .	25	(X)	229,936	(X)	242,885
	Patient monitoring equipment:					
38450 51	Intensive care/coronary care units, including component modules such as temperature, blood pressure, and pulse . . . . .	21	(X)	627,084	(X)	597,819
38450 53	Prenatal monitoring <sup>2</sup> . . . . .	-	(X)	(D)	(X)	(D)
38450 55	Respiratory monitoring <sup>2</sup> . . . . .	7	(X)	88,046	(X)	100,688
38450 57	All other patient monitoring . . . . .	36	(X)	588,746	(X)	608,904
	Medical therapy equipment:					
38450 43	Ultrasound therapy . . . . .	-	(X)	12,203	(X)	11,387
38450 31	Pacemakers . . . . .	8	220,915	733,335	204,605	636,018
38450 33	Defibrillators . . . . .	10	50,024	578,780	49,735	528,073
38450 39	Dialyzers, including machines and equipment . . . . .	5	(X)	458,290	(X)	385,735
38450 41	Medical laser equipment . . . . .	17	(X)	600,041	(X)	559,526
38440 32	Radiation therapy (linear accelerators, X-ray, cobalt 60, brachtherapy) <sup>3</sup> . . . . .	-	(X)	(D)	(X)	(D)
38450 49	All other medical therapy equipment . . . . .	35	(X)	748,190	(X)	656,469
	All other irradiation and electromedical equipment:					
38440 13	Industrial and scientific X-ray equipment . . . . .	17	2,957	193,030	2,658	172,627
38440 21	X-ray tubes, sold separately . . . . .	-	45,391	413,196	45,939	421,872
38440 23	Other nonmedical irradiation equipment, including gamma- and beta-ray equipment, n.e.c. . . . .	-	(X)	20,578	(X)	20,024
38440 27	Parts and accessories for X-ray equipment and other nonmedical irradiation equipment, n.e.c. <sup>3</sup> . . . . .	22	(X)	555,954	(X)	520,332
	Surgical systems:					
38450 35	Electrosurgical equipment . . . . .	14	(X)	339,940	(X)	339,205
38450 71	Heart-lung machines, excluding iron lungs <sup>4</sup> . . . . .	-	(D)	(D)	(D)	(D)
38450 73	Blood flow systems <sup>4</sup> . . . . .	7	(X)	328,609	(X)	320,307
38450 75	All other surgical support systems . . . . .	16	(X)	384,314	(X)	399,573
38450 83	Other electromedical equipment (except diagnostic and therapeutic), n.e.c. . . . .	13	(X)	82,067	(X)	81,469
38450 89	Electromedical parts and accessories, including diagnostic and therapeutic, n.e.c. . . . .	42	(X)	705,834	(X)	784,931

- Represent zero. D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Product code 38450 13 is combined with product code 38450 29 to avoid disclosing data for individual companies.

<sup>2</sup>Product code 38450 53 is combined with product code 38450 55 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 38440 32 is combined with product code 38440 27 to avoid disclosing data for individual companies.

<sup>4</sup>Product code 38450 71 is combined with product code 38450 73 to avoid disclosing data for individual companies.

**Table 27. Shipments, Exports, and Imports of Electromedical and Irradiation Equipment: 1997**

[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption (value) <sup>2 3</sup>
38440 03	Computerized axial tomography (CT or CAT SCAN) . . . . .	543,091	102,167	102,839
38440 02, 09, 11, 06, 32	Medical X-ray and nuclear equipment diagnostic and therapeutic <sup>4</sup> . . . . .	1,411,205	525,573	524,917
38440 13	Industrial and scientific X-ray equipment . . . . .	193,030	135,496	69,864
38440 21	X-ray tubes, sold separately . . . . .	413,196	128,810	92,759
38440 27	Parts and accessories for X-ray equipment and other nonmedical irradiation equipment, n.e.c. <sup>5</sup> . . . . .	555,954	345,903	253,490
38440 23	Nonmedical irradiation equipment, including gamma- and beta-ray equipment, n.e.c. . . . .	20,578	23,010	6,983
38450 11	Electrocardiograph (EKG), diagnostic . . . . .	202,717	62,767	18,899
38450 13	Electroencephalographs (EEG's) and electromyographs (EMG) . . . . .	(D)	(D)	8,254
38450 17	Ultrasound scanning devices, diagnostic . . . . .	1,074,018	484,022	63,856
38450 18	Magnetic resonance imaging equipment (MRI) . . . . .	(D)	(D)	140,970
38450 31	Pacemakers, therapeutic . . . . .	733,335	212,421	17,868
38450 21, 23, 25, 29	Diagnostic electromedical equipment, n.e.c. . . . .	(D)	(D)	465,781
38450 33, 41, 49	Therapeutic electromedical equipment, n.e.c. . . . .	1,927,011	213,898	46,443
38450 71, 73, 75, 83	Electromedical equipment and irradiation equipment, including X-ray, n.e.c. . . . .	794,990	349,906	301,566
38450 39	Dialyzers, machines and equipment . . . . .	458,290	82,464	49,248
38450 51, 53, 55, 57	Patient monitoring equipment . . . . .	1,303,876	253,234	28,645
38450 43	Therapeutic ultrasound equipment . . . . .	12,203	17,776	2,971
38450 35	Electrosurgical equipment . . . . .	339,940	360,070	59,865
38450 89	Electromedical parts and accessories, including diagnostic and therapeutic, n.e.c. . . . .	705,834	646,695	497,073

D Withheld to avoid disclosing data from individual companies. n.e.c. Not elsewhere classified.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>This value represents c.i.f. plus U.S. import duties.

<sup>4</sup>"Manufacturers' shipments" excludes product code 38440 32 to avoid disclosing data for individual companies.

<sup>5</sup>"Manufacturers' shipments" includes product code 38440 32 to avoid disclosing data for individual companies.

**HISTORICAL NOTE**

Data on selected electronic and associated products have been collected by the Census Bureau since 1961 on survey MA36N, Selected Electronics and Associated Products. In 1985, survey MA36N was divided into three annual surveys: MA36P, Communication Equipment, Including Telephone, Telegraph, and Other Electronic Systems and Equipment; MA36Q, Semiconductors, Printed Circuit Boards, and Other Electronic Components; and

MA38R, (formerly MA36R), Electromedical Equipment and Irradiation Equipment (Including X-ray). Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact James Hinckley, 301-457-4772.

# Chapter 8. Consumer Durables

## ELECTRIC HOUSEWARES AND FANS (MA36E)

### INTRODUCTION

These data cover manufacturers of electric housewares and fans in the United States. These statistics were collected by mail on Census Bureau annual Form MA36E, Electric Housewares and Fans. The survey panel includes all known manufacturers of electric housewares and fans, approximately 95 companies.

### SUMMARY OF FINDINGS

In 1997, manufacturers' shipments of electric fans totaled \$486.8 million, an 8-percent decrease from the

1996 value of shipments of \$527.3 million. The 1997 value of shipments of small household electric appliances totaled \$1.8 billion, an increase of 5.8 percent from the 1996 total. Shipments of parts and attachments increased 8 percent, from \$96.7 million in 1996 to \$105.2 million in 1997.

### EXPLANATION OF TERMS

See the Introduction for an explanation of terms.

Table 1. **Value of Shipments of Electric Housewares and Fans by Class of Product: 1988 to 1997**

[Millions of dollars]

Year	Electric fans (except industrial type)	Small household electric appliances	Parts and attachments for electric housewares and fans
1997 .....	486.8	1,765.2	105.2
1996 .....	527.3	1,663.1	96.7
1995 .....	493.0	1,897.6	99.6
1994 .....	554.7	2,049.1	119.9
1993 .....	494.1	1,945.0	136.5
1992 .....	511.4	1,985.0	142.7
1991 .....	409.6	1,720.8	98.7
1990 .....	482.0	1,778.7	104.3
1989 .....	531.5	1,914.9	128.1
1988 .....	526.1	2,004.5	106.4

**Table 2. Quantity and Value of Shipments of Electric Housewares and Fans by Product: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36341 —	Electric fans (except industrial) . . . . .	14	23,092,173	486,777	25,419,608	527,266
36341 71	Window (household) permanent, portable, and roll-about . . . . .	7	8,671,807	153,873	10,675,302	186,446
36341 91	Ceiling (paddle) fans . . . . .	4	291,104	20,974	282,980	'23,137
36341 97	All other electric fans (except industrial), including electric range hoods, oven hoods, ventilating, exhaust, desk, and wall bracket fans . . . . .	9	14,420,366	311,930	'14,461,326	'311,639
36345 —	Small electric household appliances (except fans) . .	65	(X)	1,765,220	(X)	1,663,096
	Electrothermal type . . . . .	47	(X)	1,326,113	(X)	1,203,416
36345 11	Broilers . . . . .	4	139,641	4,183	94,104	3,418
	Coffee makers:					
36345 18	Drip type <sup>1</sup> . . . . .	5	(D)	(D)	(D)	(D)
36345 19	Percolator or vacuum type <sup>1</sup> . . . . .	3	(D)	(D)	(D)	(D)
36345 21	Urn type <sup>1</sup> . . . . .	3	7,696,159	157,895	5,656,316	116,590
36345 23	Deep fat fryers, excluding covers and controls shipped separately <sup>2</sup> . . . . .	5	(D)	(D)	(D)	(D)
36345 24	Ovens, including toaster ovens and roasters (with or without broiler attachments) . . . . .	7	4,234,154	151,505	4,070,338	144,323
36345 29	Hot plates and disc stoves, 1650 watts and less (except built-in units) . . . . .	3	814,049	10,950	844,086	12,743
36345 39	Waffle irons, sandwich grills, griddles, and combinations <sup>3</sup> . . . . .	6	<sup>a</sup> 3,986,845	<sup>a</sup> 96,039	4,176,099	89,264
36345 42	Frying pans and skillets, excluding covers and controls shipped separately <sup>3</sup> . . . . .	4	(D)	(D)	(D)	(D)
	Air space heaters:					
	Portable room heaters:					
36345 43	Fan-forced type . . . . .	10	1,867,137	54,160	2,367,958	59,363
36345 44	Other than fan-forced type (convector, radiant, etc.) . . . . .	10	1,031,422	34,481	'1,022,607	'34,141
	For fixed installation, all types:					
36345 45	Baseboard, excluding glass panel type . . . . .	7	1,065,842	23,361	921,896	23,094
36345 47	Other than baseboard, excluding warm air furnaces . . . . .	5	1,039,955	63,214	1,054,157	65,305
36345 60	Electric irons . . . . .	1	(D)	(D)	(D)	(D)
36345 86	Electric bed coverings, including sheets, mattress covers, comforters, and blankets . . . .	4	(D)	(D)	(D)	(D)
36345 87	Electric heating pads, including foot warmers . . . . .	6	<sup>b</sup> 796,277	<sup>b</sup> 12,559	830,992	11,199
36345 96	Portable humidifiers, including vaporizers . . . .	10	<sup>b</sup> 5,223,363	<sup>b</sup> 71,889	4,859,747	73,499
36345 97	Other small electrothermal food processing appliances, including such items as pressure cookers, automatic saucepans, toasters, casseroles, chafing dishes, and crockpots; excluding covers and controls shipped separately <sup>2</sup> . . . . .	10	19,213,982	312,762	17,984,826	287,833
36345 98	Other small electrothermal household appliances, including such items as immersion heaters, faucet attachments, water heaters, steam radiators, warming trays, food warmers, bottle warmers, hair curlers, curling irons, hair dryers, etc.; excluding covers and controls shipped separately . . . . .	10	7,560,596	109,137	7,269,170	109,761
	Electromechanical type, including cordless . . . .	25	(X)	439,107	(X)	459,680
	Household food mixers, including value of standard attachments sold with mixers:					
36345 71	Hand (portable) <sup>4</sup> . . . . .	3	(D)	(D)	(D)	(D)
36345 75	Stand type <sup>4</sup> . . . . .	3	(D)	(D)	(D)	(D)
36345 76	Blenders (liquefiers) <sup>4</sup> . . . . .	4	5,726,946	269,251	'7,153,510	247,206
36345 83	Household food processors, including food choppers, slicers, and shredders . . . . .	6	790,557	23,824	860,689	26,187

See footnotes at end of table.

**Table 2. Quantity and Value of Shipments of Electric Housewares and Fans by Product: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36345 —	Small electric household appliances (except fans)—Con.					
36345 84	Electromechanical type, including cordless—Con.					
36345 90	Household food preparation appliances, (except food mixers and food processors), including drink mixers, whippers, juicers, grinders, ice crushers, and coffee grinders. . . .	6	401,318	18,841	330,429	15,422
36345 95	Portable air purifiers and portable dehumidifiers, including vaporizers. . . . .	8	(D)	(D)	(D)	(D)
36349 —	Other small electromechanical appliances, including knives, knife sharpeners, scissors, toothbrushes, vibrators, electric razors, dry shavers, and can openers . . . . .	10	4,830,417	109,143	4,799,035	116,692
36349 13	Parts and attachments for small household electric appliances . . . . .	28	(X)	105,232	(X)	96,743
36349 18	Electrothermal in operation (value only) . . . . .	13	(X)	73,557	(X)	69,865
36349 89	Electromechanical in operation (value only) . . . . .	10	(X)	10,030	(X)	7,141
36349 89	Other (value only) . . . . .	5	(X)	21,645	(X)	19,737

D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Product codes 36345 18 and 36345 19 are combined with product code 36345 21 to avoid disclosing data for individual companies.

<sup>2</sup>Product code 36345 23 is combined with product code 36345 97 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 36345 42 is combined with product code 36345 39 to avoid disclosing data for individual companies.

<sup>4</sup>Product codes 36345 71 and 36345 75 are combined with product code 36345 76 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item has been estimated. <sup>b</sup>Over 25 percent of this item has been estimated.

**Table 3. Shipments, Exports, Imports, and Apparent Consumption of Electric Housewares and Fans: 1997**

[Quantity in number of units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3 4</sup>	
	Quantity	Value f.o.b. plant	Quantity	Value at port	Quantity	Value
Electric fans (except industrial) . . . . .	23,092,173	486,777	1,148,507	56,778	36,114,391	734,083
Coffee makers . . . . .	7,696,159	157,895	1,229,421	33,048	17,140,573	235,196
Air space heaters, portable and fixed installation types . . . . .	5,004,356	175,216	(NA)	35,298	5,689,259	101,423
Standard household electric irons . . . . .	(D)	(D)	570,104	8,709	15,965,366	178,125
Electric bed coverings . . . . .	(D)	(D)	260,218	7,912	34,767	706
Electrothermal household appliances, n.e.c. . . . .	41,968,907	921,891	3,892,981	131,442	115,637,266	678,470
Electromechanical household food mixers (except blenders) <sup>5</sup> . . . . .	(D)	(D)	(NA)	(NA)	9,270,532	66,087
Electromechanical household food mixers <sup>5</sup> . . . . .	(D)	(D)	2,091,825	57,955	(NA)	(NA)
Household blenders and liquefiers <sup>5</sup> . . . . .	5,726,946	269,251	(NA)	(NA)	7,907,946	98,734
Household food preparation appliances, including food processors (except food mixers) . . . . .	1,191,875	42,665	271,745	16,242	8,832,138	120,821
Electromechanical portable air purifiers, and portable dehumidifiers . . . . .	(D)	(D)	99,680	4,441	2,475,156	42,379
Small electromechanical appliances, n.e.c. . . . .	4,830,417	109,143	432,978	9,685	29,595,311	388,189

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified.

<sup>1</sup>For a comparison of SIC-based codes with Schedule B export numbers and HTSUSA imports, see "Contact for Data Users" at end of this sub-section.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. General Imports for Consumption*.

<sup>4</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States.

<sup>5</sup>Manufacturers' shipments for "Electromechanical household food mixers (except blenders)" and "Electromechanical household food mixers" are combined with "Household blenders and liquefiers" to avoid disclosing data for individual companies.

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**HISTORICAL NOTE**

Data on electric housewares and fans have been collected by the Census Bureau since 1962. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Vera Harris-Bourne, 301-457-1604.



## MAJOR HOUSEHOLD APPLIANCES (MA36F)

### INTRODUCTION

These data cover manufacturers of major household appliances and parts in the United States. These statistics were collected by mail on Census Bureau annual Form MA36F, Major Household Appliances. The survey panel includes all known manufacturers of major household appliances, approximately 100 companies.

### SUMMARY OF FINDINGS

In 1997, manufacturers' shipments of major household appliances decreased 3 percent from \$14.6 billion in 1996 to \$14.2 billion. Shipments of household cooking equipment, including parts and accessories, totaled \$3.7 billion

in 1997, an 8-percent increase from the 1996 value of \$3.4 billion. The value of household refrigerators and freezers, including parts and attachments, decreased 5 percent, from \$5.1 billion in 1996 to \$4.9 billion in 1997. Shipments for household laundry equipment and parts and household appliances, not elsewhere classified, remained unchanged in 1997, \$3.2 billion for household laundry equipment and parts and \$1.6 billion for household appliances, not elsewhere classified.

### EXPLANATION OF TERMS

See the Introduction for an explanation of terms.

**Table 4. Value of Shipments of Major Household Appliances by Class of Products: 1990 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990
36311	Electric household ranges, ovens, and surface cooking units, equipment, and parts . . . . .	1,839.0	1,865.8	1,791.8	1,791.1	1,731.3	1,619.8	1,614.9	1,659.8
36313	Gas household ranges, ovens, and surface cooking units, equipment, and parts . . . . .	366.2	544.6	654.1	649.6	621.5	599.6	609.5	739.4
36314	Other household ranges, and cooking equipment and outdoor cooking equipment, including parts and accessories. . . . .	1,039.3	1,004.0	911.6	872.7	786.1	750.0	657.4	581.1
36321	Household refrigerators, including combination refrigerator-freezers <sup>1</sup> . . . . .	4,858.2	5,084.4	4,739.4	4,882.1	4,310.3	3,937.6	3,362.7	3,208.1
36322	Food freezers, complete units, for freezing and/or storing frozen food (household type) <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	277.4	226.6
36323	Parts and attachments for household refrigerators and freezers . . . . .	144.2	160.7	111.8	84.7	73.7	78.7	127.9	134.0
36330	Household laundry machines and parts . . . . .	3,216.0	3,217.9	3,095.4	3,361.4	3,389.4	2,961.7	2,919.0	2,924.5
36391	Water heaters, electric . . . . .	550.1	558.8	513.0	516.4	473.4	401.0	446.7	433.8
36392	Water heaters (except electric) . . . . .	753.0	764.6	681.8	748.8	700.0	586.5	616.1	577.2
36395	Household appliances, n.e.c., and parts . . . . .	1,583.7	1,601.6	1,579.2	1,624.3	1,305.6	1,276.5	1,170.8	1,185.5

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified.

<sup>1</sup>For the years 1992 through 1997, product codes 36321 and 36322 are combined to avoid disclosing data for individual companies.

**Table 5. Quantity and Value of Shipments of Major Household Appliances: 1997 and 1996**

[Quantity in thousands of units. Value in millions of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36311 —	Major household appliances .....	99	(X)	14,205.5	(X)	14,641.8
	Electric ranges, ovens, and surface cooking units, equipment, and parts .....	19	7,286.2	1,839.0	6,524.1	1,865.8
	Free-standing ranges (widths are based on outside dimensions):					
36311 11	Under 23 (58.4 cm) inches in width, all types, including apartment house type .....	3	(D)	(D)	(D)	(D)
36311 17	23 (58.4 cm) inches up to and including 32 (81.3 cm) inches in width .....	7	2,734.5	862.4	2,731.7	906.6
36311 35	33 (83.8 cm) inches and over in width, all types .....	3	(D)	(D)	(D)	(D)
	Other than free-standing:					
	Built-in ranges:					
	Built-in ovens:					
36311 53	Single oven .....	6	(D)	(D)	302.4	157.5
36311 55	Two ovens .....	4	105.5	99.1	102.8	99.1
36311 61	Surface cooking tops .....	6	331.7	91.8	383.8	108.9
36311 65	Drop-in ranges .....	4	(D)	(D)	(D)	(D)
36311 73	Microwave ranges and ovens, including combination microwave/electric ranges and built-in ovens that utilize microwave and electrothermal energy in one or more of the oven cavities .....	4	55.2	64.0	53.1	54.9
36311 74	Microwave ovens, including counter top, built-in, and wall or cabinet-hung ovens .....	3	(D)	(D)	(D)	(D)
36311 20	Parts and accessories for household electric ranges and ovens such as burners, rotisseries, oven racks, and broiler pans, sold separately .....	15	(X)	142.0	(X)	<sup>f</sup> 154.1
36313 —	Gas household ranges, ovens, and surface cooking units, equipment, and parts .....	13	1,107.3	366.2	1,705.5	544.6
	Standard type, free-standing:					
36313 11	Over 32 (81.3 cm) inches cooking top and oven .....	6	29.1	33.4	53.5	<sup>f</sup> 33.7
36313 13	Over 24 (61 cm) inches to 32 (81.3 cm) inches cooking top and oven .....	6	596.9	188.6	993.6	299.9
36313 15	Apartment ranges, 24 (61 cm) inches cooking top and under .....	3	(D)	(D)	197.2	38.2
36313 17	Standard type, for built-in installation (built-in or stack-on oven broiler unit) .....	3	(D)	(D)	(D)	(D)
36313 19	Surface cooking tops (one or more burners) .....	6	141.9	47.7	205.9	68.2
36313 22	Nonstandard types, including wall-hung, slide-in, or drop-in .....	4	(D)	(D)	220.8	51.7
36313 39	Other gas household ranges, ovens, hot plates, and surface cooking units, not listed above .....	2	(D)	(D)	(D)	(D)
36313 20	Parts and accessories for gas household ranges and ovens, such as burners, rotisseries, oven racks, and broiler pans, sold separately .....	8	(X)	34.1	(X)	36.3
36314 —	Other household ranges and cooking equipment (except gas and electric) and outdoor cooking equipment, including parts and accessories .....	20	9,846.7	1,039.3	<sup>f</sup> 10,538.3	1,004.0
	Barbecuers, grills, stoves, braziers, etc., for outdoor cooking and other cooking:					
	Portable units:					
36314 22	Gas fuel or both gas and other fuel .....	11	5,509.3	602.0	<sup>f</sup> 5,429.7	<sup>f</sup> 575.1
36314 24	Solid fuel (charcoal, wood, coal, etc.) .....	9	3,416.8	133.7	<sup>f</sup> 3,694.6	<sup>a</sup> 141.3
36314 26	Liquid fuel (oil, kerosene, etc.) .....	4	781.8	164.8	877.6	139.1
36314 28	All other outdoor and other cooking equipment .....	7	138.9	13.9	<sup>b</sup> 536.4	<sup>b</sup> 23.7
36314 20	Parts and accessories for outdoor and other cooking equipment, sold separately .....	14	(X)	125.0	(X)	<sup>b</sup> 124.8

See footnotes at end of table.

**Table 5. Quantity and Value of Shipments of Major Household Appliances: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36321 —	Major household appliances—Con. Household refrigerators, including combination refrigerator-freezers <sup>1</sup> . . . . .	12	11,092.4	4,858.2	11,118.8	5,084.4
	Compression type, fitted with separate external doors, including all combinations with two or more external doors:					
36321 02	9.4 cu. ft. and under (under 269 liters) . . . . .	4	85.3	<sup>a</sup> 19.1	(D)	(D)
36321 09	9.5 to 13.4 cu. ft. (269 liters but under 382 liters) . . . . .	3	135.7	39.2	203.7	55.6
36321 12	13.5 to 15.4 cu. ft. (382 liters but under 438 liters) . . . . .	4	1,275.1	399.1	1,318.8	436.0
36321 14	15.5 to 17.4 cu. ft. (438 liters but under 495 liters) . . . . .	5	745.4	254.5	792.1	268.7
36321 19	17.5 to 19.4 cu. ft. (495 liters but under 552 liters) . . . . .	6	2,407.8	936.1	2,332.0	979.8
36321 24	19.5 to 21.4 cu. ft. (552 liters but under 608 liters) . . . . .	6	1,432.8	757.8	1,543.5	852.0
36321 25	21.5 to 24.4 cu. ft. (608 liters but under 693 liters) . . . . .	6	1,331.8	931.0	1,674.7	1,422.0
36321 28	24.4 cu. ft. and over (693 liters and over) . .	5	1,099.0	1,008.2	556.2	497.2
	Compression type, fitted with only one external door:					
36321 63	6.4 cu. ft. and under (under 184 liters) . . . . .	5	734.9	118.6	839.8	121.1
36321 64	6.5 cu. ft. and over (184 liters and over) . . .	3	(D)	(D)	(D)	(D)
36321 80	Other household refrigerators . . . . .	4	(D)	(D)	(D)	(D)
36322 —	Food freezers, complete units, for freezing and/or storing frozen food (household type) <sup>1</sup> . . .	5	(D)	(D)	(D)	(D)
36322 05	Upright type freezers . . . . .	5	(D)	(D)	(D)	(D)
36322 50	Chest type freezers . . . . .	2	(D)	(D)	(D)	(D)
36323 —	Parts and attachments for household refrigerators and freezers, excluding compressors and condensing units and ice- making machines . . . . .	15	(X)	144.2	(X)	<sup>r</sup> 160.7
36330 —	Household laundry machines (household type defined as having dry linen capacity not exceeding 10 kg (22 lb)) . . . . .	5	12,237.1	3,216.0	12,082.9	3,217.9
	Washing machines, mechanical (electric):					
36330 11	Coin-operated . . . . .	4	205.8	92.9	227.4	98.2
36330 31	Noncoin-operated . . . . .	5	6,617.3	1,814.9	6,646.7	1,828.3
36330 37	Other washing machines, including machines with built-in centrifugal drier and gasoline driven . . . . .	3	269.4	151.8	276.1	163.8
	Dryers, mechanical (incorporating heat):					
36330 51	Gas (noncoin-operated) . . . . .	5	1,098.6	283.7	1,076.0	281.0
36330 55	Electric (noncoin-operated) . . . . .	5	3,926.1	826.8	3,735.3	800.5
36330 15	Coin-operated . . . . .	4	119.9	45.8	121.5	46.0
36330 20	Parts, accessories, and attachments for household laundry equipment, sold separately . . . . .	12	(X)	200.0	(X)	<sup>r</sup> 206.3
36330 96	For household washing machines . . . . .	11	(X)	188.8	(X)	<sup>r</sup> 195.0
36330 97	For household drying machines . . . . .	5	(X)	11.2	(X)	<sup>b</sup> 11.3
36391 —	Water heaters, electric (for permanent installation) . . . . .	10	4,300.8	550.1	4,384.9	558.8
	Storage type:					
36391 11	34 gallons and under (under 132 liters) . . . . .	7	<sup>b</sup> 926.4	<sup>b</sup> 110.7	<sup>b</sup> 1,049.4	<sup>b</sup> 122.4
36391 12	35 to 44 gallons (132 liters but under 170 liters) . . . . .	7	<sup>b</sup> 1,561.4	<sup>b</sup> 188.4	<sup>b</sup> 1,556.2	<sup>b</sup> 187.1
36391 14	45 to 54 gallons (170 liters but under 208 liters) . . . . .	5	<sup>b</sup> 1,188.4	<sup>b</sup> 158.3	<sup>b</sup> 1,191.0	<sup>b</sup> 160.0
36391 15	55 gallons and over (208 liters and over) . . .	6	<sup>a</sup> 332.5	<sup>a</sup> 63.9	<sup>a</sup> 312.7	<sup>a</sup> 61.8
36391 98	Other types, including circulating and portable storage . . . . .	5	292.1	28.7	275.5	27.6

See footnotes at end of table.

Table 5. **Quantity and Value of Shipments of Major Household Appliances: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in millions of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36392 —	Major household appliances—Con.					
	Water heaters (except electric).....	11	4,798.7	753.0	4,840.9	764.6
	Direct-fired water heaters:					
36392 12	Gas <sup>2</sup> .....	9	<sup>b</sup> 4,691.4	<sup>b</sup> 732.2	<sup>b</sup> 4,732.7	<sup>b</sup> 745.3
36392 24	Oil <sup>2</sup> .....	3	(D)	(D)	(D)	(D)
36392 52	Indirect water heaters, including storage, cast or coil type (less tank); tanks (with or without generator coils); generator coils with tank collar (sold without tank); and instantaneous.....	6	107.3	20.8	<sup>r</sup> 108.2	<sup>r</sup> 19.2
36395 —	Other household type appliances and parts, n.e.c. ....	18	13,103.3	1,583.7	13,149.9	1,601.6
	Dishwashing machines:					
36395 12	Portable type, including convertible type ...	2	(D)	(D)	(D)	(D)
36395 14	Built-in type.....	3	4,209.2	974.3	4,369.0	1,011.5
36395 63	Floor-waxing, polishing, scrubbing, and shampooing machines (for household use only).....	3	(D)	(D)	(D)	(D)
36395 71	Food waste disposers (all sizes, of the electromechanical, comminutor type, operating in conjunction with household plumbing systems of the type generally used in residences).....	2	(D)	(D)	(D)	(D)
36395 72	Household trash compactors .....	2	(D)	(D)	(D)	(D)
36395 60	Other major household appliances, n.e.c. ....	2	(D)	(D)	(D)	(D)
	Parts for other household appliances, n.e.c.:					
36395 91	For electric water heaters (value only) .....	6	(X)	<sup>b</sup> 21.5	(X)	<sup>b</sup> 21.1
36395 92	For nonelectric water heaters (value only) ..	5	(X)	<sup>b</sup> 20.1	(X)	<sup>b</sup> 18.9
36395 93	For dishwashing machines (value only) ....	8	(X)	36.9	(X)	39.8
36395 97	For other major household appliances, n.e.c. (value only) .....	5	(X)	(D)	(X)	(D)

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. <sup>r</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Product code 36322 – is included with product code 36321 – to avoid disclosing data for individual companies.

<sup>2</sup>Product code 36392 24 is included with product code 36392 12 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item has been estimated. <sup>b</sup>Over 25 percent of this item has been estimated.

**Table 6. Shipments, Exports, and Imports of Major Household Appliances: 1997**

[Quantity in thousands of units. Value in millions of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3 4</sup>	
		Quantity	Value	Quantity	Value	Quantity	Value
36311 11, 17, 35, 53, 55, 61, 65	Electric ranges, ovens, and surface cooking units . . . . .	3,171.8	1,053.4	81.8	47.9	7,666.0	315.9
36311 73	Microwave ovens . . . . .	55.2	64.0	499.2	73.4	(X)	(X)
36311 20	Parts and accessories for electric ranges and ovens . . . . .	(X)	142.0	(X)	185.6	(X)	146.9
36313 11, 13, 15, 17, 19, 22, 39	Gas ranges, ovens, and surface cooking units . . . . .	767.8	269.8	120.4	45.9	1,234.4	293.1
36313 20	Parts and accessories for gas ranges and ovens and other cooking equipment . . . . .	(X)	34.1	(X)	21.3	(X)	57.9
	Other household ranges and cooking equipment, including barbecuers, grills, stoves, braziers, etc., (except gas and electric) for outdoor cooking and other cooking:						
36314 22	Gas fuel or both gas and other fuel . . . . .	5,509.3	602.0	554.0	54.2	(X)	(X)
36314 24	Solid fuel (charcoal, wood, coal, etc.) . . . . .	3,416.8	133.7	157.1	27.2	2,120.6	18.9
36314 26	Liquid fuel (oil, kerosene, etc.) . . . . .	781.8	164.8	205.4	8.6	364.4	3.1
36314 20, 28	All other outdoor cooking equipment . . . . .	138.9	138.8	61.6	8.2	166.6	2.1
	Compression type refrigerators, fitted with separate external doors, including all combinations with two or more external doors:						
36321 02	9.4 cu. ft. and under (under 269 liters) . . . . .	85.3	19.1	48.7	19.5	216.6	26.2
36321 09	9.5 to 13.4 cu. ft. (269 liters but under 382 liters) . . . . .	135.7	39.2	27.2	7.7	160.4	41.1
36321 12, 14, 19, 24-25, 28	13.5 cu. ft. and over (382 liters and over) . . . . .	8,291.9	4,286.6	794.8	469.3	287.8	91.1
	Compression type refrigerators, fitted with one external door:						
36321 63	6.4 cu. ft. and under (under 184 liters) . . . . .	734.9	118.6	49.7	22.7	1,182.7	115.9
36321 64	6.5 cu. ft. and over (184 liters and over) . . . . .	(D)	(D)	227.1	121.0	186.7	18.9
36321 80	Other household refrigerators, noncompression, fitted with one external door . . . . .	(D)	(D)	101.5	37.4	208.3	82.0
36322 05	Freezers, upright type . . . . .	(D)	(D)	71.6	33.2	99.8	24.5
36322 50	Freezers, chest type . . . . .	(D)	(D)	79.3	28.8	261.3	50.1
36330 11	Fully automatic electric washing machines (coin-operated) . . . . .	205.8	92.9	21.2	8.8	5.6	3.3
36330 31	Fully automatic electric washing machines (noncoin-operated) . . . . .	6,617.3	1,814.9	951.8	263.5	1,270.3	53.2
36330 37	Other washing machines . . . . .	269.4	151.8	36.2	16.4	122.8	1.9
36330 51, 55, 59	Dryers (noncoin-operated) and other drying equipment . . . . .	5,024.7	1,110.5	6.0	2.8	3.6	0.8
36330 15	Dryers (coin-operated) . . . . .	119.9	45.8	420.9	86.7	426.7	70.4
36391 11-12, 14-15	Water heaters, electric, storage type . . . . .	4,008.7	521.3	(NA)	(NA)	(NA)	(NA)
36391 98	Water heaters, electric, other . . . . .	292.1	28.7	(NA)	(NA)	(NA)	(NA)
36392 12, 24	Water heaters, nonelectric, direct . . . . .	4,691.4	732.2	(NA)	(NA)	(NA)	(NA)
36392 52	Water heaters, nonelectric, indirect fired, other than gas or oil . . . . .	107.3	20.8	(NA)	(NA)	(NA)	(NA)
	Other household appliances, n.e.c.:						
36395 12, 14	Dishwashing machines, household . . . . .	4,209.2	974.3	332.3	75.2	236.1	57.8
36395 63	Floor polishers . . . . .	(D)	(D)	48.9	7.0	13.2	1.8
36395 71- 72	Food waste disposals . . . . .	(D)	(D)	240.2	18.1	72.0	1.9
36395 75	Household sewing machines . . . . .	(D)	(D)	50.0	14.0	1,564.3	232.4
36395 91-93, 97	Parts for other major household appliances . . . . .	(X)	(D)	(X)	14.9	(X)	55.8

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. X Not applicable.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>4</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first point of entry into the United States.

Note: Detail may not add to totals because of rounding.

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**HISTORICAL NOTE**

Data on major household appliances have been collected by the Census Bureau since 1968. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Vera Harris-Bourne, 301-457-1604.

## CONSUMER ELECTRONICS (MA36M)

### INTRODUCTION

These data cover companies engaged in the manufacture of home-type radio receivers, television sets, phonographs, high-fidelity components, and speakers in the United States. Very small firms (generally less than five employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies are excluded.

The statistics were collected by mail on Census Bureau annual Form MA36M, Radio and Television Receivers, Phonographs, and Related Equipment. The survey panel includes all known domestic manufacturers of these products, except the very small firms excluded from the scope of the survey. Approximately 155 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments for consumer electronics was \$7.4 billion, a decrease of 7.8 percent from the 1996 value of \$8.0 billion. The 1997 figure includes automotive audio equipment, \$841.1 million; television receivers, \$4.2 billion; other consumer audio and video equipment, \$493.5 million; and loudspeakers, microphones, kits, and public address systems, \$1.9 billion.

### EXPLANATION OF TERMS

See the Introduction for an explanation of terms.

**Table 7. Value of Shipments of Consumer Electronics by Selected Products: 1988 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
36511	Consumer electronics . . . . .	7,416.9	7,986.6	8,171.9	8,024.2	7,299.8	7,324.8	6,494.5	6,567.3	6,659.3	5,774.6
36512	Automotive audio equipment (except speakers) . . .	841.1	865.6	721.9	779.8	630.5	607.6	340.2	307.4	322.0	248.2
36514	Household television receivers, including combinations . . . . .	4,185.8	4,653.3	5,144.7	5,018.4	4,777.1	4,865.4	4,562.0	4,642.6	4,737.7	3,986.2
36515	Other consumer audio and video equipment (except speakers) <sup>1</sup> . . . . .	493.5	391.8	425.1	339.1	224.9	207.2	294.5	347.4	373.4	385.4
	Speakers, microphones, and home-type electronic kits . . . . .	1,896.5	2,075.9	1,880.2	1,886.9	1,758.3	1,644.6	1,297.8	1,269.9	1,226.5	1,154.8

<sup>1</sup>Total for product class 36514 does not include product code 36799 07.

**Table 8. Quantity and Value of Shipments of Consumer Electronics: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
36511 —	Automotive audio equipment (except speakers) . . .	17	8,280,306	841,123	<sup>f</sup> 8,815,298	865,626
36511 34	AM-FM radios with tape/compact disc player combinations . . . . .	6	4,266,777	626,080	4,580,124	628,158
36511 41	Other automotive audio equipment, including equalizers and amplifiers, excluding speakers . . . . .	14	4,013,529	215,043	<sup>f</sup> 4,235,174	237,468
36512 —	Household television receivers, including combinations models . . . . .	14	11,265,264	4,185,761	11,439,557	4,653,300
36512 31	Projection television . . . . .	10	<sup>a</sup> 824,889	<sup>a</sup> 1,039,970	886,672	1,307,827
	Other CRT-based color television:					
36512 41	50 cm (19.7 inches) and under . . . . .	4	1,440,263	244,963	1,191,740	222,235
36512 51	Over 50 cm (19.7 inches) . . . . .	9	9,000,112	2,900,828	9,361,145	3,123,238
36512 61	Other household television receivers . . . . .	-	-	-	-	-
36514 —	Other consumer audio and video equipment (except speakers) <sup>1</sup> . . . . .	64	1,980,572	493,456	1,684,020	391,783
36514 61	Compact and video disc players <sup>2</sup> . . . . .	7	(D)	(D)	(D)	(D)
36514 78	Power amplifiers, including preamplifiers . . . . .	34	<sup>b</sup> 276,253	<sup>b</sup> 107,947	323,214	115,050
36514 81	Receivers, tuners, and other consumer audio equipment incorporating radio reception <sup>2</sup> . . . . .	6	(D)	(D)	(D)	(D)
36799 07	Earphones, headsets, and phonograph cartridges, pickups, needles, and styli . . . . .	14	(X)	43,473	(X)	<sup>c</sup> 65,678
36514 67	Equalizers . . . . .	11	24,637	7,372	29,029	<sup>f</sup> 8,224
36514 83	Other consumer audio and video equipment (except speakers) <sup>2</sup> . . . . .	31	1,679,682	<sup>a</sup> 378,137	1,331,777	<sup>a</sup> 268,509
36515 —	Speakers, microphones, and home-type electronic kits . . . . .	101	74,458,363	1,896,462	82,360,728	2,075,901
36515 51	Single loudspeakers mounted in an enclosure . . . . .	32	<sup>a</sup> 2,232,924	<sup>a</sup> 199,046	<sup>a</sup> 2,899,984	<sup>a</sup> 259,496
36515 52	Multiple loudspeakers mounted in an enclosure . . . . .	48	<sup>a</sup> 6,124,485	<sup>a</sup> 626,252	8,410,889	771,643
36515 53	Other loudspeakers, including unmounted speakers sold separately . . . . .	44	<sup>a</sup> 61,491,616	<sup>a</sup> 715,751	66,709,245	712,322
36515 55	Microphones . . . . .	16	<sup>a</sup> 3,571,348	186,531	3,349,102	171,884
36515 67	Home-type electronic kits designed for consumer assembly <sup>3</sup> . . . . .	1	(D)	(D)	(D)	(D)
36515 94	Public address systems, including musical instrument amplifiers <sup>3</sup> . . . . .	23	<sup>a</sup> 1,037,990	<sup>a</sup> 168,882	991,508	<sup>f</sup> 160,556

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>f</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Total for product class 36514 does not include product code 36799 07.

<sup>2</sup>Product codes 36514 61 and 36514 81 are included with product code 36514 83 to avoid disclosing data for individual companies.

<sup>3</sup>Product code 36515 67 is included with product code 36515 94 to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item has been estimated. <sup>b</sup>25 to 50 percent of this item has been estimated. <sup>c</sup>Over 50 percent of the item has been estimated.



**Table 9. Shipments, Exports, and Imports of Consumer Audio and Video Electronics: 1997**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>2</sup>	
		Quantity	Value f.o.b. plant	Quantity	Value at port	Quantity	Value <sup>3</sup>
36511 34, 41	Automotive audio equipment . . . . .	8,280,306	841,123	4,278,970	494,111	2,977,166	254,781
36512 31, 41, 51, 61	Household television receivers . . . . .	11,265,264	4,185,761	1,264,694	410,482	23,924,306	3,522,082
36514 61, 78, 81, 67, 83	Coin-operated audio equipment, power amplifiers, audio tape recorders and players, compact and video disc players, equalizers, and other consumer audio and video equipment (except speakers) . . . . .	1,980,572	493,456	5,460,154	804,371	43,463,750	2,290,606
36515 51	Single loudspeakers mounted in an enclosure . . . . .	<sup>a</sup> 2,232,924	<sup>a</sup> 199,046	6,962,389	186,276	541,540	203,157
36515 52	Multiple loudspeakers mounted in an enclosure . . . . .	<sup>a</sup> 6,124,485	<sup>a</sup> 626,252	1,988,277	1,181,355	44,428,875	270,640
36515 53	Other loudspeakers . . . . .	<sup>a</sup> 61,491,616	<sup>a</sup> 715,751	19,656,543	261,257	10,986,669	332,751
36515 55	Microphones . . . . .	<sup>a</sup> 3,571,348	<sup>a</sup> 186,531	(X)	66,769	75,297,416	307,665
36515 67, 94	Home-type electronic kits designed for consumer assembly and public address systems, including musical instrument amplifiers . . . . .	<sup>a</sup> 1,037,990	<sup>a</sup> 168,882	1,908,385	137,987	69,803,770	311,005
36799 07	Earphones, headsets, and phonograph cartridges, pickups, needles, and styli . . . . .	(X)	43,473	3,370,495	63,337	3,467,239	417,895

X Not applicable.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first point of entry into the United States plus U.S. import duties.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item has been estimated.

**HISTORICAL NOTE**

Data on radio and television receivers, phonographs, and related equipment have been collected by the Census Bureau since 1952. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Cynthia Ramsey, 301-457-4823.

# Chapter 9. Industrial Equipment

## STEEL SHIPPING DRUMS AND PAILS (MA34K)

### INTRODUCTION

These data cover all companies engaged in the manufacture of steel shipping drums and pails. The reconditioning of containers is excluded.

The statistics were collected by mail on Census Bureau annual Form MA34K, Steel Shipping Drums and Pails. The survey panel includes all known producers of steel shipping drums and pails, approximately 40 companies.

### SUMMARY OF FINDINGS

During 1997, the value of shipments of steel pails totaled \$197.6 million, down 1.5 percent from the 1996 value of \$200.7 million. Shipments of steel drums decreased by 4.7 percent, from \$706.1 million in 1996 to \$672.7 million in 1997.

### EXPLANATION OF TERMS

**Steel pails.** Single-walled shipping containers having capacities of 12 gallons or less, in both cylindrical and tapered form, constructed of steel sheet of 29 gauge or heavier. Included are pails constructed with open tops as well as closed tops, flat and dome tops, tapered and straight sides, and lock and welded side seams.

**Steel shipping drums.** Single-walled cylindrical or bilged shipping containers, including overpacks for plastics containers, with a capacity greater than 7 gallons, and constructed of steel sheet 12 gauge and lighter.

Table 1. **Summary of Producers' Shipments of Steel Pails and Drums: 1988 to 1997**

[Quantity in thousands of units. Value in thousands of dollars]

Year	Steel pails		Steel drums	
	Quantity	Value	Quantity	Value
1997.....	63,142	197,635	32,771	672,727
1996.....	60,443	200,681	34,334	706,084
1995.....	71,896	162,992	33,279	685,499
1994.....	86,478	208,406	34,857	681,972
1993.....	85,899	202,460	33,474	672,948
1992.....	76,794	178,850	33,336	632,616
1991.....	72,645	180,408	33,970	668,692
1990.....	75,242	195,669	36,388	701,615
1989.....	80,693	205,834	35,966	667,024
1988.....	78,018	188,817	37,336	675,923

**Table 2. Total Shipments of Steel Pails and Drums: 1997 and 1996**

[Quantity in thousands of units. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Number of companies	Quantity	Value
<b>1997</b>				
	Steel pails .....	16	63,142	197,635
	11 1/4-inch diameter .....	(NA)	60,047	185,431
34121 01	Full removable head .....	10	46,541	141,696
34121 06	Tight head (standard and dome top) .....	8	13,506	43,735
34121 13	All other diameters .....	10	3,095	12,204
	Steel drums and barrels .....	24	32,771	672,727
34122 21	Under 30 gallon capacity, all thicknesses .....	12	3,772	39,917
34122 26	30 to 49 gallon capacity, all thicknesses .....	14	1,818	32,731
	50 gallon capacity and over .....	(NA)	27,181	600,079
	0.04 inch (1.01 mm) body thickness and over .....	(NA)	12,857	299,052
34122 05	Tight head .....	20	8,632	186,313
34122 07	Open head .....	22	4,225	112,739
	Under 0.04 inch (1.01 mm) body thickness .....	(NA)	14,324	301,027
34122 46	Tight head .....	20	10,818	218,156
34122 51	Open head .....	20	3,506	82,871
<b>1996</b>				
	Steel pails .....	16	60,443	200,681
	11 1/4-inch diameter .....	(NA)	57,924	187,114
34121 01	Full removable head .....	10	46,512	151,643
34121 06	Tight head (standard and dome top) .....	7	11,412	35,471
34121 11	14-inch diameter .....	6	<sup>a</sup> 777	6,365
34121 13	All other diameters .....	7	1,742	7,202
	Steel drums and barrels .....	28	34,334	706,084
	14-inch diameter, all gauges .....	(NA)	2,209	23,547
34122 01	Tight head .....	6	281	4,018
34122 03	Open head, full or partial .....	9	<sup>a</sup> 1,928	<sup>a</sup> 19,529
	All other (except 14-inch diameter) .....	(NA)	32,124	682,537
	20 gauge and heavier .....	(NA)	29,062	637,462
	50 gallon and larger, 18 gauge and heavier .....	(NA)	12,008	286,904
34122 05	Tight head .....	23	7,289	164,442
34122 07	Open head .....	25	4,719	122,462
	50 gallon and larger, 19 and 20 gauge, including 20/18 .....	(NA)	15,918	329,324
34122 09	Tight head .....	23	12,532	252,368
34122 11	Open head .....	23	3,386	76,956
34122 13	30 to 49 gallon .....	14	727	14,291
34122 15	Under 30 gallon .....	8	409	6,943
	Lighter than 20 gauge <sup>2</sup> .....	12	<sup>a</sup> 3,062	<sup>a</sup> 45,075

NA Not available.

<sup>1</sup>Descriptions of product codes were changed for 1997, because of consultation with the Steel Shipping Container Institute.

<sup>2</sup>Product code 34122 17, "30 gallon and larger," and product code 34122 19, "Under 30 gallon," were combined to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated.

Table 3. **Shipments, Exports, Imports, and Apparent Consumption of Steel Shipping Pails and Drums: 1997 and 1996**

[Value in thousands of dollars]

Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) <sup>1</sup>	Imports for consumption (value) <sup>2 3</sup>	Apparent consumption <sup>4</sup>
Steel shipping pails:				
1996.....	197,635	86,069	69,155	180,721
1995.....	200,681	77,410	51,864	175,135
Steel shipping drums and barrels:				
1996.....	672,727	26,888	25,153	670,992
1995.....	706,084	22,427	30,004	713,661

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>4</sup>Apparent consumption is derived by subtracting exports from manufacturers' shipments plus imports.

### HISTORICAL NOTE

Data on steel shipping drums and pails have been collected by the Census Bureau since 1924. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local

Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

### CONTACT FOR DATA USERS

For additional information about these data, contact Larry Blumberg, 301-457-4744.

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## SELECTED INDUSTRIAL AIR POLLUTION CONTROL EQUIPMENT (MA35J)

### INTRODUCTION

These data cover firms engaged in the manufacture of selected industrial air pollution control equipment. The statistics in this publication were collected by mail on Census Bureau annual Form MA35J, Selected Air Pollution Control Equipment. The survey panel includes all known manufacturers of the selected products specifically designed for use in air pollution control, approximately 120 companies.

### SUMMARY OF FINDINGS

Shipments (and onsite construction in certain instances) of industrial air pollution devices in 1997 totaled \$722.5 million, of which \$497.4 million were particulate emissions collectors, \$194.0 million were gaseous emissions control devices, and \$31.0 million were other types of air pollution control equipment. Shipments increased by 2 percent from the 1996 level of \$709.7 million.

New orders decreased by 21 percent in 1997 to \$652.0 million. Backlog of orders decreased by 17 percent in 1997 to \$342.1 million.

### EXPLANATION OF TERMS

**Net new orders (bookings).** Orders received during the year minus all cancellations received during the same year. Net new orders are defined to include: (a) the sales value of orders accepted during the reporting period for products and services to be delivered at some future date; (b) plus the sales value of orders received during the reporting period for immediate delivery; (c) plus or minus the net sales value of contract change documents that increase or decrease (or equal) the sales values of previous orders when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those orders that are supported by binding legal documents such as signed contracts, letters or awards, or letters of intent. In the case of letters of intent, the full amount of sales value is included if the parties concerned were in substantial agreement on this amount; otherwise, only the funds specially authorized to be expanded are included. Orders received and canceled during the year are excluded.

**Backlog of orders.** All orders that have not yet been reflected as shipments. Generally, unfilled orders at the end of the reporting period are equal to unfilled orders at the end of the prior period, plus net new orders received, less net shipments.

### Particulate Emissions Collectors

*Electrostatic precipitator.* A device that separates aerosol particulate matter (solid or liquid) from industrial gases by imparting an electric charge to the particles and removing them from the gas stream with the force created by an electric field.

*Fabrics filter.* A device in which the dustbearing gas is passed through fabrics in such a manner that the dust particles are retained on the upstream or "dirty" gas side of the fabrics, while the cleaned gas passes through the fabrics to the downstream or "clean" gas side, where it is removed by natural and/or mechanical means. The fabrics may be of any fibrous material, natural or manmade.

*Mechanical collector.* A device for the separation in a dry state of entrained particulate material from a gas stream by the application of one or a combination of the following forces: centrifugal, inertial, and gravitational.

*Wet scrubber.* A device for the removal of particulate contaminants from a gas stream by means of intimate contact with scrubbing liquid. (If water is added in any form, it is considered a scrubber, except in the cases of wetted wall electronic precipitators and those devices which are primarily mechanical collectors.)

### Gaseous Emissions Control Devices

*Catalytic oxidation system.* A device for the removal of combustible air contaminants in which the contaminant-laden stream is preheated by a suitable heating mechanism. The contaminant-laden stream is then passed through a catalyst bed that initiates and promotes oxidation of the combustible contaminants to carbon dioxide, water vapor, and other compounds less noxious than those originally in the gas stream.

*Thermal oxidation system.* A device for the correction of combustible air contaminants in which the contaminant-laden gas stream is passed over a burner or other suitable preheat device(s) to a thermal residence chamber where the contaminant materials are oxidized to carbon dioxide, water vapor, and other materials less noxious than those originally in the gas stream.

*Direct oxidation system.* A device for the destruction of concentrated combustible or oxidant streams in which the air contaminant is reacted directly with a fuel or with oxidizing air in a burner flame, and the products of combustion are exhausted into the atmosphere directly or through a suitable incineration chamber and stack.

*Scrubber (gas absorber).* A device for the removal of soluble or reactive gaseous material from gas streams by contacting the stream with water, aqueous chemical solution, or other scrubbing liquids. The process involves a chemical reaction.

*Flue gas desulfurization systems (FGD).* Chemical process plants designed primarily for the removal of sulfur oxides from gaseous products of combustion emitted to the atmosphere from the use of fossil fuels, in boilers or other

combustion devices operated for the generation of thermal or combustion devices operated for the generation of thermal or electric energy. The system extends from gas inlet to gas discharge, including all required auxiliaries and controls.

*Gas adsorber.* A device for the removal of air contaminants by adsorption on a surface-active solid such as activated carbon or molecular sieves. Depending on the application, the adsorbent is either discarded or regenerated.

**Table 4. New Orders, Shipments, and Backlog of Orders for Selected Industrial Air Pollution Control Equipment: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	New orders		Shipments		Backlog of orders, December 31	
			Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>								
	Selected industrial air pollution control equipment . . . . .	108	91,460	651,953	88,677	722,485	12,583	342,075
	Particulate emissions collectors . . . . .	88	79,000	498,953	76,199	497,447	11,982	181,807
35646 51	Electrostatic precipitators . . . . .	16	(D)	91,295	(D)	110,978	(D)	58,784
35646 54	Fabrics filters . . . . .	52	60,704	282,797	57,662	266,870	10,333	70,145
35646 55	Mechanical collectors . . . . .	36	(D)	77,127	(D)	62,014	(D)	35,378
35646 58	Wet scrubbers . . . . .	27	1,244	47,734	1,249	57,585	221	17,500
	Gaseous emissions control devices . . . . .	41	993	121,947	978	194,020	297	152,347
35646 70	Catalytic oxidation systems . . . . .	12	(D)	(D)	185	34,373	(D)	(D)
35646 71	Nitric oxide (NO) control systems . . . . .	3	(D)	(D)	(D)	(D)	(D)	(D)
35646 72	Thermal and direct oxidation systems . . . . .	17	250	47,968	235	40,890	63	18,894
35646 73	Scrubbers (gas absorber, non-FGD) . . . . .	14	503	26,082	470	23,140	139	9,269
35646 74	Wet flue gas desulfurization systems . . . . .	4	17	(S)	(D)	(D)	(D)	(D)
35646 75	Dry flue gas desulfurization systems . . . . .	4	(D)	(D)	(D)	4,884	(D)	(D)
35646 76	Gas adsorbers . . . . .	7	20	5,167	35	9,900	(D)	(D)
35646 79	Other types of industrial air pollution control equipment . . . . .	15	11,467	31,053	11,500	31,018	304	7,921
<b>1996</b>								
	Selected industrial air pollution control equipment . . . . .	112	83,940	827,911	83,553	709,650	9,800	412,607
	Particulate emissions collectors . . . . .	90	74,538	495,990	74,154	518,469	9,181	180,301
35646 51	Electrostatic precipitators . . . . .	15	(D)	108,430	(D)	118,512	(D)	78,467
35646 54	Fabrics filters . . . . .	53	56,240	280,852	55,510	286,828	7,291	54,218
35646 55	Mechanical collectors . . . . .	38	(D)	57,330	(D)	63,500	(D)	20,265
35646 58	Wet scrubbers . . . . .	29	1,205	49,378	1,240	49,629	226	27,351
	Gaseous emissions control devices . . . . .	39	1,070	312,511	1,020	166,624	282	224,420
35646 70	Catalytic oxidation systems . . . . .	11	196	44,458	189	19,943	50	37,289
35646 71	Nitric oxide (NO) control systems . . . . .	3	(D)	(D)	(D)	(D)	(D)	(D)
35646 72	Thermal and direct oxidation systems . . . . .	17	253	67,127	246	67,065	48	11,816
35646 73	Scrubbers (gas absorber, non-FGD) . . . . .	10	516	29,173	525	26,661	106	6,327
35646 74	Wet flue gas desulfurization systems . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)
35646 75	Dry flue gas desulfurization systems . . . . .	4	(D)	(D)	9	4,884	(D)	(D)
35646 76	Gas adsorbers . . . . .	8	(D)	(D)	43	24,487	(D)	(D)
35646 79	Other types of industrial air pollution control equipment . . . . .	18	8,332	19,410	8,375	24,557	337	7,886

D Withheld to avoid disclosing data for individual companies. FGD Flue gas desulfurization. <sup>†</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards.

**Table 5. Value of Shipments of Selected Air Pollution Control Equipment by End Use: 1997 and 1996**

[Thousands of dollars]

Product description	Particulate emissions collectors		Gaseous emissions control devices		Other types of industrial air pollution control equipment	
	1997	1996	1997	1996	1997	1996
<b>Shipments</b> .....	<b>497,447</b>	<b>518,469</b>	<b>194,020</b>	<b>166,624</b>	<b>31,018</b>	<b>24,557</b>
Steam electric utility power plants <sup>1</sup> .....	28,801	26,542	(D)	21,172	(D)	(D)
Steam industrial power plants <sup>2</sup> .....	(D)	3,366	(D)	(D)	(D)	(D)
Coal mining and cleaning <sup>2</sup> .....	(D)	888	(S)	(D)	(S)	(S)
Petroleum refining <sup>1 3</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)
Foundries .....	2,970	<sup>†</sup> 2,694	(S)	(D)	(D)	(D)
Iron and steel mills .....	9,993	(D)	(D)	(D)	(D)	(D)
Primary nonferrous metal smelting plants .....	4,011	<sup>†</sup> 5,064	(D)	(D)	(D)	(D)
Chemical and fertilizer production .....	51,599	38,950	15,623	11,562	(D)	(D)
Cement manufacturing .....	6,216	<sup>†</sup> 2,594	(S)	(S)	(D)	(D)
Grain milling and handling .....	2,915	2,899	(S)	(D)	(D)	(D)
Pulp and paper mill operations .....	32,485	31,151	(D)	(D)	(D)	(D)
Municipal waste combusters <sup>3</sup> .....	(D)	1,932	(D)	7,148	(S)	(S)
Other end use industries .....	175,074	<sup>†</sup> 172,992	54,205	<sup>†</sup> 57,705	12,590	12,590
End use not specified .....	155,958	<sup>†</sup> 176,148	35,088	60,009	14,473	5,587

D Withheld to avoid disclosing data for individual companies.      <sup>†</sup>Revised by 5 percent or more from previously published data.      S Does not meet publication standards.

<sup>1</sup>"Steam electric utility power plants" and "Petroleum refining" sum to 61,372 for "Gaseous emissions control devices" for 1997.

<sup>2</sup>"Steam industrial power plants" and "Coal mining and cleaning" sum to 2,468 for "Particulate emissions collectors" for 1997.

<sup>3</sup>"Petroleum refining" and "Municipal waste combusters" sum to 24,957 for "Particulate emissions collectors" for 1997.

**HISTORICAL NOTE**

Data on selected air pollution control equipment have been collected by the Census Bureau since 1971. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library.

Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Keeley Voor, 301-457-4746.

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## AIR-CONDITIONING AND REFRIGERATION EQUIPMENT (MA35M)

### INTRODUCTION

The data in this subsection cover firms engaged in the manufacture of refrigeration, air-conditioning equipment, and nonelectric warm air furnaces. The statistics in this publication were collected by mail on Census Bureau annual Form MA35M, Refrigeration and Air-Conditioning Equipment, Including Warm Air Furnaces. The survey panel includes all known producers of these products, approximately 267 companies.

### SUMMARY OF FINDINGS

In 1997, the value of shipments of heat transfer equipment increased by 1 percent to \$4,280.2 million, compared with the 1996 figure of \$4,267.1 million. The value of shipments of condensing units, refrigeration (complete), decreased by 7 percent to \$292.1 million, from the 1996 level of \$314.9 million. Room air-conditioners showed a decrease of 32 percent in 1997 with \$1,020.2 million shipped, compared with the \$1,495.6 million shipped in 1996. The value of shipments of motor vehicle mechanical air-conditioning systems increased by 21 percent to \$2,208.0 million, compared with the 1996 figures of \$1,818.5 million. Compressors and compressor units decreased by 14 percent to \$3,091.6 million, compared with \$3,584.5 million in 1996. Automotive air-conditioning compressors showed an increase of 11 percent in 1997 with \$1,652.4 million shipped, compared with the \$1,491.6 million shipped in 1996. Nonelectric warm air furnaces and humidifiers had a value of shipments for 1997 of \$1,562.4 million, a 7-percent decrease from the 1996 value of \$1,679.0 million. Unitary air-conditioners decreased by 1 percent to \$4,625.2 million, from the 1996 level of \$4,670.9. The value of shipments of air source heat pumps decreased by 6 percent to \$1,045.9 million, compared with the 1996 figures of \$1,114.3.

### EXPLANATION OF TERMS

**Open-type condensing unit.** A specific refrigerating combination for a given refrigerant, consisting of a compressor with an extended shaft for an external drive, a condenser, a liquid receiver (when required), and regularly furnished accessories. Includes units for household refrigerators and freezers.

**Hermetic-type condensing unit.** A specific refrigerating combination for a given refrigerant, consisting of a compressor and a motor, both of which are enclosed in the same housing, with no external shaft or shaft seal; the compressor motor operating in the refrigerant atmosphere; a condenser; a liquid receiver (when required); and

the regularly furnished accessories. The compressor and compressor motor housing may be either the fully welded or brazed type, or the service-sealed type. Includes units for household refrigerators and freezers.

**Hermetic-type motor compressors.** Consists of a mechanical compressor and motor, both of which are enclosed in the same housing, with no external shafts or shaft seals, a motor that operates in the refrigerant atmosphere, and that uses a refrigerant other than ammonia. Includes units for household refrigerators and freezers.

**Open-type compressors.** An open-type compressor (with or without motor) is a specific machine for compressing a given refrigerant vapor. This machine consists of a compressor with an extended shaft for an external drive. Includes units for household refrigerators and freezers.

**Ammonia compressor.** A compressor in which increase in ammonia vapor is attained by changing the internal volume of the compression chamber.

### Heat Transfer Equipment

**Evaporative condensers.** Consists of a condensing coil, spray system and pump (if furnished), a means for air circulation (including drive if furnished), and frame and enclosure.

**Room fan-coil air-conditioning units.** Units that are factory-made assemblies providing the functions of circulation, cooling, or heating, and filtering of air, but not including the source of cooling or heating.

**Room air-induction units.** Consists of a cooling coil, or cooling and heating coil, and means for delivering pre-conditioned air (received under pressure from an external source, mixed with recirculated air) to the space being conditioned.

**Packaged terminal air-conditioners.** Factory selected combinations of heating and cooling components or assemblies, intended to serve an individual room, and comprising: (1) heating assembly available with elements for use with hot water, steam, and electricity; means for forced heated air circulation and distribution; integral or remote temperature controls; (2) slide-in cooling section with complete refrigerant cycle; (3) room cabinet; (4) provision for outdoor air intake and discharge and accessories as required for mounting in a building wall; (5) provisions for air filtration and ventilation; (6) permanent individual branch circuit wiring with a suitable line cord or terminating at a junction box with the room cabinet; and (7) provisions for free conditioned air distribution or, when forced circulation is employed for minimal duct work, have a total external static resistance not exceeding 1/10 inch of water.



*Packaged terminal heat pumps.* Packaged terminal heat pumps are a separate unencased refrigeration system installed in a cabinet of similar function and configuration to that of a packaged terminal air-conditioner. It utilizes reverse cycle refrigeration as its prime heat source and should have other supplementary heat source availability.

*Unit coolers, refrigeration, all types.* Equipment in suitable enclosures with refrigerant or brine coils, fans, fan motor and drive; with or without refrigerant control; with or without sprays, pump, and defroster. This unit is also known as a forced air evaporator.

*Air-cooled refrigerant condensers, remote-type.* Condensing coil, a means for air circulation (including drive if furnished, frame, and enclosure).

### **Miscellaneous Heat Transfer Equipment**

#### **Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube condensers**

*General.* A water-cooled refrigerant condenser is a factory-made assembly of elements by which the flows of refrigerant vapor and water are maintained in such a heat transfer relationship that the refrigerant vapor is condensed into a liquid.

*Shell-and-tube refrigerant condenser.* One in which the refrigerant vapor is condensed either on the inside or on the outside of a group of straight parallel tubes within a closed shell, with the tubes terminating at each end in a tube sheet.

*Shell-and-u-tube refrigerant condenser.* One in which the refrigerant vapor is condensed in a closed shell, with the cooling water circulated through a tube bundle consisting of U-tubes terminating in a single tube sheet.

*Tube-in-tube refrigerant condenser.* One or more assemblies of two tubes, one within the other, in which the refrigerant vapor is condensed either in the annular space or in the inner tube.

*Shell-and-coil refrigerant condenser.* One in which the refrigerant vapor is condensed in a closed shell, with the cooling water circulated through one or more continuous or assembled coils contained within the shell.

#### **Shell-and-tube, shell-and-coil, and shell-and-u-tube liquid coolers**

*General.* A factory-made assembly of elements in which the liquid and the refrigerant are in heat transfer relationship, causing the refrigerant to evaporate and the liquid to be cooled.

*Shell-and-tube liquid cooler.* Heat transfer is effected through a group of straight parallel tubes within a closed shell, with the tubes terminating at both ends of the cooler.

*Shell-and-u-tube liquid cooler.* Heat transfer is effected through a U-tube bundle in a closed shell; the U-tubes terminate at one end of the cooler.

*Tube-in-tube liquid cooler.* One or more assemblies of two tubes, one within the other, in which the heat transfer is effected through the inner tube or tubes.

*Shell-and-coil liquid cooler.* Heat transfer is effected through one or more continuous or assembled coils contained within a closed shell.

*Liquid-suction heat exchanger.* A device used to transfer heat from the refrigerant liquid to the suction gas. Such devices may be of the following types: shell-and-coil, tube-in-tube, finned-tube-in-tube, etc.

*Refrigerant liquid receiver.* A vessel, permanently connected to a refrigerant system by inlet and outlet pipes, for storage of a liquid refrigerant.

*Central system finned coils, air-conditioning and refrigeration type, used with, but not including, means for air circulation.* One or two row coils are considered as "heating only" coils. Three or more row coils are considered as "cooling and/or heating" coils.

*Original equipment manufactures (OEM) coil sales intended for resale or assembly into equipment by other manufacturers (all types).* Includes shipments of coils to private branders and OEM accounts, as well as those finned coils that are intended for resale or for assembly into equipment by other manufacturers.

*Factory-assembled, refrigeration-type, finned gravity coils.* Includes all types of (1) flat or shaped plate surface type heat exchangers for use with volatile refrigerants, eutectic solutions, or brine and (2) extended surface heat exchangers consisting of tube or pipe prime surface and finned secondary surface, generally used for refrigeration in either frosted or not frosted operation, and usually without forced circulation of the substance being refrigerated. These include bunker and gravity-type evaporators.

*Wetted-surface dehumidifiers.* Consists of a suitable enclosure containing cooling coils or means for liquid spray over the cooling coils and tank but without means for air circulation provided as an integral part of the unit. The unit may include a recirculating water pump, eliminator plates, and inlet deflectors.

#### **Packaged unitary air-conditioning equipment, except room air-conditioners**

*Year-round air-conditioners, single package.* Factory-made assemblies of one or more condensing units or absorption refrigeration units, heat-generating units (such as electric, gas, or oil-fired furnace), and means for air-cooling, dehumidifying, heating, cleaning, and forced circulation of air through a duct system, which may also have a means for humidifying and controlling temperature.

*Year-round air-conditioners, remote-condenser type.* All units that have the condenser located remotely from the equipment described previously.

*Air source heat pumps.* A heat pump that transfers heat from outdoor air to an indoor air circulation system.

*Heat pumps, single package.* Factory-made assemblies of one or more condensing units and evaporators and with the means for air circulation, ventilation, and cleaning, with provision for modifying the performance so that either heating, or cooling and dehumidification may be produced.

*Heat pumps, split systems.* All units that have the coil located remotely from the equipment described previously.

*Water source heat pump.* A factory-made assembly that normally includes an indoor conditioning coil with air moving means, compressor(s) and refrigerant-to-water heat exchanger(s), including the means to provide both cooling and heating functions. When such equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together, and the rating requirements outlined in the standard are based upon the use of matched assemblies.

*Split system air-conditioning units (air-conditioning condensing units only).* Units assembled in factory-made enclosures and consisting of a motor-driven compressor, a condenser, and possibly a liquid receiver.

*Recreational vehicle air-conditioning units.* Designed for application to a recreational vehicle, as defined in American National Standard for Recreational Vehicles (American National Standards Institute Standard A119.2) (NFPA 501C), and consisting of one or more factory-made assemblies that normally include an evaporator or cooling coil, and a compressor and condenser combination. These air-conditioning units may include a heating function as well. Where such equipment is provided in more than one assembly, the separated assemblies shall have been designed to be used together, and the requirements of rating outlined in this standard are based upon the use of matched assemblies.

*Split system air-conditioning coil with blower.* Factory-made assemblies of a coil (supplied with cooling media from an external source), without means for air circulation, and those that may have provision for the introduction of outside air.

*Split system air-conditioning coil without blower.* Factory-made assemblies that include only a coil (supplied with cooling media from an external source), without circulating fan, for use with heating equipment incorporating a fan.

## **Other Air-Conditioning and Refrigeration Equipment**

*Centrifugal liquid-chilling packages.* Factory-made assemblies of one or more centrifugal or screw compressors, condensers, liquid coolers, controls, component parts, with motor compressor (if hermetic), or without drive or prime mover (if open). The hermetic centrifugal horsepower should be the maximum brake horsepower for which the motor is rated. The open centrifugal horsepower should be the maximum brake horsepower for which the motor or turbine drive, to which the machine is intended to be connected, is rated.

*Ice-making machine.* A factory-made assembly (not necessarily shipped in one package) consisting of a condensing unit and ice-making section operating as an integrated unit, with means for making and harvesting ice. It may also include means for storing or dispensing ice, or both.

*Self-contained ice-making machine.* A model in which the ice-making mechanisms and storage compartment are in an integral cabinet.

*Absorption liquid-chilling systems.* Those systems of 25 tons and over that cool and dehumidify the air by means of cold contact surface, in the same manner as a compression system. (This is the closed-type absorption system.)

*Absorption systems.* A system utilizing the process by which gas is taken up by the capillaries and extended surface of a porous material.

*Open-type absorption systems.* A system that dehumidifies by bringing the air into direct contact with the absorbent.

*Central station air-handling unit.* A factory-made, encased assembly consisting of a fan or fans and the other necessary equipment to perform one or more of the functions of circulating, cleaning, heating, cooling, humidifying, dehumidifying, and mixing of air, but that does not include a source of heating or cooling.

*Factory fabricated water-cooling towers.* Towers that are prefabricated by the manufacturers, and shipped either as a factory-assembled section (i.e., cell) or as major components (e.g., casing, fan, and precut fill) for assembly at the site of the installation.

*Mobile vehicle refrigeration and air-conditioning systems.* An assembly of refrigeration compressor apparatus with suitable power source for use when the vehicle is in motion or not in motion; means for air-cooling and dehumidification; means for air circulation, ventilation, and air-cleaning; interconnecting refrigerant piping; and refrigerant and temperature control apparatus, for mounting on the vehicle. The system may or may not have provision for heating.

*Reciprocating liquid-chilling packages.* Factory-made assemblies of one or more reciprocating compressors, condensers, and water or brine coolers, with interconnections, base, and accessories. These assemblies may be furnished with or without refrigerant, drive, and prime mover.

**Mechanical drinking water cooler.** A factory-made assembly, in one structure, that includes a complete mechanical refrigerating system, and that has the primary function of cooling potable water, and also provides for dispensing such water, by either integral or remote means, or both.

**Electrically operated dehumidifiers, mechanically refrigerated, self-contained.** A factory-made assembly of a condensing unit and means for air circulation, dehumidification, and condensate collection.

**Nonelectric warm air furnace.** A device for the transfer of heat, generated by the combustion of fuel within the

device, or by radiation from an electric heating element, to air that flows between the combustion chamber and an outer enclosure to pipes or ducts that carry the heat to the desired location. In a gravity air flow furnace, the warm air rises by gravity. In a forced air furnace, the warm air is circulated by a motor-driven blower.

**Humidifiers.** Furnace of duct-mounted device installed in the supply or return-air plenum of a residential warm air furnace or in a supply or return air duct of a warm air heating system.

Table 6. **Summary of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description	1997	1996
35851 —	Heat transfer equipment .....	4,280,235	<sup>†</sup> 4,267,113
35853 pt.	Commercial refrigeration equipment .....	235,357	219,586
35855 —	Condensing units, refrigeration (complete) .....	292,065	314,882
35856 —	Room air-conditioners and dehumidifiers .....	1,020,171	1,495,609
35857 —	Motor vehicle mechanical air-conditioning systems <sup>1</sup> .....	2,208,011	1,818,533
3585A —	Compressors and compressor units .....	3,091,592	<sup>†</sup> 3,584,521
3585B —	Automotive air-conditioning compressors <sup>1</sup> .....	1,652,395	1,491,573
3585C pt.	Nonelectric warm air furnaces and humidifiers <sup>1</sup> .....	1,562,442	1,678,999
3585E —	Unitary air conditioners .....	4,625,239	<sup>†</sup> 4,670,915
3585F —	Air source heat pumps <sup>1</sup> .....	1,045,880	1,114,276
3585G —	Ground and ground water source heat pumps <sup>2</sup> .....	(D)	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available. pt. Part. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Data for this product is collected separately in 1997.

<sup>2</sup>New product code for 1997.

**Table 7. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35851 —	Heat transfer equipment (except room and unitary air-conditioners) . . . . .	123	(X)	4,280,235	(X)	<sup>1</sup> 4,267,113
35851 01	Packaged terminal air-conditioners <sup>1</sup> . . . . .	8	167,761	93,396	151,089	84,204
35851 03	Packaged terminal heat pumps . . . . .	9	130,736	70,143	112,549	60,848
	Evaporative condensers . . . . .	(X)	2,234	53,606	2,306	54,033
35851 04	100 tons and under . . . . .	7	496	4,149	510	4,495
35851 07	Over 100 tons . . . . .	7	1,738	49,457	1,796	49,538
	Room fan-coil air-conditioning units . . . . .	(X)	278,157	165,812	263,404	145,069
35851 08	Vertical stack . . . . .	5	13,962	9,565	18,319	13,078
35851 09	Vertical . . . . .	10	127,203	86,621	120,021	75,567
35851 10	Horizontal . . . . .	10	136,992	69,626	125,064	56,424
35851 11	Room air induction units . . . . .	3	(D)	(D)	(D)	(D)
	Central station air-handling units (motor-driven fan type) . . . . .	(X)	357,388	568,082	340,865	528,329
35851 13	Draw through . . . . .	22	332,001	487,744	317,418	447,212
35851 15	Blow through . . . . .	10	9,114	54,455	8,451	52,712
35851 17	Heating and ventilating . . . . .	13	16,273	25,883	14,996	<sup>1</sup> 28,405
	<b>Coolers (refrigeration):</b>					
	Ceiling, wall-mounted, and floor-mounted unit coolers . . . . .	(X)	208,816	154,818	207,797	154,391
35851 16	4,000 Btuh and under . . . . .	10	59,015	12,303	59,611	11,690
35851 21	4,001 to 6,000 Btuh . . . . .	8	10,509	3,536	11,517	3,514
35851 22	6,001 to 8,000 Btuh . . . . .	7	20,665	7,861	20,070	7,024
35851 23	8,001 to 12,000 Btuh . . . . .	8	48,084	<sup>a</sup> 22,451	47,043	21,831
35851 24	12,001 to 18,000 Btuh . . . . .	10	38,898	30,042	36,903	28,517
35851 25	Over 18,000 Btuh . . . . .	15	31,645	78,625	32,653	81,815
	Air-cooled refrigerant condensers (remote type) . . . . .	(X)	25,872	62,053	26,603	58,743
35851 30	Under 30 tons . . . . .	13	<sup>b</sup> 18,450	<sup>b</sup> 16,475	20,502	18,414
35851 32	30 to 50 tons . . . . .	11	2,830	8,422	<sup>1</sup> 2,019	7,562
35851 34	Over 50 tons . . . . .	11	4,592	37,156	<sup>1</sup> 4,082	32,767
	<b>Miscellaneous heat transfer equipment:</b>					
	Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube . . . . .	(X)	(X)	52,402	(X)	59,268
35851 35	Condensers . . . . .	9	(X)	26,792	(X)	<sup>1</sup> 28,619
35851 36	Liquid coolers . . . . .	11	(X)	25,610	(X)	<sup>1</sup> 30,649
35851 37	Liquid-suction heat exchangers and refrigerant liquid receivers . . . . .	6	(X)	(D)	(X)	(D)
	Central system finned coils (air-conditioning and refrigeration type) . . . . .	(X)	(X)	81,379	(X)	90,966
35851 38	Standard steam and steam distributing tube . . . . .	14	(X)	18,744	(X)	17,234
35851 39	Standard water cooling and/or heating and cleanable tube water . . . . .	21	(X)	57,085	(X)	68,093
35851 40	Volatile refrigerant cooling . . . . .	12	(X)	<sup>a</sup> 5,550	(X)	5,639
	Coil sales by original equipment manufacturers intended for resale or assembly into equipment by other manufacturers (all types) . . . . .	(X)	(X)	43,543	(X)	404,839
35851 41	Copper and aluminum . . . . .	18	(X)	286,930	(X)	281,417
35851 43	Aluminum (only) . . . . .	9	(X)	65,620	(X)	52,162
35851 46	Other, including steel and copper . . . . .	11	(X)	78,993	(X)	71,260
35851 45	Factory-assembled, refrigeration type, finned gravity coils, including wetted-surface dehumidifiers . . . . .	5	(X)	13,131	(X)	15,052
	Centrifugal liquid chilling packages, hermetic and open types . . . . .	(X)	9,579	737,252	9,963	821,440
35851 51	200 hp and under . . . . .	9	1,732	49,358	<sup>1</sup> 1,678	<sup>1</sup> 52,384
35851 54	201 to 300 hp . . . . .	6	1,441	84,161	1,557	88,645
35851 56	301 to 400 hp . . . . .	5	1,138	79,650	1,299	88,471
35851 58	Over 400 hp . . . . .	5	5,268	524,083	5,429	591,940

See footnotes at end of table.

**Table 7. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35851 —	Heat transfer equipment (except room and unitary air-conditioners)—Con.					
	Ice-making machines	(X)	213,473	320,291	215,817	309,153
	Self-contained ice-cube makers	(X)	126,650	141,954	127,942	133,851
35851 62	Automatic, 200 lb and under	6	78,301	59,181	84,926	63,164
35851 64	Automatic, 201 lb and over	6	48,349	82,773	43,016	70,687
	Self-contained flake or chip machines	(X)	8,309	20,894	8,463	21,986
35851 68	300 lb and under	4	<sup>b</sup> 3,085	<sup>b</sup> 3,876	<sup>c</sup> 2,880	<sup>b</sup> 3,662
35851 70	Over 300 lb	11	<sup>a</sup> 5,224	17,018	<sup>a</sup> 5,583	18,324
35851 71	Not self-contained	8	48,295	83,138	50,623	88,902
35851 75	Combination ice makers and ice drink dispensers	6	30,219	74,305	28,789	64,414
35851 74	Absorption refrigeration and dehydration systems	7	(D)	(D)	(D)	(D)
35851 78	Mechanical refrigeration systems used on all types of vehicles	8	(D)	(D)	(D)	(D)
	Reciprocating air and reciprocating water cooled, air-cooled screw, air-cooled scroll, and water-cooled scroll machines	(X)	24,173	454,982	23,776	443,480
35851 91	20 hp and under	25	8,740	<sup>a</sup> 53,146	<sup>f</sup> 8,533	53,102
35851 93	21 to 49 hp	20	4,501	47,651	<sup>f</sup> 4,605	<sup>f</sup> 47,221
35851 95	50 to 75 hp	17	3,431	69,810	<sup>f</sup> 3,435	<sup>f</sup> 68,022
35851 97	Over 75 hp	18	7,501	284,375	7,203	275,135
35851 92	Factory-fabricated water cooling towers	11	8,713	159,784	9,158	162,184
35853 43	Commercial refrigeration equipment, mechanical drinking water coolers	5	<sup>a</sup> 1,048,305	235,357	1,004,335	219,586
35855 —	Condensing units, refrigeration (complete)	25	464,193	292,065	512,135	314,882
	Air-cooled hermetic-type	(X)	445,305	194,319	492,284	209,597
35855 23	1 hp and under	13	353,972	77,086	400,585	94,734
35855 25	1.5 hp	12	19,010	13,139	<sup>f</sup> 19,870	<sup>f</sup> 14,349
35855 28	2 and 2.5 hp	13	23,881	19,662	<sup>f</sup> 26,340	<sup>f</sup> 21,538
35855 30	3 hp	14	21,170	25,626	20,704	25,185
35855 32	Over 3 hp, but under 15 hp	14	27,272	<sup>a</sup> 58,806	<sup>a</sup> 24,785	<sup>f</sup> 53,791
35855 44	Water-cooled hermetic-type, under 15 hp	3	(D)	(D)	(D)	(D)
	Water or air-cooled hermetic-type	(X)	4,007	46,994	4,794	48,768
35855 61	15 hp	9	2,099	29,985	<sup>f</sup> 1,943	<sup>f</sup> 27,367
35855 62	20 hp	7	683	3,676	<sup>f</sup> 776	<sup>f</sup> 4,049
35855 63	25 hp	7	453	2,923	<sup>f</sup> 605	<sup>f</sup> 3,762
35855 64	30 hp	7	346	3,310	<sup>a</sup> 522	<sup>a</sup> 5,200
35855 70	40 hp	5	426	7,100	948	<sup>b</sup> 8,390
35855 80	Water or air-cooled open-type (all sizes)	7	(D)	(D)	(D)	(D)
35856 —	Room air-conditioners and dehumidifiers	16	(X)	1,020,171	(X)	1,495,609
35856 11	Electrically operated dehumidifiers, mechanically refrigerated, self-contained	10	(X)	<sup>b</sup> 131,312	(X)	<sup>a</sup> 163,438
	Room air-conditioners	(X)	2,838,381	888,859	4,453,929	1,332,171
35856 31	5,999 Btuh and under	8	<sup>b</sup> 649,840	<sup>b</sup> 129,527	<sup>f</sup> 985,695	<sup>f</sup> 193,864
35856 34	6,000 to 6,999 Btuh	6	<sup>b</sup> 98,858	<sup>b</sup> 23,859	288,029	67,870
35856 38	7,000 to 7,999 Btuh	7	304,344	<sup>a</sup> 77,048	544,174	130,870
35856 42	8,000 to 8,999 Btuh	6	<sup>b</sup> 191,233	<sup>b</sup> 54,586	<sup>f</sup> 276,553	<sup>f</sup> 78,072
35856 46	9,000 to 9,999 Btuh	7	61,642	20,589	96,600	32,7530
35856 52	10,000 to 10,999 Btuh	8	<sup>a</sup> 359,399	<sup>a</sup> 110,192	577,201	167,151
35856 56	11,000 to 12,999 Btuh	9	<sup>b</sup> 504,149	<sup>b</sup> 170,646	<sup>f</sup> 702,436	<sup>f</sup> 230,906
35856 61	13,000 to 14,999 Btuh	7	<sup>b</sup> 69,985	<sup>b</sup> 29,572	<sup>f</sup> 72,656	<sup>f</sup> 30,462
35856 63	15,000 to 16,999 Btuh	7	99,715	41,153	<sup>f</sup> 101,365	<sup>f</sup> 39,915
35856 65	17,000 to 19,999 Btuh	7	<sup>b</sup> 302,935	<sup>b</sup> 114,954	489,019	195,056
35856 67	20,000 to 22,999 Btuh	5	<sup>b</sup> 22,643	<sup>b</sup> 11,523	46,530	18,926
35856 68	23,000 to 25,999 Btuh	8	<sup>b</sup> 143,716	<sup>b</sup> 73,122	224,297	108,024
35856 69	26,000 Btuh and over	8	<sup>b</sup> 29,922	<sup>a</sup> 32,088	49,374	38,302
3587—	Motor vehicle mechanical air-conditioning systems	(X)	(X)	2,208,011	(X)	1,818,533
35857 05	Air-conditioning units and systems for passenger automobiles <sup>2</sup>	19	10,450,959	1,544,552	9,280,369	1,240,312
35857 07	Air-conditioning units and systems for buses	14	(D)	(D)	(D)	(D)
35857 19	Other motor vehicle mechanical air-conditioning systems	5	(D)	(D)	(D)	(D)

See footnotes at end of page.

**Table 7. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3585A —	Compressors and compressor units <sup>3 4</sup> . . . . .	31	(X)	3,091,592	(X)	3,584,521
	All refrigerants (except ammonia) . . . . .	(X)	26,163,888	2,991,412	26,870,218	3,089,470
	Hermetic-type motor compressors . . . . .	(X)	23,330,788	2,602,491	24,063,962	2,702,973
3585A 11	Under 3 hp . . . . .	11	17,898,968	1,306,660	18,521,766	1,361,349
3585A 23	3 to 10 hp . . . . .	12	5,263,330	975,437	5,386,567	974,241
3585A 30	15 hp . . . . .	11	29,072	33,864	27,735	32,627
3585A 32	20 hp . . . . .	12	24,034	36,162	22,694	34,557
3585A 34	25 hp . . . . .	11	17,731	29,399	15,770	26,093
3585A 36	30 hp . . . . .	12	26,720	31,088	22,122	29,499
3585A 39	40 and 50 hp . . . . .	11	37,745	64,880	34,033	58,707
3585A 42	60 hp . . . . .	9	33,188	20,183	24,780	17,803
3585A 46	75 hp . . . . .	10	(D)	(D)	(D)	(D)
3585A 49	100 hp and over . . . . .	7	(D)	(D)	(D)	(D)
3585A 52	Open-type compressors (with or without motor—all sizes) . . . . .	13	(D)	(D)	(D)	(D)
3585A 54	Screw type . . . . .	4	(D)	(D)	(D)	(D)
3585A 58	Ammonia refrigerants (all types) . . . . .	6	<sup>b</sup> 2,823	<sup>a</sup> 100,180	3,066	108,554
3585B 53	Automotive air-conditioning compressors (open-type, with or without motor) . . . . .	7	15,032,103	1,652,395	14,176,731	1,491,573
3585C pt.	Nonelectric warm air furnaces and dehumidifiers . . . . .	(X)	(X)	1,562,442	(X)	1,678,999
	Oil, forced air:					
3585C 04	150,000 Btuh bonnet output and under . . . . .	17	<sup>a</sup> 154,012	<sup>b</sup> 106,752	167,309	114,027
3585C 13	150,001 Btuh bonnet output and over . . . . .	17	<sup>a</sup> 7,060	<sup>b</sup> 10,355	7,080	9,425
	Gas, forced air:					
3585C 07	150,000 Btuh bonnet output and under . . . . .	18	2,747,367	1,200,128	<sup>f</sup> 3,189,556	<sup>f</sup> 1,314,405
3585C 08	150,001-400,000 Btuh bonnet output . . . . .	17	<sup>c</sup> 38,110	<sup>c</sup> 10,072	42,806	10,844
3585C 09	Over 400,000 Btuh bonnet output . . . . .	11	398,634	165,486	374,118	158,700
3585C 79	All other nonelectric warm air furnaces . . . . .	6	1,336	2,072	601	1,087
3585C 20	Humidifiers (attachments to warm air furnaces) (all types), including central systems and self-contained (except portable humidifiers) . . . . .	20	605,676	67,577	626,809	70,511
3585E —	Unitary air-conditioners . . . . .	54	(X)	4,625,239	(X)	4,670,915
3585E 10	Recreational vehicle air-conditioners . . . . .	6	(D)	(D)	(D)	(D)
	Single package air-conditioners, with or without evaporator fans, including refrigeration chassis and remote-condenser type . . . . .	(X)	285,878	609,876	295,064	604,492
	Horizontal . . . . .	(X)	248,983	526,246	258,772	521,704
	Under 27,000 Btuh . . . . .	18	19,964	<sup>b</sup> 21,886	20,592	20,711
3585E 32	27,000 to 32,999 Btuh . . . . .	17	38,749	<sup>a</sup> 43,707	<sup>f</sup> 38,685	40,493
3585E 33	33,000 to 53,999 Btuh . . . . .	19	<sup>a</sup> 96,941	<sup>a</sup> 87,649	<sup>f</sup> 109,171	<sup>f</sup> 96,108
3585E 34	54,000 to 64,999 Btuh . . . . .	18	37,024	49,477	35,939	47,206
3585E 35	65,000 to 96,999 Btuh . . . . .	16	17,584	<sup>a</sup> 43,777	17,050	41,939
3585E 36	97,000 to 134,999 Btuh . . . . .	14	15,136	50,470	15,151	49,674
3585E 37	135,000 to 184,999 Btuh . . . . .	11	9,557	40,782	9,350	42,086
3585E 38	185,000 to 249,999 Btuh . . . . .	12	5,358	37,598	5,142	<sup>f</sup> 35,608
3585E 39	250,000 to 319,999 Btuh . . . . .	8	4,499	35,724	3,890	34,607
3585E 40	320,000 to 379,999 Btuh . . . . .	9	1,017	13,792	821	<sup>f</sup> 13,575
3585E 41	380,000 Btuh and over . . . . .	9	3,154	101,384	2,981	<sup>f</sup> 99,697
	Other than horizontal . . . . .	(X)	36,895	83,630	36,292	82,788
3585E 4A	Under 54,000 Btuh . . . . .	6	(D)	(D)	(D)	(D)
3585E 44	54,000 to 64,999 Btuh . . . . .	5	4,313	10,692	<sup>f</sup> 5,806	<sup>f</sup> 15,009
3585E 45	65,000 to 96,999 Btuh . . . . .	4	<sup>a</sup> 316	<sup>a</sup> 901	<sup>a</sup> 657	<sup>a</sup> 2,273
3585E 46	97,000 to 134,999 Btuh . . . . .	4	393	1,456	723	3,117
3585E 47	135,000 to 184,999 Btuh . . . . .	4	372	2,079	661	4,209
3585E 4T	185,000 Btuh and over . . . . .	5	(D)	(D)	(D)	(D)
	Year-round air-conditioners, single package and remote-condenser type (except heat pumps) . . . . .	(X)	580,153	1,294,045	573,115	1,192,159
3585E 50	Under 33,000 Btuh . . . . .	19	132,188	122,659	137,466	118,989
3585E 51	33,000 to 38,999 Btuh . . . . .	19	107,415	112,124	111,458	115,313
3585E 52	39,000 to 43,999 Btuh . . . . .	13	33,075	35,099	36,586	38,570
3585E 53	44,000 to 53,999 Btuh . . . . .	15	60,877	79,736	57,914	74,210
3585E 54	54,000 to 64,999 Btuh . . . . .	16	90,902	140,171	87,942	132,665
3585E 55	65,000 to 134,999 Btuh . . . . .	13	100,990	288,391	91,963	260,522

See footnotes at end of table.

**Table 7. Quantity and Value of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3585E —	Unitary air-conditioners—Con.					
	Year-round air-conditioners, single package and remote condenser type (except heat pumps)—Con.					
3585E 56	135,000 to 184,999 Btuh .....	12	28,658	147,070	26,532	130,761
3585E 57	185,000 to 249,999 Btuh .....	13	12,925	104,432	<sup>1</sup> 12,041	<sup>1</sup> 93,716
3585E 58	250,000 to 319,999 Btuh .....	10	6,203	59,265	5,778	53,652
3585E 59	320,000 to 379,999 Btuh .....	10	2,184	32,857	1,541	22,101
3585E 60	380,000 to 539,999 Btuh .....	8	1,762	33,700	1,523	28,380
3585E 61	540,000 to 639,999 Btuh .....	9	1,128	39,969	<sup>1</sup> 866	35,864
3585E 62	640,000 Btuh and over .....	8	1,846	98,572	1,505	87,416
3585E 71	Water source heat pumps (except room air-conditioners) .....	10	(D)	(D)	(D)	(D)
	Split system air-conditioning condensing units ..	(X)	3,832,640	1,880,657	4,261,815	2,035,244
3585E 72	Under 22,000 Btuh .....	13	286,820	92,774	312,325	99,258
3585E 73	22,000 to 26,999 Btuh .....	15	<sup>a</sup> 821,773	276,649	947,829	311,905
3585E 74	27,000 to 32,999 Btuh .....	15	762,966	307,057	914,015	367,264
3585E 75	33,000 to 38,999 Btuh .....	14	784,115	356,287	<sup>1</sup> 878,602	<sup>1</sup> 395,551
3585E 76	39,000 to 43,999 Btuh .....	13	376,824	202,442	412,814	222,018
3585E 77	44,000 to 53,999 Btuh .....	14	400,569	236,575	<sup>1</sup> 407,579	242,799
3585E 78	54,000 to 64,999 Btuh .....	12	333,385	229,577	328,455	228,003
3585E 79	65,000 to 96,999 Btuh .....	7	25,346	32,949	23,284	30,730
3585E 80	97,000 to 134,999 Btuh .....	8	18,492	35,026	16,393	31,217
3585E 81	135,000 to 184,999 Btuh .....	7	10,099	29,839	8,982	26,860
3585E 82	185,000 to 249,999 Btuh .....	7	5,476	22,796	4,775	20,671
3585E 83	250,000 to 319,999 Btuh .....	3	1,672	9,244	1,762	9,758
3585E 84	320,000 to 379,999 Btuh .....	4	1,882	11,898	1,848	12,034
3585E 85	380,000 to 539,999 Btuh .....	5	1,476	13,155	1,408	12,461
3585E 86	540,000 to 639,999 Btuh .....	4	670	7,313	668	7,237
3585E 87	640,000 Btuh and over .....	4	1,075	17,076	1,076	17,478
	Split system air-conditioning coils .....	(X)	2,836,870	579,037	3,204,164	592,513
3585E 88	With blower .....	13	1,307,782	378,684	1,322,047	366,882
3585E 89	Without blower .....	14	<sup>a</sup> 1,529,088	<sup>a</sup> 200,353	<sup>1</sup> 1,882,117	<sup>1</sup> 225,631
3585F —	Air source heat pumps (except room air-conditioners) .....	(X)	1,330,598	1,045,880	1,423,503	1,114,276
	Single package:					
3585F 63	Under 27,000 Btuh .....	16	26,557	21,918	30,571	25,756
3585F 64	27,000 to 41,999 Btuh .....	16	89,980	90,766	98,634	100,356
3585F 65	42,000 to 64,999 Btuh .....	15	71,187	89,908	64,981	84,428
3585F 66	65,000 Btuh and over .....	8	12,456	43,502	8,982	35,067
	Split system:					
3585F 67	Under 27,000 Btuh .....	16	364,475	185,003	<sup>1</sup> 376,042	<sup>1</sup> 193,959
3585F 68	27,000 to 41,999 Btuh .....	15	506,301	354,881	<sup>1</sup> 564,405	<sup>1</sup> 397,002
3585F 69	42,000 to 64,999 Btuh .....	13	245,483	228,794	<sup>1</sup> 265,378	<sup>1</sup> 246,872
3585F 70	65,000 Btuh and over .....	8	14,159	31,108	14,510	30,836
3585G —	Ground and ground water source heat pumps* ..	(X)	(D)	(D)	(NA)	(NA)
	Single and split systems:					
3585G 10	Under 27,000 Btuh .....	1	(D)	(D)	(NA)	(NA)
3585G 20	27,000 to 41,999 Btuh .....	1	(D)	(D)	(NA)	(NA)
3585G 30	42,000 to 64,999 Btuh .....	1	(D)	(D)	(NA)	(NA)
3585G 40	65,000 Btuh and over .....	1	(D)	(D)	(NA)	(NA)

\*New product for 1997. Btuh British thermal units-per hour. D Withheld to avoid disclosing data for individual companies. NA Not available. pt. Part. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Defined as factory-selected combinations of heating and cooling components or assemblies intended to serve an individual room and comprising: (1) heating assembly available with element for use with hot water, steam, and electricity; means for forced heated air circulation and distribution; integral or remote temperature controls; (2) slide-in cooling section with complete refrigerant cycle; (3) room cabinet; (4) provision for outdoor air intake and discharge and accessories as required for mounting in a building wall; (5) provisions for air filtration and ventilation; (6) permanent individual branch circuit wiring with a suitable line cord or terminating at a junction box within the room cabinet; and (7) provision for free conditioned air distribution, or when forced circulation is employed for minimal duct work having a total external static resistance not exceeding 1/10 inch of water.

<sup>2</sup>Data exclude systems assembled from purchased components and installed at passenger automobile assembly lines. The values are understated for some systems because of exclusion of compressors.

<sup>3</sup>Represents only those compressors and compressor units produced and shipped separately, including interplant transfers.

<sup>4</sup>Includes units shipped for household refrigerators.

Note: The percent of estimation for each item is indicated as follows: <sup>a</sup>15 to 25 percent of this item is estimated. <sup>b</sup>26 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.

**Table 8. Quantity of Assembled Compressor Bodies: 1997 and 1996**

[Quantity in number of units]

Product description	Number of companies	1997	1996
Compressor bodies <sup>1 2</sup> .....	(X)	34,908,213	34,657,025
All refrigerants (except ammonia) .....	(X)	34,907,457	34,656,269
Other than automotive air-conditioning .....	(X)	23,641,952	23,765,426
1/4 hp and under .....	5	7,009,406	5,817,483
1/3 and 1/2 hp .....	6	(D)	(D)
3/4 and 1 hp .....	5	(D)	(D)
1-1/2 hp .....	6	871,087	1,068,176
2 hp .....	6	5,217,022	5,202,311
3 hp .....	11	2,809,080	3,069,960
4 hp .....	5	931,805	910,049
5 hp .....	7	1,607,735	1,537,368
7-1/2 hp .....	10	248,211	297,368
10 hp .....	12	327,148	315,073
15 hp .....	10	129,716	94,072
20 hp .....	9	30,331	28,753
25 hp .....	10	24,589	22,179
30 hp .....	11	(D)	(D)
40 hp .....	11	44,422	43,326
50 hp .....	8	(D)	(D)
60 hp .....	9	(D)	(D)
75 hp .....	9	4,789	2,490
100 hp and over .....	7	13,373	11,237
Automotive air-conditioning, including passenger automobiles, trucks, buses, agriculture, and construction equipment .....	5	(D)	(D)
Ammonia refrigerants .....	3	(D)	(D)

D Withheld to avoid disclosing data for individual companies. X Not applicable.

<sup>1</sup>Includes units for household refrigerators.

<sup>2</sup>Represents total number of compressor bodies assembled, whether shipped separately or incorporated into a condensing package or unitary end-use product such as single package air-conditioners, freezers, and refrigerators (manufactured and remanufactured units).



**Table 9. Shipments, Exports, Imports, and Apparent Consumption of Air-Conditioning and Refrigeration Equipment: 1997 and 1996**

[Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments (value f.o.b. plant)	Export of domestic merchandise <sup>1</sup>		Imports for consumption <sup>4 5</sup>
			Value at port <sup>2</sup>	Estimated producers' value <sup>3</sup>	
<b>1997</b>					
35851 —	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers . . . . .	4,280,235	421,233	316,009	70,754
35853 43	Commercial refrigeration equipment, mechanical drinking water coolers . . . . .	235,357	29,980	22,491	4,910
35855 —	Condensing units, all refrigerants . . . . .	292,065	31,338	23,510	29,285
35856 —	Room air-conditioners and dehumidifiers . . . . .	1,020,171	117,444	88,106	404,098
35857 —	Motor vehicle mechanical air-conditioning systems <sup>6</sup> . . . . .	2,208,011	(NA)	(NA)	(NA)
3585A —	Compressors and compressor units, all refrigerants . . . . .	3,091,592	1,102,224	826,888	611,160
3585B —	Automotive air-conditioning compressors <sup>7</sup> . . . . .	1,652,395	(NA)	(NA)	(NA)
3585C pt.	Nonelectric warm air furnaces and humidifiers . . . . .	1,562,442	(NA)	(NA)	(NA)
3585E —	Unitary air-conditioners . . . . .	4,625,239	348,456	261,412	78,499
3585F —	Air source heat pumps <sup>8</sup> . . . . .	1,045,880	(NA)	(NA)	(NA)
3585G —	Ground and ground water source heat pumps* . . . . .	(D)	(NA)	(NA)	(NA)
<b>1996</b>					
35851 —	Heat transfer equipment, excluding room and unitary air-conditioners and dehumidifiers . . . . .	4,267,113	521,941	391,560	47,132
35853 43	Commercial refrigeration equipment, mechanical drinking water coolers . . . . .	219,586	27,228	20,426	2,929
35855 —	Condensing units, all refrigerants . . . . .	314,882	24,808	18,611	20,298
35856 —	Room air-conditioners and dehumidifiers . . . . .	1,495,609	139,208	104,434	419,294
35857 —	Motor vehicle mechanical air-conditioning systems <sup>6</sup> . . . . .	(NA)	(NA)	(NA)	(NA)
3585A —	Compressors and compressor units, all refrigerants . . . . .	3,584,521	919,664	689,932	688,000
3585B —	Automotive air-conditioning compressors <sup>7</sup> . . . . .	(NA)	(NA)	(NA)	(NA)
3585C pt.	Nonelectric warm air furnaces and humidifiers . . . . .	1,678,999	(NA)	(NA)	(NA)
3585E —	Unitary air-conditioners . . . . .	4,670,915	312,192	234,206	69,162
3585F —	Air source heat pumps <sup>8</sup> . . . . .	114,276	(NA)	(NA)	(NA)
3585G —	Ground and ground water source heat pumps* . . . . .	(NA)	(NA)	(NA)	(NA)

\*New product for 1997. D Withheld to avoid disclosing data for individual companies. NA Not available. pt. Part.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at port of export.

<sup>3</sup>Values were derived by use of adjustment factors to exclude freight, insurance, and other charges incurred in moving goods to port of export.

Adjustment is made to convert values to an approximation of the producers' value of exported goods. Current adjustment factors are based on data for 1995 that are published in *Exports from Manufacturing Establishments*, AR95-1, Appendix B. Adjustment factor for this report is 0.7502.

<sup>4</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*. Figures include both import value and duty value.

<sup>5</sup>Represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

<sup>6</sup>Data for this product is collected separately from product code 35851 in 1997.

<sup>7</sup>Data for this product is collected separately from product code 35854 in 1997.

<sup>8</sup>Data for this product is collected separately from product code 35852 in 1997.

**HISTORICAL NOTE**

Data on air-conditioning and refrigeration have been collected by the Census Bureau since 1944. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Fed-

eral Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Joanna T. Q. Nguyen, 301-457-4752.

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## FLUID POWER PRODUCTS, INCLUDING AEROSPACE (MA35N)

### INTRODUCTION

These data cover producers of fluid power products, including aerospace, except very small firms (generally less than 20 employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies.

The statistics were collected by mail on Census Bureau annual Form MA35N, Fluid Power Products, Including Aerospace Products. The survey panel includes all known producers of fluid power products, approximately 361 companies. This survey does not include products produced and consumed within the same establishment.

### SUMMARY OF FINDINGS

In 1997, fluid power product manufacturers including aerospace, had shipments of \$11,593.8 million, an increase of 10 percent from \$10,530.0 reported in 1996. Hydraulic and pneumatic valves increased 10 percent to \$3,226.4 million in 1997 from \$2,935.0 million in 1996. Fittings and assemblies for tubing and hose, excluding plumbers' brass goods, increased 9 percent to \$2,400.5 million in 1997 from \$2,205.8 million in 1996. Hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and nonvehicular shock absorbers increased by 9 percent to \$2,999.3 million in 1997 from \$2,755.7 million in 1996. Compressed air and gas dryers and lubricators increased 3 percent to \$89.8 million in 1997 from \$87.5 million in 1996. Filters of hydraulic and pneumatic systems increased to \$528.7 million in 1997 from \$474.2 million in 1996, a 12-percent increase. Hydraulic and pneumatic pumps, motors, and hydrostatic transmission components incurred a 13-percent increase to \$2,349.1 million in 1997, from \$2,071.8 million in 1996.

### EXPLANATION OF TERMS

**Accumulators (hydraulic only).** Devices that store hydraulic fluid under pressure as a source of fluid power.

**Actuators.** Devices that convert fluid power into linear or rotary mechanical force. Linear types are typically referred to as cylinders. Rotary types are referred to as rotary actuators and motors. Motors have shafts that rotate continuously in the same direction. Rotary actuator shafts do not rotate continuously. Typically, the shafts rotate a certain number of degrees before rotating in the opposite direction to their point of origin.

**Air dryer.** A device for reducing the moisture vapor content of the compressed air in a pneumatic system.

**Assembly.** A length of hose and/or tubing to which fittings have been attached.

**Cushion.** A device that provides controlled resistance to nonlinear motion.

**Cylinder, electrohydraulic.** A hydraulic, linear actuator that produces a continuously variable mechanical output, as a function of a continuously variable electronic input signal (voltage or current).

**Cylinder, mill type.** A linear actuator that has circular flanges welded to the cylinder barrel ends. This type of cylinder is used in severe duty applications like the steel mills from which it derived its name.

**Cylinder, rodless (shuttle).** A linear actuator with a rod that never leaves its case, that is sealed lengthwise. Typically used in position control applications.

**Cylinder, telescoping.** A linear actuator with nested tubular rod segments that provide a long working stroke in a short retracted envelope.

**Cylinder, threaded/weld fused combination.** A linear actuator with one threaded end and one weld fused end.

**Cylinder, tie rod.** A linear actuator with head and cap end closures that are secured by tie rods.

**Filter (filter assembly).** A device whose primary function is the retention of insoluble contaminants in a fluid by a porous media.

**Filter element.** That part of a filter that retains contaminants. Some elements are permanent (reusable or cleanable) and others are disposable (nonreusable). Disposable elements must eventually be replaced.

**Fittings.** Devices used to connect hoses and tubing to components (valves, cylinders, motors, pumps) of a fluid power system. They are constructed from metal or plastics and are sometimes referred to as connectors or couplings.

**Gerotor/gerolor.** A special type of internal gear motor where the internal gear is always in sliding contact with the external gear.

**Hydrostatic transmission.** A device that combines a hydraulic pump with a hydraulic motor. Quantity and value of pumps and motors sold together as transmissions were reported separately in the relevant pump and motor categories.

**Intensifiers.** A device that is driven by a low pressure fluid to produce fluid at a higher pressure.

**Lubricator.** A device that adds controlled or metered amounts of lubricant into a pneumatic system.

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**Manifold (manifold assembly).** A fluid conductor that can provide multiple connection ports. In a fluid power system, manifolds are typically used as housings for cartridge valves.

**Motor.** A device that transforms fluid power into rotary mechanical force. Motors can be hydraulic or pneumatic.

**Motor, axial piston.** A motor with several parallel pistons arranged around a common axis.

**Motor, external gear.** A motor that has only external gears and no internal gear.

**Motor, internal gear.** A motor with an internal gear that meshes with one or more external gears. See also gerotor/gerolor.

**Motor, radial piston.** A motor with several pistons arranged to operate radially.

**Motor, vane.** A motor with multiple vanes that cause rotation of an internal member when under pressure.

**Power unit.** A device that combines a hydraulic pump with a prime mover (usually an electric motor). As is done for hydrostatic transmissions, the quantity and value of the pumps and prime movers were reported separately in relevant categories.

**Pump, axial piston.** A reciprocating pump with several parallel pistons arranged around a common axis.

**Pump, external gear.** A rotary pump that has only external gears, and no internal gear.

**Pump, internal gear.** A rotary pump that has an internal gear in engagement with one or more external gears. An internal gear pump generally has external gears that rotate on a fixed axis. A gerotor pump differs from other internal gear types in that its internal gear is always in sliding contact with the external gear.

**Pump, radial piston.** A reciprocating pump with several pistons arranged radially within the pump chamber.

**Pump, reciprocating.** A pump that uses pistons to create a partial vacuum to draw hydraulic fluid through the pump inlet. The return strokes of the pistons unseat outlet check valves and force the fluid through the pump outlet.

**Pump, rotary.** A pump that uses gears or vanes to cause rotary motion that moves hydraulic fluid from the pump inlet to the pump outlet.

**Pump, vane.** A rotary pump with multiple vanes within a supporting rotor.

**Reservoir, hydraulic.** A container for storage of hydraulic fluid under pressure.

**Valves, cartridge.** Valves with working parts contained in a cylindrical body. The body must be inserted into a housing (usually a manifold) for use. Ports through the body of the valve align with ports in the housing.

**Valves, electrohydraulic.** Valves that use continuously variable electronic input (voltage or current) to produce a continuously variable hydraulic output.

**Valve, manually operated.** Valves actuated by means of a hand lever, or other manual energizing device.

**Valve, mechanical.** Valves that are actuated by cams, levers, rollers, screws, springs, stems, or other mechanical energizing devices.

**Valve, relief.** Direct acting or pilot operated valves that are used to prevent a hydraulic system from exceeding its maximum pressure limits.

**Valve, remote pilot.** Pilot operated valves that are controlled remotely through the use of air pressure.

**Valve, solenoid.** Valves that are operated by a solenoid.

**Table 10. Value of Shipments of Fluid Power Products, Including Aerospace: 1997 and 1996**

[Value in thousands of dollars]

Product code	Product description	1997	1996
	Fluid power products, including aerospace . . . . .	11,593,751	<sup>1</sup> 10,530,027
3492C	Nonaerospace-type hydraulic directional control valves . . . . .	543,580	486,428
3492D	Nonaerospace-type hydraulic valves (except directional control) . . . . .	865,757	<sup>1</sup> 741,248
3492E	Nonaerospace-type pneumatic directional control valves . . . . .	513,507	464,947
3492F	Nonaerospace-type pneumatic valves (except directional control) . . . . .	264,140	<sup>1</sup> 240,183
3492A	Aerospace-type hydraulic fluid power valves . . . . .	383,342	<sup>1</sup> 370,535
3492B	Aerospace-type pneumatic fluid power valves . . . . .	351,485	<sup>1</sup> 343,185
3492G	Parts for fluid power valves . . . . .	304,555	<sup>1</sup> 288,507
3492J	Nonaerospace-type flared (metal) fittings and couplings for, and assemblies of tubing used in fluid power transfer systems . . . . .	336,123	310,670
3492K	Nonaerospace-type flareless fittings and couplings, including nonmetal fittings, used in fluid power transfer systems . . . . .	481,120	454,820
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose, and manifolds . . . . .	808,649	742,012
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose . . . . .	255,252	281,567
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies and manifolds . . . . .	519,377	416,713
35694	Nonaerospace-type filters for hydraulic fluid power systems . . . . .	347,900	317,953
35695	Nonaerospace-type filters for pneumatic fluid power systems . . . . .	108,883	106,571
35696	Aerospace-type hydraulic and pneumatic filters . . . . .	71,961	49,656
35699 pt.	Compressed air and gas dryers, and lubricators . . . . .	89,756	87,454
35934	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary . . . . .	1,205,303	1,104,783
35935	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary . . . . .	460,644	417,801
35939	Parts for nonaerospace-type hydraulic and pneumatic fluid power cylinders, actuators, and related items, n.e.c. . . . .	278,280	<sup>1</sup> 263,369
35932	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic . . . . .	1,055,050	<sup>1</sup> 969,778
35943	Nonaerospace-type reciprocating pumps . . . . .	580,923	521,968
35944	Nonaerospace-type rotary and other fluid power pumps . . . . .	460,498	432,652
35945	Nonaerospace-type fluid power motors . . . . .	579,486	487,548
35946	Aerospace-type fluid power pumps and motors . . . . .	264,624	<sup>1</sup> 233,178
35949	Parts for fluid power pumps, motors, and hydrostatic transmissions . . . . .	463,556	396,501

n.e.c. Not elsewhere classified. pt. Part. <sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 11. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Type: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	1997			1996		
		Number of companies	Quantity	Value	Number of companies	Quantity	Value
3492C —	Fluid power products, including aerospace . . . . .	(X)	(X)	11,593,751	(X)	(X)	10,530,027
	Nonaerospace-type hydraulic directional control valves . . . . .	(X)	7,483,981	543,580	(X)	6,742,502	486,428
	Manual:						
3492C 22	3- and 4-way monoblock . . . . .	27	3,667,163	124,998	26	3,210,336	103,857
3492C 24	3- and 4-way sectional . . . . .	19	977,029	186,243	21	1,029,572	173,493
	Solenoid:						
3492C 26	2-way types . . . . .	16	413,459	30,460	15	337,550	19,329
3492C 28	3- and 4-way types . . . . .	25	1,092,258	134,955	25	984,525	129,767
3492C 25	Other directional control . . . . .	30	1,334,072	66,924	29	1,180,519	59,982
3492D —	Nonaerospace-type hydraulic valves (except directional control) . . . . .	(X)	21,216,208	865,757	(X)	18,387,946	741,248
	Pressure control:						
3492D 31	Relief valves . . . . .	27	1,826,435	41,817	26	1,804,787	38,231
3492D 33	Other, including load sensing and manual types . . . . .	17	1,821,063	29,987	17	774,656	26,466
	Flow control:						
3492D 34	Manual types . . . . .	21	1,185,480	27,027	22	1,077,312	26,043
3492D 35	Other flow control valves . . . . .	23	3,098,486	67,551	25	2,686,122	65,337
3492D 38	Cartridge valves, all types . . . . .	20	10,387,822	222,699	20	9,151,052	193,661
	Electrohydraulic valves:						
3492D 49	Pilot-operated, torque motor servovalves . . . . .	10	(D)	108,990	10	(D)	75,325
3492D 50	Other types, including proportional . . . . .	11	(D)	93,253	11	(D)	62,205
3492D 48	Other nonaerospace-type hydraulic valves, including stack and logic . . . . .	26	2,426,351	274,433	26	1,891,607	253,980
3492E —	Nonaerospace-type pneumatic directional control valves . . . . .	(X)	17,663,375	513,507	(X)	15,571,304	464,947
3492E 51	Manual . . . . .	38	3,866,905	77,884	40	3,775,930	74,275
	Solenoid:						
3492E 54	Under 1/8 inch port diameter . . . . .	12	3,079,737	57,169	11	2,682,175	46,781
	1/8 inch up to and including 1/4 inch port diameter:						
3492E 56	3-way types . . . . .	24	2,617,715	61,813	24	2,238,882	55,967
3492E 57	4-way types . . . . .	22	2,733,507	116,204	23	2,377,875	99,245
	Over 1/4 inch port diameter:						
3492E 58	3-way types . . . . .	20	665,886	47,365	20	663,697	48,246
3492E 59	4-way types . . . . .	17	1,457,082	84,015	18	1,490,501	85,925
3492E 55	Mechanical, remote pilot, and all other types . . . . .	30	3,242,543	69,057	31	2,342,244	54,508
3492F —	Nonaerospace-type pneumatic valves (except directional control) . . . . .	(X)	14,093,482	264,140	(X)	13,133,412	240,183
3492F 61	Filter-regulator combination units, integral types . . . . .	14	1,386,920	27,373	14	1,323,437	25,989
3492F 62	Other FRs and filter-regulator-lubricator combo units . . . . .	15	526,703	20,794	15	434,574	17,793
3492F 64	Regulators, sold separately . . . . .	20	4,928,867	78,919	21	4,756,726	75,489
3492F 65	Flow control valves . . . . .	32	4,014,158	101,820	32	3,705,698	89,343
3492F 69	Check, shuttle, exhaust, needle, and all other types . . . . .	30	3,236,834	35,234	30	2,912,977	31,569
3492A —	Aerospace-type hydraulic fluid power valves . . . . .	(X)	1,269,378	383,342	(X)	1,195,226	370,535
	2-, 3-, and 4-way directional control valves:						
3492A 71	Manually or mechanically operated . . . . .	17	(D)	77,729	17	(D)	(D)
3492A 72	Solenoid operated . . . . .	25	75,652	54,849	25	67,917	49,875
3492A 73	Motor operated . . . . .	9	(D)	26,832	9	(D)	(D)
3492A 74	Electrohydraulic servovalves . . . . .	7	93,305	125,529	7	81,936	122,872
3492A 75	Flow, pressure, and other types of hydraulic valves . . . . .	28	382,975	98,403	26	352,031	82,586
3492B —	Aerospace-type pneumatic fluid power valves . . . . .	(X)	1,155,250	351,485	(X)	1,156,986	343,185
3492B 79	Pneumatic valves, all types . . . . .	28	1,155,250	351,485	25	1,156,986	343,185
3492G —	Parts for fluid power valves . . . . .	(X)	(X)	304,555	(X)	(X)	288,507
3492G 96	Parts for nonaerospace-type hydraulic and pneumatic valves, sold separately . . . . .	60	(X)	209,281	62	(X)	198,833
3492G 98	Parts for aerospace-type hydraulic and pneumatic valves, sold separately . . . . .	23	(X)	95,274	22	(X)	89,674

See footnotes at end of table.

**Table 11. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	1997			1996		
		Number of companies	Quantity	Value	Number of companies	Quantity	Value
3492J —	Fluid power products, including aerospace—Con. Nonaerospace-type flared (metal) fittings and couplings for, and assemblies of tubing used in fluid power transfer systems . . . . .	(X)	(X)	336,123	(X)	(X)	310,670
3492J 11	Flared fittings: Brass and bronze (SAE 45 degrees and 37 degrees) . . . . .	9	(X)	(D)	9	(X)	(D)
3492J 13	Carbon steel (JIC 37 degrees) . . . . .	12	(X)	139,476	13	(X)	136,414
3492J 15	Other, including alloy steel . . . . .	14	(X)	60,966	15	(X)	57,268
3492J 41	Assemblies of tubing . . . . .	7	(X)	(D)	7	(X)	(D)
3492J 42	Assemblies of tubing and hose . . . . .	7	(X)	46,475	7	(X)	41,539
3492K —	Nonaerospace-type flareless fittings and couplings, including nonmetal fittings, used in fluid power transfer systems . . . . .	(X)	(X)	481,120	(X)	(X)	454,820
3492K 21	Metal types: Brass and bronze . . . . .	16	(X)	90,977	16	(X)	(D)
3492K 23	Carbon steel . . . . .	13	(X)	88,800	13	(X)	71,030
3492K 24	Stainless steel . . . . .	15	(X)	290,408	16	(X)	276,656
3492K 28	Other, including alloy steel . . . . .	8	(X)	7,498	9	(X)	(D)
3492K 38	Nonmetal fittings, including plastics . . . . .	9	(X)	3,437	10	(X)	8,842
3492M —	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose, and manifolds . . . . .	(X)	(X)	808,649	(X)	(X)	742,012
3492M 44	Permanent hose end fittings (crimped and swaged) . . . . .	19	(X)	327,165	21	(X)	298,582
3492M 46	Hydraulic and pneumatic reusable end fittings . . . . .	28	(X)	131,376	28	(X)	117,083
3492M 47	Hydraulic quick connect and disconnect couplings . . . . .	18	(X)	152,523	18	(X)	148,606
3492M 48	Pneumatic quick connect and disconnect couplings . . . . .	23	(X)	80,966	23	(X)	68,450
3492M 49	Manifolds and manifold assemblies for fluid power systems . . . . .	22	(X)	75,700	21	(X)	66,580
3492M 50	All other, including steel adaptor, swivel, rotating, and extension fittings . . . . .	24	(X)	40,919	23	(X)	42,711
3492N —	Nonaerospace-type hydraulic and pneumatic assemblies of hose . . . . .	(X)	(X)	255,252	(X)	(X)	281,567
3492N 51	Assemblies with permanent end fittings . . . . .	21	(X)	213,582	23	(X)	241,494
3492N 53	Assemblies with reusable end fittings . . . . .	8	(X)	41,670	11	(X)	40,073
3492H —	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies and manifolds . . . . .	(X)	(X)	519,377	(X)	(X)	416,713
3492H 61	Assemblies of hose and/or tubing . . . . .	13	(X)	151,938	13	(X)	120,247
3492H 62	Quick connect, rotating, swivel, and extension fittings . . . . .	10	(X)	152,000	10	(X)	126,551
3492H 63	Manifolds for aerospace hydraulic systems . . . . .	6	(X)	45,059	6	(X)	33,132
3492H 69	Aerospace hose and tube fittings, n.e.c. . . . .	14	(X)	170,380	14	(X)	136,783
35694 —	Nonaerospace-type filters for hydraulic fluid power systems . . . . .	(X)	(X)	347,900	(X)	(X)	317,953
35694 11	Hydraulic fluid filter assemblies, with or without filter element installed: Low pressure (below 301 psi) . . . . .	27	1,108,625	53,030	28	1,001,825	48,632
35694 12	Medium pressure (301 to 2,999 psi) . . . . .	17	847,824	27,972	18	743,294	24,040
35694 14	High pressure (3,000 psi and above) . . . . .	13	138,116	21,575	14	128,035	19,474
35694 15	Filter replacement elements: Reusable (cleanable) type . . . . .	15	1,185,096	20,592	17	1,529,693	22,469
35694 17	Nonreusable type . . . . .	24	17,840,588	192,203	26	17,351,309	170,305
35694 19	Strainers and separators, filter parts, and accessories . . . . .	21	(X)	32,528	21	(X)	33,033
35695 —	Nonaerospace-type filters for pneumatic fluid power systems . . . . .	(X)	(X)	108,883	(X)	(X)	106,571
35695 32	Air supply filter assemblies and filter replacement elements, excluding those shipped as part of an FR or FRL combo unit: Coalescing types, including elements sold separately . . . . .	14	(X)	44,791	14	(X)	42,341
35695 34	Other types, including elements sold separately . . . . .	13	(X)	35,566	12	(X)	33,246
35695 39	Air exhaust mufflers, diffusers, filter parts, and air preparation accessories . . . . .	17	(X)	28,526	18	(X)	30,984

See footnotes at end of table.

**Table 11. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	1997			1996		
		Number of companies	Quantity	Value	Number of companies	Quantity	Value
	Fluid power products, including aerospace—Con.						
35696 —	Aerospace-type hydraulic and pneumatic filters . . .	(X)	(X)	71,961	(X)	(X)	49,656
35696 51	Hydraulic . . . . .	6	(X)	(D)	6	(X)	(D)
35696 53	Pneumatic . . . . .	3	(X)	(D)	3	(X)	(D)
35699 pt.	Compressed air and gas dryers, and lubricators. . .	(X)	796,268	89,756	(X)	'780,547	87,454
	Compressed air and gas dryers:						
35699 41	Refrigerated dryers . . . . .	5	32,009	37,357	5	29,428	35,294
35699 42	Dessicant dryers . . . . .	7	(D)	31,184	7	(D)	(D)
35699 44	Other compressed air and gas dryers . . . . .	4	(D)	5,721	4	(D)	(D)
35699 13	Lubricators for pneumatic systems, sold separately . . . . .	8	684,153	15,494	8	'634,105	'14,540
35934 —	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary . . . . .	(X)	4,525,809	1,205,303	(X)	'4,122,565	1,104,783
	Hydraulic cylinders, excluding electrohydraulic:						
	Tie-rod types:						
	Standard NFPA and JIC tie-rod types:						
35934 04	Less than 1,500 psi . . . . .	22	157,427	39,704	22	179,830	42,173
35934 06	1,500 to 3,000 psi . . . . .	20	228,809	94,171	20	244,254	88,975
35934 08	Greater than 3,000 psi . . . . .	7	(D)	(D)	8	(D)	(D)
35934 10	Other tie-rod types . . . . .	18	(D)	(D)	18	(D)	(D)
35934 12	Threaded/weld fused combination . . . . .	49	2,801,664	749,553	51	'2,536,817	'620,233
35934 13	Telescoping . . . . .	20	109,634	99,070	22	'105,564	96,477
35934 15	Mill type . . . . .	13	23,873	20,139	13	'24,603	'18,187
35934 16	Other, including those threaded at both ends . . . . .	23	640,260	66,218	22	523,908	115,681
35934 18	Electrohydraulic types . . . . .	8	5,888	19,376	7	'5,586	'16,230
35934 25	Hydraulic rotary actuators . . . . .	14	59,949	53,946	14	'55,402	'46,670
35935 —	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary . . . . .	(X)	6,766,388	460,644	(X)	6,202,537	417,801
	NFPA interchangeable cylinders:						
35935 23	Steel . . . . .	17	272,589	77,115	17	266,594	71,502
	Aluminum:						
35935 24	Less than 1-1/2 inch bore size . . . . .	6	55,563	5,529	7	53,237	4,290
35935 25	1-1/2 inch bore size and over . . . . .	21	344,500	54,209	23	'344,055	'46,036
35935 27	Rodless cylinders . . . . .	12	119,819	39,623	12	120,337	36,968
	Other pneumatic cylinders:						
35935 28	Less than 1-1/2 inch bore size . . . . .	26	4,266,060	147,085	27	3,927,653	133,898
35935 29	1-1/2 inch bore size and over . . . . .	35	1,608,331	110,400	34	1,389,896	96,807
35935 26	Pneumatic rotary actuators . . . . .	15	99,526	26,683	16	'100,765	28,300
35939 —	Parts for nonaerospace-type hydraulic and pneumatic fluid power cylinders, actuators, and related items, n.e.c. . . . .	(X)	(X)	278,280	(X)	(X)	'263,369
35939 31	Accumulators (bladder, piston, and other types) . . . . .	23	216,170	43,752	23	242,523	46,843
35939 34	Shock absorbers, not for vehicle suspension, and cushions (hydraulic and pneumatic) . . . . .	17	2,738,874	69,840	15	'2,076,563	'62,117
35939 36	Reservoirs, intensifiers, and other devices for fluid energy absorption and/or storage . . . . .	11	13,252	2,429	11	'13,182	'2,267
35939 96	Parts for nonaerospace-type hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and nonvehicular shock absorbers, sold separately . . . . .	57	(X)	162,259	61	(X)	'152,142
35932 —	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic . . . . .	(X)	(X)	1,055,050	(X)	(X)	'969,778
	Hydraulic servo-actuator assemblies (linear and rotary):						
35932 51	Mechanical input . . . . .	6	28,649	200,312	6	'24,699	169,304
35932 52	Electrical input . . . . .	7	18,168	293,500	7	'16,889	'269,433
35932 55	Combination input . . . . .	4	(D)	(D)	4	(D)	(D)
	Hydraulic utility actuators:						
35932 61	Linear actuators (cylinders) . . . . .	9	21,411	100,917	9	'19,141	'78,209
35932 62	Rotary actuators (limited rotation) . . . . .	2	(D)	(D)	2	(D)	(D)
35932 71	Shock absorbers, snubbers, and cushions, all types, excluding oleo strut assemblies . . . . .	8	(D)	22,673	9	(D)	'21,556
35932 72	Pneumatic actuators (linear and rotary) . . . . .	8	(D)	(D)	7	(D)	(D)

See footnotes at end of table.

**Table 11. Manufacturer's Shipments of Fluid Power Products, Including Aerospace by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	1997			1996		
		Number of companies	Quantity	Value	Number of companies	Quantity	Value
35932 —	Fluid power products, including aerospace—Con.						
35932 73	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic—Con.						
35932 74	Accumulators (bladder, piston, and other types) . . . . .	11	10,729	8,482	10	7,414	6,298
35932 79	Reservoirs, intensifiers, and other devices for fluid energy absorption and/or storage . . . . .	6	1,457	9,131	6	1,374	8,007
35939 98	Other aerospace-type fluid power cylinders, rotary actuators, cushions, and related items, n.e.c. . . . .	4	(X)	(D)	4	(X)	(D)
35943 —	Parts for aerospace-type hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and related items, sold separately . . . . .	13	(X)	21,603	12	(X)	46,885
35943 15	Nonaerospace-type reciprocating pumps . . . . .	(X)	1,894,152	580,923	(X)	1,615,541	521,968
35943 27	Axial piston:						
35943 37	Variable displacement types:						
35943 36	Closed loop . . . . .	9	1,230,266	366,833	9	1,049,656	334,037
35944 —	Open loop . . . . .	11	292,585	140,958	11	276,372	130,633
35944 30	Fixed displacement types . . . . .	9	(D)	66,297	9	(D)	50,853
35944 34	Radial piston types . . . . .	4	(D)	6,835	4	(D)	6,445
35944 38	Nonaerospace-type rotary and other fluid power pumps . . . . .	(X)	3,075,625	460,498	(X)	2,873,749	432,652
35945 —	Gear type:						
35945 40	Internal gear type, including gerotors . . . . .	11	990,342	97,293	13	930,927	87,295
35945 52	External gear type . . . . .	17	1,703,786	256,477	17	1,572,556	244,139
35945 56	Vane type . . . . .	9	381,497	106,728	9	370,266	101,218
35945 54	Nonaerospace-type fluid power motors . . . . .	(X)	(X)	579,486	(X)	(X)	487,548
35945 55	Pneumatic (air) motors . . . . .	4	(D)	(D)	5	(D)	(D)
35945 56	Hydraulic motors:						
35945 57	Gear type:						
35945 58	Internal types, excluding gerotors . . . . .	7	(D)	(D)	7	(D)	(D)
35945 59	Gerotors types . . . . .	6	1,232,417	189,582	6	1,059,379	157,537
35945 60	External types . . . . .	8	166,272	26,107	8	158,746	23,960
35945 61	Vane types, fixed and variable . . . . .	7	13,479	13,987	7	12,556	12,553
35945 62	Radial piston types, fixed and variable . . . . .	2	(D)	(D)	2	(D)	(D)
35945 63	Axial piston type:						
35945 64	Fixed displacement . . . . .	8	646,537	92,213	8	520,347	79,276
35945 65	Variable displacement . . . . .	8	130,479	73,489	7	97,727	53,721
35945 66	Prime movers shipped with pumps or sold separately . . . . .	6	(X)	(D)	6	(X)	(D)
35946 —	Aerospace-type fluid power pumps and motors . . . . .	(X)	115,112	264,624	(X)	107,967	233,178
35946 71	Hydraulic pumps:						
35946 72	Fixed and variable displacement types . . . . .	10	39,983	142,932	10	33,813	116,119
35946 73	Pump/electric motor assemblies, fixed, and variable displacement types . . . . .	10	31,658	(D)	11	33,453	(D)
35946 74	Other pump packages, n.e.c. . . . .	8	39,124	12,602	8	37,591	12,818
35946 75	Motors:						
35946 76	Pneumatic (air) motors and motor packages . . . . .	-	-	-	-	-	-
35946 77	Hydraulic motors, fixed and variable displacement types . . . . .	3	(D)	(D)	3	(D)	(D)
35946 78	Hydraulic motor packages, including motor/gearbox, motor/valve, motor/generator, and similar combination units . . . . .	4	(D)	8,507	4	(D)	5,546
35949 —	Parts for fluid power pumps, motors, and hydrostatic transmissions . . . . .	(X)	(X)	463,556	(X)	(X)	396,501
35949 91	Hydraulic:						
35949 92	Nonaerospace . . . . .	31	(X)	386,791	32	(X)	340,751
35949 93	Aerospace . . . . .	8	(X)	69,492	8	(X)	51,945
35949 94	Pneumatic:						
35949 95	Nonaerospace . . . . .	1	(X)	(D)	3	(X)	(D)
35949 96	Aerospace . . . . .	2	(X)	(D)	2	(X)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. pt. Part.  
 † Revised by 5 percent or more from previously published data. X Not applicable.



**Table 12. Shipments, Exports, and Imports of Fluid Power Products: 1997**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Export shipments <sup>1</sup>		Import shipments <sup>2</sup>	
		Quantity	Value	Quantity	Value	Quantity	Value
3492A, C, D	Hydraulic fluid power valves . . . . .	29,969,567	1,792,679	2,493,564	171,426	7,861,093	125,582
3492B, E, F	Pneumatic fluid power valves . . . . .	32,912,107	1,129,132	2,224,120	92,616	17,476,864	109,544
3492G	Parts for fluid power valves; hydraulic, pneumatic, and whether or not aerospace.	(X)	304,555	(X)	70,511	(X)	82,064
35932 pt., 35934 pt.	Hydraulic cylinders and hydraulic linear actuators (except electrohydraulic types) . .	4,487,271	1,252,274	348,230	93,008	880,184	163,065
35935 pt.	Pneumatic cylinders (tie-rod types) . . . . .	672,652	136,853	633	1,031	22,050	2,447
35935 pt.	Pneumatic cylinders (except tie-rod types) .	5,994,210	297,108	410,375	31,662	321,525	25,468
35932 pt., 35934 pt., 35935 pt.	Fluid power accumulators, hydraulic and pneumatic, and other hydraulic, pneumatic or combination devices for fluid energy absorption and/or storage, whether or not aerospace . . . . .	536,959	274,814	134,830	98,314	270,045	57,875
35945 pt.	Pneumatic (air) motors and motor packages, whether or not aerospace . . . . .	(D)	(D)	42,674	14,647	13,771	1,458
35945 pt., 35946 pt.	Hydraulic motors, whether or not aerospace . . . . .	3,069,538	528,703	110,014	34,682	179,241	134,955
35943, 35944 pt., 35946 pt.	Hydraulic pumps, whether or not aerospace . . . . .	5,009,760	1,184,353	3,330,245	280,650	2,475,166	251,388
35939 pt., 35949	Parts for fluid power pumps and motors . . .	(X)	1,272,418	(X)	307,874	(X)	249,754

D Withheld to avoid disclosing data for individual companies. pt. Part. X Not applicable.

<sup>1</sup>Source: Census Bureau report, EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report, IM 145, *U.S. Imports for Consumption*.

**HISTORICAL NOTE**

Data on fluid power products have been collected by the Census Bureau since 1981. Historical data may be obtained from Current Industrial reports available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

The MA35N survey is funded by the National Fluid Power Association.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Renee Coley, 301-457-4742.

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## PUMPS AND COMPRESSORS (MA35P)

### INTRODUCTION

This survey covers companies engaged in manufacturing industrial pumps (reciprocating, turbine, centrifugal, rotary, diaphragm, and other pumps); domestic water systems; domestic sump pumps; oil well and oil field pumps; other pumps; air compressors; gas compressors; and vacuum pumps. Very small firms (generally less than five employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies are excluded. Excluded from this survey are hand pumps; measuring and dispensing pumps; automotive circulating pumps; hydraulic fluid power pumps; paint-spraying equipment; compressors for ice making, refrigeration equipment, and air-conditioning units; and replacement and repair parts for pumps and compressors.

The statistics in this publication were collected by mail on Census Bureau annual Form MA35P, Pumps and Compressors. The survey panel includes all known manufacturers of the covered products, except the very small firms excluded from the scope of the survey. Approximately 460 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

In 1997, manufacturers' shipments of pumps and compressors totaled \$8,655.1 million, an increase of 4 percent from the 1996 figure of \$8,326.7 million. The 1997 total includes industrial pumps, \$3,072.3 million, a decrease of 1 percent from the 1996 total of \$3,092.6 million; compressors and vacuum pumps, \$3,455.4 million, an increase of 9 percent from the 1996 total of \$3,176.0 million; domestic water systems, \$357.2 million, a decrease of 1 percent from the 1996 total of \$361.2 million; domestic sump pumps, \$152.4 million, a decrease of 6 percent from the 1996 total of \$162.3 million; oil well and oil field pumps, \$332.7 million, an increase of 22 percent over the 1996 total of \$273.7 million.

Since 1995, replacement parts, sold separately, for pumps and compressors, are included in the survey total, although companies which manufacture only parts and not complete units are presently excluded from the survey. For 1997, in-scope shipments of parts for pumps totaled \$983.4 million, a decrease of 1 percent from the 1996 total of \$995.9 million, and in-scope shipments of compressor and vacuum pumps parts totaled \$361.3 million, an increase of 33 percent from the 1996 total of \$271.9 million.

### EXPLANATION OF TERMS

**Pump.** A device for raising, transferring, moving, or pressurizing fluids.

**Driver.** An electric motor or a prime mover, such as a steam engine, steam or gas turbine, or internal combustion engine.

#### Reciprocating Pumps

*Direct-acting steam-driven.* A reciprocating pump and a steam engine built together as a unit. The power to drive the pump is furnished by the steam engine.

*Power-operated, other than steam.* A reciprocating pump driven by power from an outside source applied to the crankshaft of the pump.

**Vertical turbine pumps (including deep well).** A submersible pump system, over 5 horsepower. Submersible pump systems, 5 horsepower and under, are included in domestic water systems.

#### Centrifugal Pumps

*Centrifugal pump.* A pump in which the pressure is developed principally by the action of centrifugal force. Pumps in this class with single inlet impellers usually have a specific speed below 4,200; and with double suction impellers, a specific speed below 6,000. In pumps of this class, the liquid normally enters the impeller at the hub and flows radially to the periphery.

*Frame-mounted pump.* A pump design in which the impeller is mounted on a shaft, held in a bearing frame and coupled to a motor with a flexible coupling.

*Close-coupled pump.* A pump design in which the impeller is mounted on the motor shaft.

*Mixed-flow pump.* A pump in which the head is developed partly by centrifugal force and partly by the lift of the vanes on the liquid. This type pump has a single inlet impeller with the flow entering axially and discharging in an axial and radial direction. Pumps of this type usually have a specific speed from 4,200 to 9,000.

*Propeller (or axial-flow) pump.* A pump of this type develops most of its head by the propelling or lifting action of the vanes on the liquid. It has a single inlet impeller, with the flow entering axially and discharging nearly axially. Pumps of this type usually have a speed above 9,000.

*Single-stage pump.* A pump in which the total head is developed by one impeller.

*Multistage pump.* A pump having two or more impellers acting in series in one casing.

*Single-suction pump.* A pump equipped with one or more single suction impellers.

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*Double-suction pump.* A pump equipped with one or more double suction impellers.

**Rotary pump.** A positive displacement pump, consisting of a fixed casing containing gears, cams, screws, vanes, plungers, or similar elements actuated by rotation of the drive shaft. These pumps are characterized by their close running clearances and the absence of suction and discharge valves.

**Domestic water system.** A complete water supply pump system for household and farm use, containing driver, tank, and fittings. May include submersible pump systems 5 horsepower and under. Submersible pump systems over 5 horsepower are reported as vertical turbine pumps. Excluded are irrigation pumps, which are reported under industrial pumps by class and type of pump.

*Jet pump.* A pump with built-in jet (ejector) assembly for either shallow or deep well use.

*Nonjet pump.* An electrical reciprocating piston pump for shallow or deep well use.

*Submersible pump.* A pump completely submerged in water (well, pond, reservoir, etc.) that uses a series of impellers and diffusers (stages) on a single shaft or a helical rotor positive displacement design propelled by an oil-filled or water-lubricated motor.

*Domestic hand pumps, etc..* Hand, windmill, or engine-driven well pumps not electrically powered.

**Oil well and oil field pumps.** Included are pumps especially designed for oil well and oil field applications (except boiler feed).

**Vacuum pump.** A device for withdrawing air, gas, or air and gas mixtures from piping systems, enclosed vessels, or enclosed spaces, discharging the air to the atmosphere, and removing the moisture.

**Compressors.** Devices for compressing gases such as air for motive power or natural gas for the transfer of gas or for the recovery of liquid hydrocarbons.

*Stationary air compressors.* Air compressors that are intended for permanent installation and are not typically mobile.

*Portable air compressors.* Air compressors that are mountable on wheels, skids or motor trucks in order to be typically mobile.

*Gas compressors.* This category includes engine-compressor units that generally consist of an integral engine compressor block that houses both the engine and compressor. In such machines, the engine pistons and compressor pistons are mounted on a common crankshaft.

#### STANDARD ABBREVIATIONS

hp	horsepower
ANSI	American National Standards Institute
API	American Petroleum Institute
ISO	International Organization for Standardization
FM	Factory Mutual Insurance Certification
UL	Underwriters' Laboratories
PSI	Pounds per square inch
GPM	Gallons per minute
PSIG	Pounds per square inch gauge (represents the differential between atmospheric pressure and output pressure of compressors)
CFM	Cubic feet per minute

**Table 13. Summary of Quantity and Value of Shipments of Pumps and Compressors: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product description	1997		1996	
	Quantity	Value	Quantity	Value
<b>Total</b> .....	<b>24,336,859</b>	<b>8,655,070</b>	<b>21,671,213</b>	<b>8,326,736</b>
Pumps (except vacuum pumps), including parts.....	21,009,747	5,236,493	18,600,506	5,150,782
Industrial pumps.....	9,773,202	3,072,296	8,859,761	3,092,572
Drivers, reported.....	(X)	359,966	(X)	403,056
Centrifugal pumps (except drivers).....	5,236,122	1,586,969	5,265,557	1,601,807
Submersible, reported.....	789,062	269,977	1,104,096	273,168
Other, reported.....	4,123,882	1,278,130	3,695,134	1,284,492
Estimated from pre-1995-basis reports.....	323,178	38,862	466,327	44,147
Vertical turbine pumps (except drivers).....	59,004	223,049	54,169	241,502
Reported.....	58,613	220,438	53,778	238,891
Estimated from pre-1995-basis reports.....	391	2,611	391	2,611
Reciprocating pumps (except drivers), reported.....	(D)	(D)	(D)	(D)
Diaphragm pumps (except drivers), reported.....	1,691,417	220,760	962,611	189,119
Rotary pumps (except drivers), reported.....	1,069,680	341,200	1,118,330	332,984
Other (except drivers), reported.....	1,081,279	140,965	871,634	119,393
Estimated from other sources (potentially including drivers).....	(D)	(D)	(D)	(D)
Domestic water systems, including drivers.....	2,067,084	357,162	2,086,661	361,198
Reported.....	(D)	356,489	2,081,924	360,378
Estimated from other sources.....	(D)	673	(S)	820
Domestic sump pumps, including drivers.....	2,749,027	152,442	2,786,005	162,261
Reported.....	2,741,110	152,003	2,777,712	161,778
Estimated from other sources.....	(S)	439	(S)	483
Oil well and oil field pumps.....	59,897	332,669	51,046	273,724
Drivers, reported.....	(X)	115,822	(X)	101,006
Except drivers, reported.....	59,359	213,861	50,885	171,856
Reported.....	6,334,015	300,438	4,772,753	262,672
Estimated from other sources (potentially including drivers).....	(S)	1,258	(S)	2,437
Parts (reported; made by manufacturers of complete pumps).....	(X)	983,388	(X)	995,918
Compressors, including vacuum pumps, and parts.....	3,327,112	3,455,417	3,070,707	3,175,954
Air and gas compressors (but not vacuum pumps).....	2,986,189	2,830,537	2,763,481	2,664,740
Drivers (except for one category of gas compressor), reported.....	(X)	258,485	(X)	259,332
Air compressors (except drivers), new, stationary, reported.....	671,693	1,008,028	643,219	1,005,803
Air compressors (except drivers), new, portable, reported.....	2,201,181	598,234	1,994,766	531,610
Gas compressors (usually except driver), new, stationary, reported..	4,153	787,394	3,326	687,196
Other compressors (except drivers), reported.....	(D)	129,719	(D)	121,741
Laboratory vacuum pumps (potentially including drivers; reported)....	(D)	3,534	(D)	(D)
Vacuum pumps (except laboratory).....	(D)	260,024	(D)	(D)
Drivers, reported.....	(X)	15,827	(X)	16,188
Except drivers, reported.....	305,969	227,879	284,295	204,263
Estimated from other sources (potentially including drivers).....	(D)	16,318	(D)	(D)
Parts (reported; made by manufacturers of complete compressors)...	(X)	361,322	(X)	271,908

D Withheld to avoid disclosing data for individual companies.

S Does not meet publication standards.

X Not applicable.

**Table 14. Quantity and Value of Shipments of Pumps and Compressors: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
	Pumps and compressors <sup>1</sup> .....	(X)	24,336,859	8,655,070	21,671,213	8,326,736
35612 —	Industrial pumps (except hydraulic fluid power pumps) .....	(X)	9,773,202	3,072,296	8,859,761	3,092,572
35612 99	Value of drivers <sup>2</sup> .....	89	(X)	359,966	(X)	403,056
	Centrifugal pumps:					
	Sewage type (nonsubmersible), vertical or horizontal with nonclog impeller .....	(X)	12,431	46,226	11,617	43,989
35612 68	12" and under .....	20	12,142	40,086	11,331	35,365
35612 69	Over 12" .....	7	289	6,140	286	8,624
	Submersible effluent pumps (less than 1" solids handling capacity) .....	(X)	349,124	56,817	673,750	58,903
35612 70	Less than 1 hp .....	16	332,634	36,879	656,121	35,671
35612 71	1 hp and over .....	15	16,490	19,938	17,629	23,232
	Submersible solids handling pumps (solids 1" to 2" inclusive) .....	(X)	348,027	75,302	344,531	78,225
35612 72	1/2 hp and under .....	14	300,823	49,491	296,411	48,618
35612 73	Over 1/2 hp .....	21	47,204	25,811	48,120	29,607
	Submersible nonclog pumps (greater than 2" solids handling capacity) .....	(X)	44,407	87,227	43,530	88,652
35612 74	3" discharge and under .....	15	19,998	15,305	19,560	16,968
35612 75	Discharge more than 3" but less than 7" <sup>3</sup> .....	20	23,367	65,704	22,731	60,722
35612 76	7" discharge and over <sup>3</sup> .....	9	1,042	6,218	1,239	10,962
	Submersible grinder pumps (incorporating a hardened stainless steel cutter mechanism to macerate the solids into a fine slurry) .....	(X)	47,504	50,631	42,285	47,388
35612 77	2 hp and below .....	9	38,201	36,887	32,497	32,947
35612 78	Over 2 hp .....	7	9,303	13,744	9,788	14,441
	Single and two stage, single and end suction, close coupled with driver .....	(X)	592,175	167,542	520,739	160,232
35612 03	1" discharge and under .....	32	231,219	37,739	215,359	36,034
35612 07	Discharge more than 1", up to 2" .....	37	276,679	74,016	240,091	69,728
35612 08	Over 2" discharge .....	37	84,277	55,787	65,289	54,470
	Single and two stage, single suction, in-line, close coupled with driver .....	(X)	576,400	39,410	1,056,955	50,012
35612 17	2" discharge and under .....	11	570,044	33,666	1,050,985	43,931
35612 18	Over 2" discharge .....	12	6,356	5,744	5,970	6,081
	Single stage, single suction, vertical, in-line frame .....	(X)	263,575	63,559	198,430	61,014
35612 21	2" discharge and under .....	16	252,814	32,394	185,363	28,466
35612 23	Over 2" discharge .....	12	10,761	31,165	13,067	32,548
	Single stage, single suction, frame or foot mounted, metallic pumps (built to National or International Standards ANSI B73.1 or ISO 2858) .....	(X)	76,312	191,187	70,952	183,847
35612 25	2" discharge and under .....	20	36,764	75,708	31,515	72,774
35612 27	Over 2" discharge .....	20	39,548	115,479	39,437	111,073
	Single stage, single suction, frame or foot mounted, nonmetallic pumps (built to National or International Standards ANSI B73.1 or ISO 2858) .....	(X)	44,230	23,851	43,578	24,918
35612 30	2" discharge and under .....	10	42,684	15,814	41,805	16,832
35612 31	Over 2" discharge .....	7	1,546	8,037	1,773	8,086
	Single stage, single suction, frame or foot mounted, non-ANSI, non-ISO, with or without recessed impeller .....	(X)	71,081	92,835	69,530	87,015
35612 33	1" discharge and under .....	18	15,945	5,776	15,898	5,243
35612 35	Discharge more than 1", up to 2" <sup>4</sup> .....	21	26,877	18,520	23,398	16,646
35612 37	Over 2" discharge .....	24	28,259	68,539	30,234	65,126
	Single stage, single suction, replaceable elastomer lined or hard metal, frame or foot mounted .....	(X)	5,382	61,608	(D)	(D)
35612 41	1" discharge and under <sup>4</sup> .....	5	387	1,440	(D)	(D)
35612 43	Discharge more than 1", up to 2" <sup>4</sup> .....	6	2,072	20,340	(D)	(D)
35612 45	Over 2" discharge <sup>4</sup> .....	8	2,923	39,828	(D)	(D)
	Single stage, single suction, centerline mounted .....	(X)	24,082	61,700	16,226	56,902
35612 46	2" discharge and under <sup>5</sup> .....	8	21,360	19,654	14,244	24,247
35612 47	Over 2" discharge <sup>5</sup> .....	10	2,722	42,046	1,982	32,655
	Single stage, axially split, double suction .....	(X)	17,713	93,654	18,649	92,337
35612 48	4" discharge and under .....	10	4,787	9,394	5,029	10,550
35612 49	Discharge more than 4", up to 8" .....	13	10,155	50,465	10,425	42,029
35612 4A	Over 8" discharge .....	12	2,771	33,795	3,195	39,758

See footnotes at end of table.

Table 14. **Quantity and Value of Shipments of Pumps and Compressors: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35612 —	Pumps and compressors—Con. Industrial pumps (except hydraulic fluid power pumps)—Con. Centrifugal pumps—Con.					
	Single stage, radially split, double suction impeller pumps, API-610 compliant	(X)	171	14,028	226	18,181
35612 4B	4" discharge and under	4	14	761	21	1,427
35612 4C	Discharge more than 4", up to 8"	6	90	7,577	114	8,633
35612 4D	Over 8" discharge	5	67	5,690	91	8,121
	Single stage, radially split, double suction impeller pumps, non-API compliant	(X)	(D)	(D)	(D)	(D)
35612 4E	4" discharge and under <sup>6</sup>	3	(D)	(D)	(D)	(D)
35612 4F	Discharge more than 4", up to 8" <sup>6</sup>	3	(D)	(D)	(D)	(D)
35612 4G	Over 8" discharge <sup>6</sup>	2	(D)	(D)	(D)	(D)
	Multistage, single or double suction, diffuser design, radially split case	(X)	15,566	29,793	15,960	54,868
35612 52	4" discharge and under	8	15,413	19,064	15,717	38,816
35612 53	Discharge more than 4", up to 8" <sup>7</sup>	6	(D)	(D)	(D)	(D)
35612 54	Over 8" discharge <sup>7</sup>	2	(D)	(D)	(D)	(D)
	Multistage, single or double suction, volute or diffuser design, axially split case	(X)	2,684	70,242	2,946	49,216
35612 56	4" discharge and under	12	2,409	43,711	2,731	32,819
35612 57	Discharge more than 4", up to 8" <sup>8</sup>	8	263	25,947	(D)	(D)
35612 58	Over 8" discharge <sup>8</sup>	3	12	584	(D)	(D)
	Sealless centrifugal pumps, magnetic drive	(X)	86,388	32,943	100,560	38,045
35612 60	1" discharge and under	11	82,322	16,282	96,481	21,357
35612 61	Discharge more than 1", up to 2"	9	3,111	9,496	3,325	10,916
35612 62	Over 2" discharge	10	955	7,165	754	5,772
	Sealless centrifugal pumps, canned motor	(X)	17,851	19,625	18,268	20,785
35612 63	1" discharge and under <sup>9</sup>	8	16,602	11,289	(D)	(D)
35612 64	Discharge more than 1", up to 2" <sup>9</sup>	4	(D)	(D)	1,084	7,840
35612 65	Over 2" discharge <sup>9</sup>	3	(D)	(D)	(D)	(D)
	Propeller and mixed flow, horizontal and vertical, including vertical turbine over 36"	(X)	3,691	71,062	3,861	66,542
35612 66	36" and under	16	2,092	40,450	2,229	40,818
35612 67	Over 36"	12	1,599	30,612	1,632	25,724
	All other centrifugal pumps	(X)	2,311,161	193,883	1,538,393	213,894
35612 79	6" discharge and under	35	2,307,869	166,516	1,532,260	171,891
35612 80	Over 6" discharge	13	3,292	27,367	6,133	42,003
35612 CC	Centrifugal pumps, n.s.k. <sup>10</sup>	12	323,178	38,862	<sup>†</sup> 466,327	<sup>†</sup> 44,147
	Vertical turbine pumps not exceeding 36" discharge, including deep-well:					
	Pump with submersible motor	(X)	27,024	62,091	24,203	55,443
35612 81	Bowl diameter 6" and under	18	17,213	27,075	14,382	21,349
35612 82	Bowl diameter over 6"	15	9,811	35,016	<sup>†</sup> 9,821	<sup>†</sup> 34,094
35612 83	Pump and bowl assemblies through 36" (all column and shaft lengths, including FM or UL approved vertical turbine fire pumps; deep well and short coupled pumps, except can and pot type)	14	29,614	124,595	<sup>†</sup> 27,779	155,882
35612 84	Can and pot type (pump and bowl assemblies, suction can and pot type)	11	1,975	33,752	1,796	27,566
35612 VV	Vertical turbine pumps, n.s.k. <sup>10</sup>	2	391	2,611	<sup>†</sup> 391	<sup>†</sup> 2,611
	Reciprocating pumps:					
35612 85	Direct-acting steam-driven	1	(D)	(D)	(D)	(D)
35612 86	Driven by electric motor, engine, or steam turbine					
	Reciprocating piston, plunger or diaphragm (not air operated) pumps	36	567,769	213,696	<sup>†</sup> 513,220	<sup>†</sup> 177,937
35612 87	Diaphragm pumps (air operated)	21	1,691,417	220,760	<sup>†</sup> 962,611	<sup>†</sup> 189,119
	Rotary pumps:					
	100-PSI and under designed pressure	(X)	771,240	216,000	822,189	207,958
35612 88	10 GPM and under, designed capacity	26	538,309	67,363	570,605	65,173
35612 89	11 to 99 GPM, designed capacity	20	193,618	79,854	205,890	74,169
35612 90	100 to 299 GPM, designed capacity <sup>11</sup>	14	29,408	38,465	35,559	39,699
35612 91	300 GPM and over, designed capacity <sup>11</sup>	9	9,905	30,318	10,135	28,917
	101 to 249 PSI, designed pressure	(X)	201,780	80,482	195,123	77,396
35612 92	10 GPM and under, designed capacity	10	149,471	26,150	140,596	23,134
35612 93	11 to 99 GPM, designed capacity	10	35,918	26,990	40,594	30,075
35612 94	100 GPM, and over, designed capacity <sup>11</sup>	8	16,391	27,342	13,933	24,187

See footnotes at end of table.

Table 14. **Quantity and Value of Shipments of Pumps and Compressors: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35612 —	Pumps and compressors—Con. Industrial pumps (except hydraulic fluid power pumps)—Con. Rotary pumps—Con. 250 to 500 PSI, designed capacity:					
35612 95	10 GPM and over, designed capacity <sup>12</sup> .....	8	(D)	9,713	(D)	10,353
35612 96	11 GPM, and over, designed capacity <sup>12</sup> .....	9	(D)	(D)	(D)	(D)
35612 97	Over 500 PSI, designed pressure <sup>12</sup> .....	6	(D)	(D)	(D)	(D)
35612 98	Other industrial pumps, n.e.c. ....	29		1,081,279	140,965	'871,634
35612 00	Industrial pumps, n.s.k. <sup>13</sup> .....	67	(D)	(D)	(D)	(D)
35613 —	Domestic water systems, including drivers .....	(X)		2,067,084	357,162	2,086,661
35613 67	Nonsubmersible pump systems (jet and nonjet, including drivers) .....	20		1,034,794	157,067	1,055,879
	Submersible pump systems, 5 hp and under, including drivers .....	(X)		1,021,048	198,144	1,017,985
35613 76	Up to 1 hp .....	20		799,122	147,488	796,999
35613 77	Over 1 to 3 hp .....	16		136,640	34,746	137,298
35613 78	Over 3 to 5 hp .....	14		85,286	15,910	83,688
35613 90	Domestic hand and windmill pumps, pumps jacks, and cylinders (sold separately, including drivers) .....	3	(D)	1,278	8,060	1,298
35613 00	Domestic water systems and related pumps, n.s.k. ....	3	(D)	673	(S)	820
35614 —	Domestic sump pumps, 1 hp and under, including drivers ..	(X)		2,749,027	152,442	'2,786,005
35614 35	Pedestal, including drivers .....	19		301,972	16,882	363,377
	Submersible, including drivers .....	(X)		2,439,138	135,121	2,414,335
35614 38	1/3 hp and over .....	19		2,258,267	120,916	'2,241,746
35614 39	Over 1/3 hp .....	8		180,871	14,205	172,589
35614 00	Domestic sump pumps, n.s.k. <sup>13</sup> .....	5	(S)	439	(S)	483
35617 —	Oil well and oil field pumps (except boiler feed) .....	(X)		59,897	332,669	51,046
35617 98	Value of drivers <sup>2</sup> .....	9	(X)	115,822	(X)	101,006
35617 01	Subsurface pumps for oil-well pumping .....	10		48,227	156,297	42,036
35617 11	Mud pumps (slush pumps) .....	4	(D)	31,880	(D)	17,630
35617 21	Other oil well and oil field pumps <sup>14</sup> .....	9	(D)	25,684	(D)	20,564
35617 00	Oil well and oil field pumps, n.s.k. <sup>13</sup> .....	6	(S)	2,986	(S)	'862
35618 —	Other pumps, n.e.c., including drivers .....	(X)		6,360,537	301,696	'4,817,033
35618 00	Other pumps (except vacuum pumps, automotive pumps, measuring and dispensing or service station pumps, hand pumps, and hydraulic fluid power pumps), including oil burner and appliance pumps, fire engine pumps, laboratory pumps, packaged pump units, hot water heating circulator pumps, etc.: Reported (or estimated from prior year reports) .....	27		6,334,015	300,438	'4,772,753
35618 02	Estimated from other sources <sup>13</sup> .....	10	(S)	1,258	(S)	'2,437
35619 —	Parts and attachments for pumps and pumping equipment whose product codes begin with 3561; made by manufacturers of complete units only .....	(X)	(X)	983,388	(X)	'995,918
35619 11	Aftermarket (spare) parts for centrifugal pumps .....	50	(X)	693,821	(X)	'688,591
35619 22	Aftermarket (spare) parts for vertical turbine pumps .....	13	(X)	54,942	(X)	59,239
35619 33	Aftermarket (spare) parts for reciprocating pumps .....	21	(X)	84,791	(X)	76,629
35619 95	Other .....	28	(X)	149,834	(X)	171,459
35633 —	Air and gas compressors .....	(X)		2,986,189	2,830,537	2,763,481
35633 98	Value of drivers <sup>2</sup> .....	28	(X)	258,485	(X)	259,332
	Air compressors, new:					
	Stationary, reciprocating, single acting .....	(X)		496,183	298,004	468,892
35633 01	1-1/2 hp and under .....	17		192,775	63,503	'171,300
35633 02	Over 1-1/2 to 5 hp .....	21		253,490	131,268	248,414
35633 03	6 to 25 hp .....	20		48,571	86,557	47,821
35633 04	26 hp and over .....	9		1,347	16,676	1,357
35633 05	Stationary, reciprocating, double acting .....	13	(D)	43,575	(D)	51,544
	Stationary, rotary positive:					
35633 07	Discharge pressure 50 PSIG and under, all hp sizes. Discharge pressure of 51 PSIG and over .....	9	(D)	31,473	(D)	'29,721
35633 11	40 hp and under .....	(X)		28,402	358,256	32,598
35633 12	41-150 hp .....	11		10,070	91,452	'13,466
35633 13	151-300 hp .....	15		12,089	163,357	12,403
35633 15	301 hp and over .....	9		5,697	60,496	'6,257
		6		546	42,951	'472

See footnotes at end of table.

Table 14. **Quantity and Value of Shipments of Pumps and Compressors: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35633 —	Pumps and compressors—Con. Air and gas compressors—Con.					
35633 16	Air compressors, new—Con. Stationary, centrifugal and axial .....	8	(D)	276,720	(D)	270,749
	Portable .....	(X)	2,201,181	598,234	1,994,766	531,612
35633 29	Under 11 CFM <sup>15</sup> .....	12	(D)	(D)	(D)	(D)
35633 33	11 to 74 CFM <sup>15</sup> .....	10	(D)	(D)	(D)	(D)
35633 34	75 to 124 CFM .....	7	707	4,137	548	3,283
35633 36	125 to 249 CFM .....	9	12,710	107,183	12,974	92,481
35633 37	250 to 599 CFM .....	6	2,513	35,308	2,332	31,754
35633 40	600 CFM and over .....	8	2,209	93,939	2,169	74,860
	Gas compressors, new:					
	Stationary, centrifugal and axial .....	(X)	523	309,736	425	304,094
35633 42	Natural gas .....	5	74	119,060	70	133,103
35633 43	All other gases .....	7	449	190,676	355	170,991
	Stationary reciprocating:					
35633 45	Integral engine, including drivers <sup>16</sup> .....	4	230	40,897	(D)	(D)
	Other than integral engine:					
35633 51	1,000 hp and over .....	15	1,469	142,146	1,411	150,700
35633 53	1,001 hp and over .....	8	1,040	250,777	<sup>1</sup> 691	<sup>1</sup> 151,698
35633 56	Stationary rotary positive <sup>16</sup> .....	5	891	43,838	(D)	(D)
35633 88	Other compressors (except for refrigeration, air-conditioning, and ice-making), including rebuilt compressors, compressor packages, and packaged compressor units assembled from purchased compressors .....	15	(D)	129,719	(D)	<sup>1</sup> 121,741
35633 00	Air and gas compressors, n.s.k. <sup>13</sup> .....	16	(D)	48,677	(D)	59,058
38210 —	Laboratory vacuum pumps .....	(X)	(D)	3,534	(D)	(D)
38210 66	Laboratory vacuum pumps, including drivers and replacement parts .....	4	(D)	3,534	(D)	(D)
35634 —	Vacuum pumps, excluding laboratory .....	(X)	(D)	260,024	(D)	(D)
35634 98	Value of drivers <sup>2</sup> .....	14	(X)	15,827	(X)	<sup>1</sup> 16,188
	Low vacuum, 29.5" mercury vacuum and lower:					
35634 61	Under 5 hp .....	17	231,844	52,852	206,386	<sup>1</sup> 49,400
35634 65	5 hp and over .....	13	5,141	41,197	4,750	39,145
	High vacuum, 29.6" mercury vacuum and over:					
35634 73	Under 5 hp .....	15	66,146	104,949	70,491	88,167
35634 77	5 hp and over .....	7	2,838	28,881	2,668	27,551
35634 00	Vacuum pumps, n.s.k. <sup>13</sup> .....	16	(D)	16,318	(D)	(D)
35636 —	Parts and attachments for air and gas compressors and vacuum pumps whose product codes begin with 3563; made by manufacturers of complete units only .....	(X)	(X)	361,322	(X)	271,908
35636 00	Parts and attachments for air and gas compressors and vacuum pumps (except laboratory) .....	31	(X)	361,322	(X)	271,908

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. n.s.k. Not specified by kind. <sup>1</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

<sup>1</sup>Value includes parts but quantity does not.

<sup>2</sup>Value of drivers (electric motors, internal combustion engines, hydrostatic transmissions, steam turbines, etc.) is not included for most product categories but rather placed in one of four separate "driver" categories corresponding to the first five digits of the product code. There is a "driver" category each for product classes 35612, 35617, 35633, and 35634. Drivers may be included in values for products in product classes 35613, 35614, 35618, and 38210, and in product codes 36512 00, 35617 00, 35633 45, 36533 00, and 36534 00; in these cases they are not in the "driver" codes.

<sup>3</sup>Product codes 35612 75 and 35612 76 sum to: 1997 quantity, 24,409.

<sup>4</sup>Product codes 35612 41, 35612 43, and 35612 45 sum to: 1996 quantity, 5,642; 1996 value, 58,772.

<sup>5</sup>Product codes 35612 46, and 35612 47 sum to: 1997 quantity, 24,082; 1996 quantity, 16,226.

<sup>6</sup>Product codes 35612 4E, 35612 4F, and 35612 4G sum to: 1997 value, 4,982; 1996 value, 3,921.

<sup>7</sup>Product codes 35612 53 and 35612 54 sum to: 1997 quantity, 153; 1997 value, 10,729; 1996 quantity, 243; 1996 value, 16,054.

<sup>8</sup>Product codes 35612 57 and 35612 58 sum to: 1997 quantity, 275; 1996 quantity, 215; 1996 value, 16,397.



**Table 14. Quantity and Value of Shipments of Pumps and Compressors: 1997 and 1996—Con.**

<sup>9</sup>Product codes 35612 63, 35612 64, and 35612 65 sum to: 1997 quantity, 17,851. Product codes 35612 64 and 35612 65 sum to: 1997 value, 8,336. Product codes 35612 63 and 35612 65 sum to: 1996 quantity, 17,184, 1996 value, 12,945.

<sup>10</sup>Certain companies which provided acceptable data under classification basis used for 1994 and earlier have not done so under classification basis used since 1995. For these companies last reported quantity and value data for centrifugal pumps (35612 CC) and vertical turbine pumps (35612 VV) provided on former basis have been copied or revised forward for respective year into respective "not specified by kind" (see footnote 13) code. Precursor product codes from which values derive were not intended to include drivers.

<sup>11</sup>Product codes 35612 90, 35612 91, and 35612 94 sum to: 1997 quantity of 59,627.

<sup>12</sup>Product codes 35612 95, 35612 96, and 35612 97 sum to: 1997 quantity, 96,660; 1996 quantity, 101,018. Product codes 35612 96 and 35612 97 sum to: 1997 value, 35,005; 1996 value, 37,277.

<sup>13</sup>Not specified by kind, or "n.s.k.": Values and quantities for a number of manufacturing establishments (either delinquent or too small to be included in survey) were estimated from the 1992 Census of Manufactures and subsequent other surveys and records. Estimates were made only to five-digit product class level. Drivers may in some cases be included. (For product class 35618, there is only one "kind" specified, and beginning with 1996 report, data are split into two product codes, 35618 00 and 35618 02, so that estimates, in latter code, can be kept distinct from reported data.)

<sup>14</sup>Power pumps for water flooding are reported in product code 35612 86.

<sup>15</sup>Product codes 35633 29 and 35633 33 sum to: 1997 quantity, 2,183,042; 1997 value, 357,667; 1996 quantity, 1,976,743; 1996 value, 329,232.

<sup>16</sup>Product codes 35633 45 and 35633 56 sum to: 1996 quantity, 728; 1966 value, 71,414. Both are revised from originally reported sums.

**Table 15. Shipments, Exports, and Imports of Pumps and Compressors: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product description	Manufacturers' shipments <sup>1</sup>		Export shipments <sup>2</sup>		Import shipments <sup>4</sup>	
	Quantity	Value f.o.b. plant	Quantity	Value <sup>3</sup>	Quantity	Value <sup>5</sup>
<b>1997</b>						
Pumps <sup>6</sup> .....	21,009,747	5,236,493	2,366,601	992,187	46,778,165	562,149
Centrifugal pumps, submersible .....	789,062	269,977	287,150	74,143	561,654	29,279
Centrifugal pumps, other <sup>7</sup> .....	4,447,060	1,316,992	159,761	316,085	9,008,684	205,800
Turbine pumps, vertical .....	59,004	223,049	6,126	23,686	19,702	4,987
Reciprocating pumps .....	(D)	(D)	93,411	103,508	448,932	53,775
Diaphragm pumps .....	1,691,417	220,760	191,029	51,984	894,792	22,444
Rotary pumps .....	1,069,680	341,200	84,470	133,595	1,539,105	40,108
Oil well and oil field pumps (except boiler feed) .....	59,897	332,669	7,048	66,456	59,629	11,458
Domestic water systems, including windmill and hand pumps .....	2,067,084	357,162	395,511	29,569	19,902,006	24,834
Other pumps, including domestic water systems and sump pumps, and hot water circulator pumps .....	10,190,843	595,103	1,142,095	193,161	14,343,661	169,464
Compressors <sup>6</sup> .....	2,986,189	2,830,537	1,740,575	192,326	8,843,270	354,414
Stationary air compressors:						
Reciprocating, single and double acting <sup>8</sup> .....	(D)	341,579	(NA)	(NA)	545,505	99,179
Rotary positive, centrifugal, and axial <sup>8</sup> .....	(D)	666,449	(NA)	(NA)	388,073	123,574
Portable air compressors <sup>9</sup> .....	2,201,181	598,234	6,362	97,917	3,466,328	78,268
Other air and gas compressors, including gas compressors, and compressor packages .....	(D)	917,113	1,734,213	94,409	4,443,364	53,393
Vacuum pumps .....	340,923	263,558	379,847	116,936	2,718,399	328,417
<b>1996</b>						
Pumps <sup>6</sup> .....	<sup>1</sup> 17,690,107	<sup>5</sup> 5,150,782	2,035,338	832,376	49,673,091	518,385
Centrifugal pumps, submersible .....	<sup>1</sup> 1,104,096	<sup>7</sup> 273,168	233,450	62,231	521,905	27,601
Centrifugal pumps, other <sup>7</sup> .....	<sup>4</sup> 4,161,461	1,328,639	139,070	257,190	7,057,383	187,229
Turbine pumps, vertical .....	54,169	241,502	4,865	20,747	4,354	2,369
Reciprocating pumps .....	(D)	(D)	70,242	81,954	602,764	51,464
Rotary pumps .....	1,118,330	332,984	65,354	107,690	490,447	47,508
Oil well and oil field pumps (except boiler feed) .....	51,046	273,724	6,078	56,020	2,883	10,611
Domestic water systems, including windmill and hand pumps .....	2,086,661	361,198	344,712	26,187	17,722,109	23,557
Other pumps, including sump pumps, hot water circulator pumps .....	8,474,672	546,763	986,958	177,287	22,844,750	146,901

See footnotes at end of table.

**Table 15. Shipments, Exports, and Imports of Pumps and Compressors: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product description	Manufacturers' shipments <sup>1</sup>		Export shipments <sup>2</sup>		Import shipments <sup>4</sup>	
	Quantity	Value f.o.b. plant	Quantity	Value <sup>3</sup>	Quantity	Value <sup>5</sup>
<b>1996—Con.</b>						
Compressors <sup>6</sup> .....	'2,986,189	'2,830,537	2,308,533	297,835	1,562,144	688,836
Stationary air compressors:						
Reciprocating, single and double acting <sup>8</sup> .....	(D)	326,249	(NA)	(NA)	533,822	62,535
Rotary positive, centrifugal, and axial <sup>8</sup> .....	(D)	679,554	(NA)	(NA)	548,391	133,717
Portable air compressors <sup>8</sup> .....	1,994,766	531,610	6,089	88,865	3,226,709	76,009
Other air and gas compressors, including gas compressors and compressor packages.....	(D)	799,647	1,857,399	87,136	2,827,854	47,012
Vacuum pumps.....	307,226	239,306	445,045	121,834	3,371,031	369,563

D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Manufacturers' shipments generally exclude value of drivers.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Excludes value of drivers.

<sup>4</sup>Source: Census Bureau report IM 145, *U.S. General Imports, and IM 146, U.S. Imports for Consumption*.

<sup>5</sup>Value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus import duties.

<sup>6</sup>Manufacturers' shipments detail does not add to total because of such factors as drivers, parts, and "n.s.k."; see Table 13.

<sup>7</sup>Manufacturers' shipments include product code 35612 CC (see Table 13) which is believed not to include submersible pumps.

<sup>8</sup>Export data for three categories of compressors are combined because one harmonized code in third category may be used interchangeably with any of several codes in first two categories.

**HISTORICAL NOTE**

Data on pumps and compressors have been collected by the Census Bureau since 1960. Data on hydraulic fluid power pumps and motors formerly collected on this survey are now included in the Current Industrial Report, MA35N, Fluid Power Products. Historical data may be obtained from Current Industrial Reports available at your

local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information on these data, contact Keeley Voor, 301-457-4746.

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## ANTIFRICTION BEARINGS (MA35Q)

### INTRODUCTION

These data cover companies engaged in the manufacture of complete antifriction bearings and components, including balls and rollers, in the United States.

The statistics were collected by mail on Census Bureau annual Form MA35Q, Antifriction Bearings. The survey panel includes all known producers of these products, approximately 84 companies.

### SUMMARY OF FINDINGS

The value of shipments of complete antifriction bearings and components, including balls and rollers, was \$5,735.7 million in 1997, an increase of 5 percent over shipments of \$5,488.0 million in 1996. The 1997 total includes: complete ball bearings, \$2,083.8 million, an increase of 5 percent over the 1996 value of shipments; complete tapered roller bearings and roller bearing parts (except rollers), \$1,420.9 million, an increase of 1 percent; other complete roller bearings, \$1,148.7 million, an increase of 13 percent; mounted bearings (except plain), \$426.1 million, a decrease of less than 7 percent; and parts and components for ball and roller bearings, sold separately, \$656.3 million, an increase of 7 percent.

### EXPLANATION OF TERMS

**Antifriction bearing.** A bearing using rolling elements, i.e., balls or rollers. Plain bearings, i.e., those with no rolling elements, are not included.

**Ball bearings, complete.** An antifriction bearing using balls as rolling elements.

**Annular ball bearing.** An antifriction bearing primarily designed to support load perpendicular to shaft axis. More commonly called "radial" ball bearing.

**Ground or precision.** Excludes all unground ball bearings.

**Single-row conrad-ball bearing.** A deep groove ball bearing with only one row of balls and a cage (i.e., retainer, separator). Included are all standard and special types, all inner race configurations (extended, wide, etc.), and all outer race configurations (spherical outside diameter, cylindrical outside diameter, wide, etc.).

**Miniature ball bearing.** Ball bearing with outside diameter below, but not including, 3/8 in. or 9 mm outside diameter.

**ABEC 1 and ABEC 3.** The "regular" standards of ground ball bearing precision.

**ABEC 5 and up.** The higher or "precision" standards of ground ball bearing precision.

**Single-row maximum capacity type.** Distinguished from the conrad type by a filling slot in both outer and inner rings, which allows the bearing to contain a greater number of larger balls than the corresponding conrad bearing without filling slots. Also known as "max" type, "full complement," or "filling slot" ball bearings.

**Integral shaft and integral spindle ball bearings.** Bearings that have a solid inner race, i.e., a shaft that has the ball raceway(s) ground into the shaft surface, thus making the inner race/shaft integral to the bearing. Examples include, but are not restricted to, water pump bearings, some automotive hub units, and computer spindle bearings.

**Double-row ball bearing.** A unitary bearing with two rows of balls. Includes both angular contact and deep groove types, and both conrad and max types. All ABEC 1 and up of all standard and special configurations are included, but self-aligning, double-row bearings are not included.

**Angular contact ball bearings.** Bearings that have a single row of balls whose internal clearances and ball race locations result in a definite contact angle and predetermined relationship of inner to outer ring faces. All standard and special configurations and all ABEC 1 and up precisions are included.

**All other ground or precision ball bearings (ABEC 1 and up).** All radial ball bearings not covered previously. This category includes only those ground ball bearings, etc., that are not classified above. It includes linear ball bearings.

**Ground ball bearings of less than ABEC 1 precision.** All types of radial (single-row, double-row, angular contact, and other) ball bearings that have ground raceways but are less than the ABEC 1 precision grade.

**Unground, including self-aligning (less than ABEC 1).** Antifriction ball bearings with unground raceways. All radial types, styles, and configurations are included.

**Thrust ball bearings.** Concentric axial loading only, both ground (less than ABEC 1 and up) and unground types, of all configurations. Both single-direction thrust and double-direction thrust ball bearings are included. Angular contact bearings are not included.

**Other ball bearings.** Bearings that do not qualify under any of the previous categories. This category only includes bearings that have not been described previously.

**Tapered roller bearing.** An antifriction bearing using taper-shaped rollers as rolling elements.

**Cup and cone assemblies shipped as a set.** This is a complete tapered roller bearing, which includes the cup and cone and roller assembly, each of which may be sold separately.

**Cups.** Tapered bearing outer races.

**Cone assemblies.** Tapered bearing inner race, with cage and rollers.

**Other parts, except rollers.** Includes cages, spacers, railroad end caps, and other miscellaneous items.

**Cylindrical roller bearing.** An antifriction bearing using cylindrical shaped rollers as the rolling elements. Axes of rollers are parallel to the bearing axis. Regular (ABEC 1 and 3) and precision (ABEC 5 and up) are reported separately, but within each category all types and configurations are included: single-row and multirow, radial and thrust, traction motor, journal, aeroengine, and others, except those classified as needle roller bearings, as defined below.

**Spherical roller bearing.** A self-aligning antifriction bearing using convex (spherical, or barrel-shaped) or concave (hourglass shaped) rollers as the rolling elements.

Within each category of single-row and double-row types, all configurations of radial and thrust, and all precisions are included: geared outer, spherangular, air frame, and all other similar types.

**Needle roller bearing.** An antifriction bearing using "needle" roller elements. Needle rollers are cylindrically shaped, but are long and slim, with a uniform diameter not exceeding 5 mm and having a length of at least three times the diameter. The ends of the rollers may be of several shapes.

**Linear bearings.** A roller bearing designed for linear relative motion between its raceways in the direction of rolling. Only includes linear roller bearings. Those pertaining to ball bearings are included in "All other ground or precision ball bearings (ABEC 1 and Up)" category.

**Other roller bearings not specified above.** This category includes roller bearings not classified above.

**Mounted bearings, except plain.** Antifriction ball or roller bearings that are encased (mounted) in an enclosure (a mounting, or housing closure) that is usually made of iron, steel, or rubber. The enclosure, or housing, may be of one piece (unit) or two-piece (split) construction. Major types included are pillow blocks, flange units, takeup units, "rubber tired" bearings, and any other types of mounted bearings. Loose inserts sold separately are not included here, but are included in appropriate bearing categories above.

Table 16. **Value of Shipments for Complete Antifriction Bearings and Components, Including Balls and Rollers by Product Class: 1988 to 1997**

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988 <sup>1</sup>
3562-	Ball and roller bearings . . . . .	5,735.7	5,488.0	5,205.4	4,693.8	4,331.1	4,011.3	3,778.9	4,064.2	3,965.3	3,899.2
35621	Ball bearings, complete . . . . .	2,083.8	1,989.1	1,896.7	1,676.2	1,616.8	1,484.2	1,406.7	1,469.0	1,420.9	1,497.6
35622	Tapered roller bearings, cups and cones . . . . .	1,420.9	1,408.8	1,283.1	1,139.2	1,001.0	935.6	876.8	977.3	963.9	745.7
35623	Roller bearings, complete . . . . .	1,148.7	1,017.4	987.5	935.5	810.4	773.1	794.3	872.4	849.6	834.3
35624	Mounted bearings (except plain) . . . . .	426.1	458.4	459.7	407.8	439.4	378.0	322.9	362.9	344.9	358.2
35629	Parts and components for ball and roller bearings, including balls and rollers sold separately . . . . .	656.3	614.3	578.5	535.1	467.0	440.4	378.3	382.6	386.1	463.4

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Data for 1988 and earlier years may not be directly comparable due to reclassifications.

Table 17. **Quantity and Value of Shipments of Antifriction Ball and Roller Bearings, Components, and Parts: 1997 and 1996**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3562—	Antifriction bearings and components . . . . .	(X)	(X)	5,735,695	(X)	5,487,967
35621 —	Ball bearings, complete . . . . .	50	608,488	2,083,783	591,799	<sup>f</sup> 1,989,073
	Annular, including self-aligning:					
	Ground or precision:					
	Single-row conrad:					
	Miniature (below 9 mm outside diameter):					
35621 01	Regular (ABEC 1 and 3) . . . . .	3	(D)	(D)	(D)	(D)
35621 02	Precision (ABEC 5 and up) . . . . .	4	5,905	24,400	5,665	22,259
	Other regular (ABEC 1 and 3):					
35621 03	9 mm outside diameter through 30 mm outside diameter . . . . .	8	81,316	79,467	81,324	77,959
35621 04	Over 30 mm outside diameter through 52 mm outside diameter . . . . .	12	131,925	204,608	129,562	193,705
35621 05	Over 52 mm outside diameter through 100 mm outside diameter . . . . .	15	38,665	212,208	38,011	215,860
35621 07	Over 100 mm outside diameter . . . . .	14	5,299	193,754	<sup>f</sup> 4,751	<sup>f</sup> 180,180
	Other precision (ABEC 5 and up):					
35621 09	9 mm outside diameter through 30 mm outside diameter . . . . .	3	5,422	69,046	5,562	61,061
35621 11	Over 30 mm outside diameter through 52 mm outside diameter . . . . .	7	720	46,781	719	46,792
35621 12	Over 52 mm outside diameter through 100 mm outside diameter . . . . .	7	229	36,634	214	34,396
35621 13	Over 100 mm outside diameter . . . . .	7	51	49,183	44	38,564
35621 14	Single-row maximum capacity type . . . . .	5	1,520	24,702	1,245	<sup>f</sup> 22,325
35621 18	Integral shaft and integral spindle ball bearings . . . . .	7	22,631	331,398	<sup>f</sup> 26,881	340,096
35621 16	Double row . . . . .	11	29,047	200,992	24,866	172,005
	Angular contact:					
35621 19	Regular . . . . .	9	1,084	73,044	1,007	76,221
35621 22	Precision . . . . .	3	<sup>b</sup> 6,285	<sup>b</sup> 83,081	<sup>f</sup> 6,578	<sup>f</sup> 90,506
35621 21	All other ground or precision bearings (ABEC 1 and up) . . . . .	4	(D)	(D)	(D)	(D)
35621 23	Ground bearings of less than ABEC 1 precision . . . . .	4	<sup>c</sup> 6,498	<sup>b</sup> 44,055	4,987	32,831
35621 25	Unground, including self-aligning (less than ABEC 1) . . . . .	16	217,368	128,759	209,943	<sup>f</sup> 126,756
	Thrust ball bearings:					
35621 33	Ground . . . . .	14	7,799	33,156	5,993	27,340
35621 35	Unground . . . . .	5	5,919	<sup>a</sup> 12,446	<sup>c</sup> 5,386	<sup>a</sup> 11,793
35621 55	Other ball bearings . . . . .	18	39,080	223,361	<sup>f</sup> 37,336	205,262
35622 —	Tapered roller bearings . . . . .	9	264,621	1,420,860	238,529	1,408,772
35622 32	Cup and cone assemblies shipped as a set . . . . .	9	(D)	(D)	(D)	(D)
35622 33	Cups shipped separately . . . . .	6	123,233	296,618	110,935	276,181
35622 34	Cone assemblies shipped separately . . . . .	8	(D)	(D)	(D)	(D)
35623 —	Cylindrical, spherical, needle, and other roller bearings . . . . .	30	851,805	1,148,721	792,635	1,017,413
	Cylindrical roller bearings:					
35623 11	Regular (ABEC 1 and 3) . . . . .	21	89,248	208,322	56,161	161,918
35623 12	Precision (ABEC 5 and up) . . . . .	7	181	73,441	143	<sup>f</sup> 57,363
	Spherical roller bearings, including hourglass and barrel:					
35623 24	Single-row . . . . .	5	(D)	(D)	(D)	(D)
35623 25	Double-row . . . . .	5	808	190,827	867	177,679
35623 41	Needle roller bearings . . . . .	7	658,399	506,252	661,881	496,855
35623 93	Other roller bearings not specified above . . . . .	19	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 17. **Quantity and Value of Shipments of Antifriction Ball and Roller Bearings, Components, and Parts: 1997 and 1996—Con.**

[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3562—	Antifriction bearings and components—Con.					
35624 —	Mounted bearings (except plain) . . . . .	17	9,240	426,063	9,196	458,446
35624 17	Ball bearings, unit and/or split-mounted . . . . .	13	8,112	233,464	7,904	245,714
	Roller:					
35624 53	Unit mounted . . . . .	8	1,005	164,210	1,137	178,720
35624 55	Split-mounted . . . . .	4	123	28,389	155	34,012
35629 —	Parts and components for ball and roller bearings, including balls and rollers sold separately . . . . .	44	(X)	656,268	(X)	614,263
35629 11	Balls:					
	Shipments (quantity in millions of units) . . . . .	15	31,008	249,239	30,429	252,642
	Production for all purposes (quantity in millions of units) . . . . .	14	(S)	(X)	(S)	(X)
35629 21	Other antifriction ball and bearing components and parts, including unassembled ball bearings, cages, housing closures, and races . . . . .	18	(X)	104,805	(X)	104,433
35629 31	Rollers:					
	Shipments (quantity in millions of units) . . . . .	14	16,251	141,340	14,637	124,428
	Production for all purposes (quantity in millions of units) . . . . .	9	(S)	(X)	(S)	(X)
	Other roller bearing parts and components (except rollers):					
35629 35	For tapered roller bearings (except cup and cone assemblies) . . . . .	7	(X)	80,792	(X)	51,143
35629 36	For cylindrical roller bearings . . . . .	3	(X)	(D)	(X)	(D)
35629 37	For spherical roller bearings . . . . .	4	(X)	(D)	(X)	(D)
35629 49	For other roller bearings . . . . .	4	(X)	(D)	(X)	(D)
35629 59	Housing and parts and components for housings, including housing closures, collars, spacers, sleeves, adapters, and other miscellaneous items . . . . .	3	(X)	(D)	(X)	(D)

D Withheld to avoid disclosing data for individual companies.  
S Does not meet publication standards.

Revised by 5 percent or more from previously published data.

X Not applicable.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>15 to 25 percent of this item is estimated. <sup>b</sup>26 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.

**Table 18. Shipments, Exports, Imports, and Apparent Consumption of Antifriction Bearings and Components, Including Balls and Rollers: 1997 and 1996**

[Quantity in thousands of units. Value and duty in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>2</sup>		Apparent consumption <sup>3</sup>	
	Quantity	Value f.o.b. plant	Quantity	Value at port	Quantity	C.i.f. and calculated duty	Quantity	Value
<b>1997</b>								
Radial ball bearings .....	546,777	1,529,024	18,132	164,027	520,486	629,436	1,049,131	1,994,433
Integral shaft and spindle ball bearings .....	22,631	331,398	1,922	22,630	18,530	51,667	39,239	360,435
Other ball bearings .....	39,080	223,361	20,139	106,972	72,714	75,135	91,655	191,524
Tapered roller bearings .....	264,621	1,420,860	20,606	260,495	65,891	169,870	309,906	1,330,235
Cylindrical roller bearings .....	89,429	281,763	2,038	53,588	10,879	108,743	98,270	336,918
Spherical roller bearings .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Needle roller bearings .....	658,399	506,252	16,353	63,069	19,899	32,722	661,945	475,905
Other roller bearings.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mounted bearings:								
Ball.....	8,112	233,464	474	21,335	2,935	22,133	10,573	234,262
Roller.....	1,128	192,599	177	10,356	2,974	13,801	3,925	196,044
Parts for ball and roller bearings:								
Balls (quantity in millions of units) . . .	31,008	249,239	(NA)	31,297	(NA)	13,097	31,008	231,039
Rollers (quantity in millions of units) . .	16,251	141,340	(NA)	35,580	(NA)	25,189	16,251	130,949
Other parts for tapered roller and ball bearings .....	(X)	(D)	(NA)	(D)	(NA)	(D)	(NA)	(D)
<b>1996</b>								
Radial ball bearings .....	527,582	1,443,715	20,569	144,788	496,317	614,455	1,003,330	1,913,382
Integral shaft and spindle ball bearings .....	26,881	340,096	20,569	147,788	512,162	649,741	518,474	842,049
Other ball bearings .....	37,336	205,262	16,741	87,163	68,915	79,029	89,510	197,128
Tapered roller bearings .....	238,529	1,408,772	16,980	223,678	58,480	164,664	280,029	1,349,758
Cylindrical roller bearings .....	56,304	219,281	1,787	48,153	9,417	103,880	63,934	275,008
Spherical roller bearings .....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Needle roller bearings .....	661,881	496,855	12,698	40,691	19,230	27,245	668,413	483,409
Other roller bearings.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mounted bearings:								
Ball.....	7,904	245,714	481	19,179	2,547	21,348	9,970	247,883
Roller.....	1,292	212,732	134	7,417	2,993	13,201	4,151	218,516
Parts for ball and roller bearings:								
Balls (quantity in millions of units) . . .	30,429	252,642	(NA)	52,378	(NA)	14,277	30,429	214,541
Rollers (quantity in millions of units) . .	14,637	124,428	(NA)	34,973	(NA)	23,144	14,637	112,599
Other parts for tapered roller and ball bearings .....	(X)	(D)	(NA)	(D)	(NA)	(D)	(NA)	(D)

D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Apparent consumption is derived by subtracting exports from manufacturers' shipments plus imports.

**HISTORICAL NOTE**

Data on antifriction bearings have been collected by the Census Bureau since 1972. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are also

available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Joanna Nguyen, 301-457-4752.

## MOTORS AND GENERATORS (MA36H)

### INTRODUCTION

These data cover firms engaged in the manufacture of electric motors and generators and engine-driven generator sets in the United States. The statistics were collected by mail on Census Bureau annual Form MA36H, Motors and Generators. The survey panel includes all known manufacturers of these products, approximately 256 companies.

### SUMMARY OF FINDINGS

During 1997, the total value of shipments of motors and generators, including interplant transfers, totaled \$10.2 billion, which remains constant with the 1996 value of \$10.3 billion. The 1997 data for individual categories of motors and generators exhibited the following changes. The value of shipments of fractional horsepower motors

increased 1 percent, from the revised value of \$4.4 billion in 1996, to \$4.4 billion in 1997. The integral horsepower motors and generators decreased 4 percent from \$2.3 billion in 1996, to \$2.2 billion in 1997. The value of land transportation motors and generators was combined with parts for motors and generators to avoid disclosing data for individual companies. The value of shipments of prime mover generator sets increased 16 percent from the revised 1996 value of \$1.5 billion, to \$1.7 billion in 1997. Electric motor generator sets and other rotating equipment, including hermetics and parts, decreased 10 percent from \$2.0 billion in 1996 to \$1.8 billion in 1997.

### EXPLANATION OF TERMS

For explanation of terms, see "Contact for Data Users" at the end of this subsection.

Table 19. Value of Shipments of Motors and Generators by Product Class: 1992 to 1997

[Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992
3621–	Motors and generators . . . . .	10,250.5	10,269.2	10,395.5	9,596.2	9,011.2	8,092.3
36211	Fractional horsepower motors, excluding hermetics . . . . .	4,405.9	<sup>1</sup> 4,358.3	4,766.2	4,469.7	4,242.8	4,019.7
36212	Integral horsepower motors and generators, other than for land transportation equipment . . . . .	2,245.6	2,337.5	2,134.7	1,951.4	1,695.0	1,568.9
36213	Land transportation motors, generators, and control equipment <sup>1</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	138.4
36214	Prime mover generator sets (except steam or hydraulic turbine) . . . . .	1,746.2	<sup>1</sup> 1,505.1	1,480.6	1,395.6	1,245.9	1,087.1
36217	Fractional . . . . .	452.5	446.2	405.4	413.7	358.6	344.1
36218	Integral . . . . .	499.2	583.4	538.8	397.7	381.5	394.6
36219	Parts for motors and generators <sup>1</sup> . . . . .	900.9	1,038.6	1,069.8	968.1	1,087.4	539.4

D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>For years 1993 through 1997, data for industry 36213 are combined with industry 36219 to avoid disclosing data for individual companies.



**Table 20. Quantity and Value of Shipments of Motors and Generators: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3621—	Motors and generators	(NA)	(X)	10,250,479	(X)	10,269,240
36211 —	Fractional horsepower, excluding hermetics and other rotating equipment	(NA)	295,558,574	4,405,930	283,979,667	4,358,338
36211 0M	Used in automobile accessories (such as heaters, convertible tops, and automatic windows; excluding starter motors and generators), including ac and dc	11	94,106,614	1,339,122	90,813,479	1,280,067
	Used in aircraft and spacecraft, excluding generators:					
36211 0N	Ac	15	83,867	32,092	53,728	23,120
36211 0P	Dc	17	262,782	54,743	161,161	44,066
36211 0T	Used in toys (all sizes) and clock type synch and subsynch timing, ac and dc	7	7,346,292	50,963	7,802,499	53,317
	All other uses:					
	Ac (noncommutated)	(NA)	132,890,644	1,739,410	130,297,216	1,865,629
	Single phase or polyphase:					
36211 X2, 3	Less than 746 watts, under 1 hp (three-digit FS) <sup>1</sup>	(NA)	72,953	11,465	77,257	13,445
	Single phase:					
	Skeleton type shaded pole	(NA)	38,594,983	132,278	38,607,556	137,837
36211 1A	Less than 2.75-inch diameter at widest point <sup>2</sup>	8	(D)	(D)	(D)	(D)
36211 1B	2.75-inch diameter and over <sup>2</sup>	5	38,594,983	132,278	38,607,556	137,837
	Conventional type shaded pole	(NA)	51,851,248	446,351	53,323,936	477,746
36211 1C	Less than 2.5-inch diameter	6	15,606,168	78,629	14,833,684	83,378
	2.5- to less than 3.75-inch diameter:					
36211 1D	2 pole	8	5,319,527	90,770	6,166,227	108,633
36211 1Q	4 pole	5	15,091,092	137,618	14,514,140	136,800
36211 1T	6 pole and over	1	(D)	(D)	(D)	(D)
36211 1F	3.75- to less than 4.375-inch diameter	3	3,044,217	41,322	2,841,066	37,699
	4.375- to less than 5.375-inch diameter:					
36211 1G	2 and 4 pole	6	3,062,982	40,777	3,243,968	44,011
36211 1H	6 pole and over	5	9,727,262	57,235	11,724,851	67,225
36211 1I	5.375-inch diameter and over	3	(D)	(D)	(D)	(D)
	Permanent split capacitor	(NA)	26,458,590	541,450	22,327,856	614,922
36211 1J	Less than 2.5-inch diameter <sup>3</sup>	4	(D)	(D)	(D)	(D)
	2.5- to less than 3.75-inch diameter:					
36211 1K	2 pole <sup>3</sup>	9	1,655,549	47,271	2,247,274	52,701
36211 1L	4 pole and over	11	2,033,167	33,149	3,027,137	42,835
	3.75- to less than 4.375-inch diameter:					
36211 1M	2 pole <sup>4</sup>	5	(D)	(D)	(D)	(D)
36211 1V	4 pole <sup>4</sup>	7	(D)	(D)	(D)	(D)
36211 1W	6 pole and over <sup>4</sup>	3	12,331,185	151,919	6,182,973	84,942
	4.375- to less than 5.375-inch diameter:					
36211 1O	2 pole <sup>5</sup>	3	(D)	(D)	(D)	(D)
36211 1P	4 pole <sup>5</sup>	10	2,783,977	55,515	2,129,495	42,076
36211 1R	6 pole and over	6	471,273	14,811	707,921	17,913
	5.375- to less than 6-inch diameter:					
36211 1S	Less than 746 watts, under 1 hp (two-digit FS)	12	6,965,307	221,311	7,851,550	359,761
36212 1A	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup>	5	(D)	(D)	(D)	(D)
	6-inch diameter and over:					
36211 1U	Less than 746 watts, under 1 hp (two-digit FS)	8	218,132	17,474	181,506	14,694
36212 1B	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup>	5	(D)	(D)	(D)	(D)
	Capacitor start	(NA)	3,136,716	147,401	4,054,357	162,046
36211 11	Less than 3.75-inch diameter <sup>7</sup>	5	(D)	(D)	(D)	(D)
36211 14	3.75- to less than 4.375-inch diameter <sup>7</sup>	2	1,072,796	14,099	1,300,973	16,484
36211 15	4.375- to less than 5.375-inch diameter	5	138,163	7,280	115,784	5,451
	5.375- to less than 6-inch diameter:					
36211 16	Less than 746 watts, under 1 hp (two-digit FS)	9	1,178,221	55,840	1,884,507	70,564
36212 1C	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup>	5	(D)	(D)	(D)	(D)
	6-inch diameter and over:					
36211 18	Less than 746 watts, under 1 hp (two-digit FS)	7	747,536	70,182	753,093	69,547
36212 1D	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup>	8	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 20. Quantity and Value of Shipments of Motors and Generators: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3621—	Motor and generators—Con.					
36211—	Fractional horsepower, excluding hermetics and other rotating equipment—Con.					
	All other uses—Con.					
	Ac (noncommutated)—Con.					
	Single phase or polyphase—Con.					
	Single phase—Con.					
	Split phase .....	(NA)	3,276,390	106,286	2,600,861	90,460
36211 30	Less than 3.75-inch diameter .....	2	(D)	(D)	(D)	(D)
36211 31	3.75- to less than 5.375-inch diameter .....	7	(D)	(D)	(D)	(D)
	5.375-to less than 6-inch diameter:					
36211 36	Less than 746 watts, under 1 hp (two-digit FS) . . . .	10	3,276,390	106,286	2,600,861	90,460
36212 3E	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup> .	4	(D)	(D)	(D)	(D)
	6-inch diameter and over:					
36211 38	Less than 746 watts, under 1 hp (two-digit FS) . . . .	6	(D)	(D)	(D)	(D)
36212 3F	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup> .	4	(D)	(D)	(D)	(D)
	All other single phase .....	(NA)	7,752,740	202,454	7,799,397	247,319
36211 41	Less than 6-inch diameter .....	7	7,752,740	202,454	7,799,397	247,319
	6-inch diameter and over:					
36211 48	Less than 746 watts, under 1 hp (two-digit FS) . . . .	4	(D)	(D)	(D)	(D)
36212 4H	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup> .	5	(D)	(D)	(D)	(D)
	Polyphase (servo and nonservo) .....	(NA)	1,747,024	151,725	1,505,996	121,854
36211 55	Synchronous stepper motors .....	8	358,841	10,746	419,248	12,317
	All other polyphase:					
36211 56	Servo (induction rotor) <sup>8</sup> .....	4	(D)	(D)	(D)	(D)
	Nonservo:					
36211 57	Less than 5.375-inch diameter <sup>8</sup> .....	11	211,894	27,110	(D)	(D)
	5.375- to less than 6-inch diameter:					
36211 5T	Less than 746 watts, under 1 hp (two-digit FS) . .	10	600,270	57,106	561,494	54,777
36212 5I	746 watts and over, 1 hp and over (two-digit FS) <sup>9</sup> . . . .	6	(D)	(D)	(D)	(D)
	6-inch diameter and over:					
36211 5V	Less than 746 watts, under 1 hp (two-digit FS) . .	10	576,019	56,763	525,254	54,760
36212 5J	746 watts and over, 1 hp and over (two-digit FS) <sup>9</sup> . . . .	7	(D)	(D)	(D)	(D)
	Ac (commutated) .....	(NA)	49,322,471	576,124	44,135,124	551,342
	Mechanically commutated (brushes, for example):					
	Cased or sleeved:					
36211 6E	Less than 2.875-inch diameter .....	17	7,440,021	100,822	7,686,771	95,524
36211 6F	2.875- to less than 3.188-inch diameter .....	13	10,035,116	112,885	9,192,672	106,061
36211 6G	3.188- to less than 3.563-inch diameter .....	13	245,232	16,051	277,399	17,806
	3.563-inch diameter and over:					
36211 6H	Less than 746 watts, under 1 hp (two-digit FS) . . . .	11	349,185	43,078	288,845	37,438
36212 6K	746 watts and over, 1 hp and over (two-digit FS) <sup>10</sup> . . . .	8	(D)	(D)	(D)	(D)
	Uncased:					
36211 6J	Less than 2.875-inch diameter <sup>11</sup> .....	8	(D)	(D)	(D)	(D)
36211 6K	2.875- to less than 3.188-inch diameter <sup>11</sup> .....	6	31,252,917	303,288	26,689,437	294,513
36211 6L	3.188- to less than 3.563-inch diameter .....	1	(D)	(D)	(D)	(D)
36211 6M	3.563- to less than 4.375-inch diameter .....	2	(D)	(D)	(D)	(D)
	4.375-inch diameter and over:					
36211 6N	Less than 746 watts, under 1 hp (two-digit FS) . . . .	2	(D)	(D)	(D)	(D)
36212 6L	746 watts and over, 1 hp and over (two-digit FS) <sup>10</sup> . .	2	(D)	(D)	(D)	(D)
	Dc or universal motors by case size .....	(NA)	11,545,904	613,476	10,716,460	540,797
	By case diameter:					
36211 6C	Less than 4-inch diameter .....	(S)	(S)	(S)	(S)	(S)
36211 6D	4-inch diameter and over .....	(S)	(S)	(S)	(S)	(S)
	Permanent magnet (brushless):					
	Servo:					
36211 8E	Less than 4-inch diameter .....	18	1,386,972	129,332	1,277,112	111,015
36211 8H	4-inch diameter and over .....	15	129,935	54,989	112,395	51,004
	Nonservo:					
36211 8D	Less than 4-inch diameter .....	22	7,283,914	174,291	6,783,991	160,166
36211 8K	4-inch diameter and over .....	13	406,073	56,714	325,034	46,330
36211 8P	Wound field .....	10	131,256	15,517	129,980	15,018
36211 88	Electronically commutated .....	10	1,958,600	131,004	1,834,634	110,307
	All other:					
36211 89	Servo .....	10	189,245	39,268	197,723	35,714
36211 96	Nonservo .....	6	59,909	12,361	55,591	11,243

See footnotes at end of table.

**Table 20. Quantity and Value of Shipments of Motors and Generators: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3621—	Motors and generators—Con.					
36212 —	Integral horsepower, excluding hermetics and other rotating equipment . . . . .	(NA)	8,752,875	2,245,647	9,296,374	2,337,488
36212 04	Used in aircraft and spacecraft, excluding generators . . . . .	4	(D)	(D)	19,180	35,848
	All other uses:					
	Ac (noncommutated) . . . . .	(NA)	5,042,227	1,626,925	4,897,004	1,655,296
	Motors (single, polyphase induction, and synchronous):					
	Single phase . . . . .	(NA)	1,919,713	186,218	1,643,902	180,155
36211 1W	Less than 746 watts, under 1 hp (three-digit FS) <sup>1</sup> . . . . .	3	(D)	(D)	(D)	(D)
36212 12	746 watts and over, 1 hp and over (three-digit FS) . . . . .	10	289,641	61,660	275,608	59,244
36212 X4	746 watts and over, 1 hp and over (two-digit FS) <sup>6</sup> . . . . .	(NA)	1,630,072	124,558	1,368,294	120,911
	Polyphase induction, excluding synchronous . . . . .	(NA)	3,116,436	1,409,058	3,248,298	1,439,909
	All motors, including Energy Efficient (EE):					
36211 1X	Less than 0.746 watts, less than 1 hp (three-digit FS) <sup>1</sup> . . . . .	6	(D)	(D)	(D)	(D)
36212 X5	746 watts and over, 1 hp and over (two-digit FS) <sup>9</sup> . . . . .	(NA)	1,069,731	120,591	1,016,261	124,454
36212 15	0.746 to 3.371 kW, 1 through 5 hp . . . . .	20	1,232,412	197,890	1,367,945	206,938
36212 16	3.731 to less than 14.921 kW, greater than 5 through 20 hp . . . . .	20	516,172	187,084	576,180	204,176
36212 17	14.921 to less than 37.301 kW, greater than 20 through 50 hp . . . . .	19	174,532	166,458	168,933	174,323
36212 18	37.301 to less than 74.601 kW, greater than 50 through 100 hp . . . . .	19	63,571	128,536	61,530	135,542
36212 19	74.601 to less than 149.201 kW, greater than 100 through 200 hp . . . . .	17	35,561	159,043	35,209	159,599
36212 20	149.601 to less than 373.001 kW, greater than 200 through 500 hp . . . . .	20	18,392	236,694	16,735	244,518
36212 27	373.001 to less than 746.001, greater than 500 through 1,000 hp . . . . .	12	2,533	79,301	2,485	75,387
36212 28	746.001 to less than 1865.001 kW, greater than 1,000 through 2,500 hp . . . . .	7	3,267	97,811	2,754	78,654
36212 29	1,865.001 kW and over, greater than 2,500 hp . . . . .	6	265	35,650	266	36,318
	Energy efficient motors, included in product codes 36212 15 to 36212 19. . . . .	(NA)	323,284	265,197	334,243	220,199
36212 2K	0.746 to 3.371 kW, 1 through 5 hp . . . . .	11	130,238	35,113	151,316	32,874
36212 2L	3.731 to less than 14.921 kW, greater than 5 through 20 hp . . . . .	12	101,730	45,637	109,784	39,732
36212 2M	14.921 to less than 37.301 kW, greater than 20 through 50 hp . . . . .	12	52,516	56,078	42,428	49,126
36212 2N	37.301 to less than 74.601 kW, greater than 50 through 100 hp . . . . .	11	23,672	53,041	19,853	46,178
36212 2P	74.601 to less than 149.201 kW, greater than 100 through 200 hp . . . . .	11	15,128	75,328	10,862	52,289
36212 30	Synchronous (servo and nonservo) . . . . .	6	6,078	31,649	4,804	35,232
	Ac generators (for internal combustion engines) . . . . .	(NA)	143,017	315,562	<sup>†</sup> 129,603	288,693
36212 33	Less than 5 kVA <sup>12</sup> . . . . .	3	(D)	(D)	44,946	23,100
36212 38	5 to less than 15 kVA <sup>12</sup> . . . . .	12	93,697	65,998	<sup>†</sup> 32,157	27,620
36212 40	15 to less than 75 kVA <sup>13</sup> . . . . .	9	(D)	(D)	23,269	31,710
36212 50	75 to less than 375 kVA <sup>13</sup> . . . . .	7	34,614	75,619	15,963	51,366
36212 51	375 to less than 750 kVA . . . . .	7	8,586	43,772	7,497	39,914
36212 55	750 kVA and over . . . . .	4	6,120	130,173	5,771	114,983
	Dc motors and generators, excluding all arc welding and battery charging generators for internal combustion engines . . . . .	(NA)	3,567,631	303,160	4,250,587	357,651
36212 70	0.746 to less than 3.375 kW, 1 through 5 hp . . . . .	11	3,367,942	131,613	4,059,653	161,305
36212 X6	746 watts and over, 1 hp and over (two-digit FS) <sup>10</sup> . . . . .	(NA)	139,854	68,630	119,598	51,115
36212 72	3.375 to less than 74.601 kW, 5 through 100 hp . . . . .	7	59,835	53,058	71,336	71,909
36212 74	74.601 kW and over, greater than 100 hp . . . . .	5	(S)	49,859	(S)	73,322
36213 —	Motors and generators for land transportation, including those used in associated control equipment <sup>14</sup> . . . . .	9	(S)	(D)	(S)	(D)
36214 —	Prime mover generator sets (except steam or hydraulic turbine and electric motor-driven generator sets) . . . . .	(NA)	561,301	1,746,202	<sup>†</sup> 611,269	<sup>†</sup> 1,505,154
	Gas/gasoline engine-driven generator sets, ac and dc output . . . . .	(NA)	453,266	438,609	505,651	458,209
36214 03	Under 1.5 kVA <sup>15</sup> . . . . .	1	(D)	(D)	(D)	(D)
36214 04	1.5 to less than 5 kVA <sup>15</sup> . . . . .	18	311,549	162,550	<sup>†</sup> 357,676	176,583
36214 05	5 to less than 15 kVA . . . . .	18	130,205	145,930	136,654	164,896
36214 07	15 to less than 50 kVA . . . . .	16	7,702	45,455	<sup>†</sup> 7,409	<sup>†</sup> 42,629
36214 08	50 to less than 100 kVA . . . . .	12	2,789	30,249	<sup>†</sup> 3,049	<sup>†</sup> 29,302

See footnotes at end of table.

**Table 20. Quantity and Value of Shipments of Motors and Generators: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3621—	Motors and generators—Con.					
36214 —	Prime mover generator sets (except steam or hydraulic turbine and electric motor-driven generator sets)—Con.					
	Gas/gasoline engine-driven generators, ac and dc output—Con.					
36214 10	100 to less than 500 kVA <sup>16</sup> .....	11	(D)	(D)	(D)	(D)
36214 12	500 to less than 1,000 kVA <sup>16</sup> .....	2	(D)	(D)	(D)	(D)
36214 13	1,000 kVA and over <sup>16</sup> .....	2	1,021	54,425	863	44,799
	Diesel engine-driven generator sets, ac and dc output .....	(NA)	61,805	1,276,613	47,242	1,008,036
36214 41	Under 15 kVA .....	16	20,071	109,428	13,419	61,692
36214 42	15 to less than 50 kVA .....	27	9,961	92,163	7,836	67,208
36214 43	50 to less than 100 kVA .....	25	7,353	84,834	6,316	68,406
36214 44	100 to less than 200 kVA .....	23	5,660	111,878	5,328	92,288
36214 45	200 to less than 400 kVA .....	19	10,495	220,426	6,984	145,454
36214 46	400 to less than 600 kVA .....	14	4,194	196,490	3,252	141,661
36214 47	600 to less than 800 kVA .....	14	935	70,897	735	48,363
36214 48	800 to less than 1,000 kVA .....	11	702	63,295	1,093	79,509
36214 49	1,000 to less than 2,000 kVA .....	12	2,391	303,188	2,237	277,664
36214 50	2,000 to less than 3,000 kVA <sup>17</sup> .....	3	(D)	(D)	(D)	(D)
36214 51	3,000 kVA and over <sup>17</sup> .....	3	43	24,014	42	25,791
	Dual fuel (oil and gas) engine-driven generator sets, ac and dc output .....	(NA)	46,230	30,980	58,376	38,909
36214 52	Under 2,000 kVA .....	-	-	-	-	-
36214 53	2,000 kVA and over .....	-	-	-	-	-
36214 75	Other generator set units, excluding electric motor-driven generator sets .....	5	46,230	30,980	58,376	38,909
36217, 8	Electric motor-driven generator sets .....	(NA)	22,516,915	951,749	24,114,826	1,029,646
	Electric motor-driven generator sets, including dynamotors, converters, inverters, and frequency changers:					
36218 11	Synchro converters and double current generators, 746 watts or more <sup>18</sup> .....	1	(D)	(D)	(D)	(D)
	Other motor generator sets:					
36217 21	Ac and dc output rated at less than 746 watts <sup>18</sup> .....	6	9,659	6,446	8,082	6,001
36218 30	Ac and dc output rated at 746 watts or more:					
36218 30	Ac output, based on the rating of the largest ac generator <sup>19</sup> .....	9	(D)	(D)	(D)	(D)
36218 40	Dc output, based on the rating of the largest dc generator <sup>19</sup> .....	3	5,841	19,881	5,569	23,674
	Other rotating equipment:					
36217 53	Rate generators, resolvers, and combinations (less than 746 watts) <sup>20</sup> .....	10	(D)	(D)	(D)	(D)
36217 57	Synchro-type components, less than 746 watts <sup>20</sup> .....	5	513,383	132,099	489,905	136,289
	All hermetic motors:					
36217 97	5.5-inch stator core diameters, and smaller .....	7	11,576,625	291,346	10,149,245	285,938
36218 97	Over 5.5-inch stator core diameters .....	10	10,339,724	446,505	13,392,824	520,084
	All other rotating equipment:					
36217 98	Rated at less than 746 watts .....	9	61,930	25,521	52,190	21,196
36218 98	Rated at 746 watts or more .....	9	9,753	29,951	17,011	36,464
36219 —	Parts for motors and generators regardless of output rating <sup>14 21</sup> ..	(NA)	(X)	900,951	(X)	1,038,614
36219 90	Commutators <sup>21</sup> .....	11	(X)	(D)	(X)	(D)
36219 59	Land transportation <sup>21</sup> .....	4	(X)	(D)	(X)	(D)
36219 95	All other parts <sup>21</sup> .....	60	(X)	(D)	(X)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. FS Frame size. NA Not available. †Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

<sup>1</sup>Data are included in product code 36211 X2, 3.

<sup>2</sup>Data for product code 36211 1A and 36211 1B are combined to avoid disclosing data for individual companies.

<sup>3</sup>Product codes 36211 1J and 36211 1K are combined to avoid disclosing data for individual companies.

<sup>4</sup>Product codes 36211 1M, 36211 1V, and 36211 1W are combined to avoid disclosing data for individual companies.

<sup>5</sup>Product codes 36211 1O and 36211 1P are combined to avoid disclosing data for individual companies.

<sup>6</sup>Data are included in product code 36212 X4.

<sup>7</sup>Data for product code 36211 11 are included with product code 36211 14 to avoid disclosing data for individual companies.

<sup>8</sup>For 1997, product code 36211 56 is included with product code 36211 57 to avoid disclosing data for individual companies.

<sup>9</sup>Data are included in product code 36212 X5.

<sup>10</sup>Data are included in product code 36212 X6.

<sup>11</sup>Product code 36211 6J and 36211 6K are combined to avoid disclosing data for individual companies.

<sup>12</sup>For 1997, product code 36212 33 is included with product code 36212 38 to avoid disclosing data for individual companies.

<sup>13</sup>For 1997, product code 36212 40 is included with product code 36212 50 to avoid disclosing data for individual companies.

Table 20. **Quantity and Value of Shipments of Motors and Generators: 1997 and 1996**—Con.

- <sup>14</sup>Industries 36213 and 36219 are combined to avoid disclosing data for individual companies.
- <sup>15</sup>Product codes 36214 03 and 362 04 are combined to avoid disclosing data for individual companies.
- <sup>16</sup>Product codes 36214 10, 36214 12, and 36214 13 are combined to avoid disclosing data for individual companies.
- <sup>17</sup>Product codes 36214 50 and 36214 51 are combined to avoid disclosing data for individual companies.
- <sup>18</sup>Product codes 36218 11 and 36217 21 are combined to avoid disclosing data for individual companies.
- <sup>19</sup>Product codes 36218 30 and 36218 40 are combined to avoid disclosing data for individual companies.
- <sup>20</sup>Product codes 36217 53 and 36217 57 are combined to avoid disclosing data for individual companies.
- <sup>21</sup>Product code 36219 90, 36219 59, and 36219 95 are combined with industry 36219 to avoid disclosing data for individual companies.

Table 21. **Quantity and Value of Total Shipments and Interplant Transfers of Motors and Generators and Quantity of Motors and Generators Produced and Incorporated Into Other Products at the Same Establishment: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Total shipments, including interplant transfers		Interplant transfers		Produced and incorporated (quantity)
		Quantity	Value	Quantity	Value	
<b>1997</b>						
3621—	Motors and generators:					
36211 —	Fractional horsepower motors, excluding hermetics . . . . .	295,558,574	4,405,930	17,583,932	199,056	37,949,710
36212 —	Integral horsepower motors and generators, excluding hermetics . . . . .	8,752,875	2,245,647	2,955,225	77,686	2,010,630
	Alternating current:					
36212 00	Polyphase, induction greater than 1 hp . . . . .	2,046,705	1,288,467	16,712	22,607	5,819
36212 XX	Other . . . . .	1,069,731	120,591	-	-	-
36213 —	Motors and generators for land transportation equipment <sup>1</sup> . . . . .	(S)	(D)	(S)	(D)	(S)
36214 —	Prime mover generator sets (except steam and hydraulic turbine) . . . . .	561,301	1,746,202	(D)	(D)	(D)
36217 —	Electric motor generator sets and other rotating equipment, including hermetics with power rating less than 746 watts <sup>2</sup> . . . . .	12,161,111	452,521	(D)	(D)	(D)
36218 —	Electric motor generator sets and other rotating equipment, including hermetics with a power rating of 746 watts or more <sup>2</sup> . . . . .	10,355,804	499,228	9,536,067	121,315	(D)
36219 —	Parts for motors and generators <sup>1</sup> . . . . .	(X)	900,951	(X)	102,580	(X)
<b>1996</b>						
3621—	Motors and generators:					
36211 —	Fractional horsepower motors, excluding hermetics . . . . .	<sup>1</sup> 283,979,667	<sup>1</sup> 4,358,338	<sup>1</sup> 14,645,551	<sup>1</sup> 173,460	38,044,907
36212 —	Integral horsepower motors and generators, excluding hermetics . . . . .	9,296,374	2,337,488	4,431,422	111,106	<sup>1</sup> 1,463,438
	Alternating current:					
36212 00	Polyphase, induction greater than 1 hp . . . . .	2,232,037	1,315,455	17,809	28,510	5,062
36212 XX	Other . . . . .	1,016,261	124,454	-	-	-
36213 —	Motors and generators for land transportation equipment <sup>1</sup> . . . . .	(S)	(D)	(S)	(D)	(S)
36214 —	Prime mover generator sets (except steam and hydraulic turbine) . . . . .	<sup>1</sup> 611,269	<sup>1</sup> 1,505,154	(D)	(D)	(D)
36217 —	Electric motor generator sets and other rotating equipment, including hermetics with power rating less than 746 watts <sup>2</sup> . . . . .	10,698,880	446,225	(D)	(D)	(D)
36218 —	Electric motor generator sets and other rotating equipment, including hermetics with a power rating of 746 watts or more <sup>2</sup> . . . . .	13,415,946	583,421	<sup>1</sup> 10,232,486	<sup>1</sup> 136,622	(D)
36219 —	Parts for motors and generators <sup>1</sup> . . . . .	(X)	1,038,614	(X)	<sup>1</sup> 98,561	(X)

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

- <sup>1</sup>Industries 36213 and 36219 are combined to avoid disclosing data for individual companies.
- <sup>2</sup>For 1997 and 1996, interplant transfers for industries 36217 and 36218 are combined to avoid disclosing data for individual companies.

Table 22. **Shipments, Exports, Imports, and Apparent Consumption of Motors and Generators: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup> (value at port)	Imports for consumption <sup>2</sup> (value)
		Quantity	Value f.o.b. plant		
<b>1997</b>					
36211 —	Fractional horsepower motors and generators (except hermetics) . . . . .	295,558,574	4,405,930	509,972	1,827,670
36212 —	Integral horsepower motors and generators . . . . .	8,752,875	2,245,647	869,256	951,185
36213 —	Motors and generators for land transportation <sup>3</sup> . . . . .	(S)	(D)	(D)	(D)
36214 —	Prime mover generator sets (except steam or hydraulic and electric motor driven):				
	Gas/gasoline driven:				
	Less than 5 kVA (36214 03, 04) <sup>4</sup> . . . . .	311,549	162,550	(D)	(D)
	5 kVA and over (36214 05, 07, 08) <sup>4</sup> . . . . .	140,696	221,634	74,717	78,878
	Diesel engine-driven:				
	Less than 400 kVA (36214 41 to 45) <sup>5</sup> . . . . .	53,540	618,729	(D)	(D)
	400 kVA to less than 1,000 kVA (36214 46 to 48) <sup>5</sup> . . . . .	5,831	330,682	(D)	(D)
	1,000 kVA and over (36214 49 to 51) <sup>5</sup> . . . . .	2,434	327,202	518,377	51,788
	Other (36214 to 75) . . . . .	46,230	30,980	420,097	19,058
36217, 8	Electric motor-driven generator sets, hermetics, and other rotating equipment:				
	Synchronous converters, double current generators, and electric motor-driven generator sets (36217 21, 36218 11, 30, 40) <sup>6</sup> . . . . .	15,500	26,327	(D)	(D)
	Hermetic motors (36217 97, 36218 97) <sup>6</sup> . . . . .	21,916,349	737,851	(D)	(D)
	Other rotating equipment (36217 53, 57, 98, 36218 98) <sup>6</sup> . . . . .	585,066	187,571	15,367	7,844
36219 —	Parts for all electric motors and generators (36219 59 to 95) <sup>3</sup> . . . . .	(X)	900,951	1,015,251	741,665
<b>1996</b>					
36211 —	Fractional horsepower motors and generators (except hermetics) . . . . .	<sup>†</sup> 283,979,667	<sup>†</sup> 4,358,338	450,328	1,665,953
36212 —	Integral horsepower motors and generators . . . . .	9,296,374	2,337,488	598,306	826,356
36213 —	Motors and generators for land transportation <sup>3</sup> . . . . .	(S)	(D)	(D)	(D)
36214 —	Prime mover generator sets (except steam or hydraulic and electric motor driven):				
	Gas/gasoline driven:				
	Less than 5 kVA (36214 03, 04) <sup>4</sup> . . . . .	<sup>†</sup> 357,676	176,583	(D)	(D)
	5 kVA and over (36214 05 to 08) <sup>4</sup> . . . . .	147,112	236,827	73,179	68,899
	Diesel engine-driven:				
	Less than 400 kVA (36214 41 to 45) <sup>5</sup> . . . . .	39,883	<sup>†</sup> 435,048	(D)	(D)
	400 kVA to less than 1,000 kVA (36214 46 to 48) <sup>5</sup> . . . . .	5,080	<sup>†</sup> 269,533	(D)	(D)
	1,000 kVA and over (36214 49 to 51) <sup>5</sup> . . . . .	2,279	303,455	624,624	52,881
	Other (36214 to 75) . . . . .	<sup>†</sup> 58,376	38,909	372,987	29,741
36217, 8	Electric motor-driven generator sets, hermetics, and other rotating equipment:				
	Synchronous converters, double current generators, and electric motor-driven generator sets (36217 21, 36218 11, 30, 40) <sup>6</sup> . . . . .	13,651	<sup>†</sup> 29,675	(D)	(D)
	Hermetic motors (36217 97, 36218 97) <sup>6</sup> . . . . .	23,542,069	806,022	(D)	(D)
	Other rotating equipment (36217 53, 57, 98, 36218 98) <sup>6</sup> . . . . .	559,106	<sup>†</sup> 193,949	12,436	6,039
36219 —	Parts for all electric motors and generators (36219 59 to 95) <sup>3</sup> . . . . .	(X)	1,038,614	769,094	714,809

D Withheld to avoid disclosing data for individual companies. meet publication standards. X Not applicable.

<sup>†</sup>Revised by 5 percent or more from previously published data.

S Does not

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Table 22. **Shipments, Exports, Imports, and Apparent Consumption of Motors and Generators: 1997 and 1996—Con.**

<sup>1</sup>Source: Census Bureau Report, EM 545, *U.S. Exports*

<sup>2</sup>Source: Census Bureau IM 145, *U.S. Imports for Consumption*.

<sup>3</sup>Data for industry 36213 – are combined with industry 36219 to avoid disclosing data for individual companies.

<sup>4</sup>Export and import data for product codes 36214 03, 36214 04, 36214 05, 36214 07, and 36214 08 are combined to avoid disclosing data for individual companies.

<sup>5</sup>Export and import data for product codes 36214 41, 36214 42, 36214 43, 36214 44, 36214 45, 36214 46, 36214 47, 36214 48, 36214 49, 36214 50, and 36214 51 are combined to avoid disclosing data for individual companies.

<sup>6</sup>Export and import data for product codes 36217 21, 36218 11, 36218 30, 36218 40, 36217 97, 36218 97, 36217 53, 36217 57, 36217 98, and 36218 98 are combined to avoid disclosing data for individual companies.

Note: Beginning in 1989, data for exports and imports were classified under a new harmonized system for better comparability.

### **HISTORICAL NOTE**

Data on motors and generators have been collected by the Census Bureau since 1960. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are

also available on microfiche; contact Customer Services, 301-457-4100.

### **CONTACT FOR DATA USERS**

For additional information about these data, contact Tempie Whittington, 301-457-4800.

# Chapter 10.

## Heavy Machinery

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### FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT (MA35A)

#### INTRODUCTION

These data cover firms engaged in the manufacture of farm machinery and lawn and garden equipment. Very small firms (generally less than five employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies are excluded.

The statistics were collected by mail on Census Bureau annual Form MA35A, Farm Machinery and Lawn and Garden Equipment. The survey panel includes all known producers of these products, except the very small firms excluded from the scope of the survey. Approximately 751 companies are included. No estimate is derived for the small firms excluded from the survey.

#### SUMMARY OF FINDINGS

During 1997, factory shipments of farm machinery and equipment, including parts and attachments, produced by original equipment manufacturers (OEM), totaled \$13,993.0 million, an increase of 16 percent from 1996 shipments of \$12,108.0 million. Shipments of farm dairy machines, sprayers, dusters, elevators, and farm blowers, and parts totaled \$796.4 million, a decrease of 5 percent over the 1996 total of \$839.2 million. The value of shipments for harvesting machinery increased 10 percent, from \$2,967.0 in 1996 to \$3,249.0 in 1997. Haying machinery increased 18 percent, from \$670.3 in 1996 to \$792.5 in 1997.

The value of shipments for commercial turf and ground equipment, including parts, was \$1,229.1 million in 1997, a 10-percent increase over the \$1,118.5 million reported for 1996.

The value of shipments of consumer lawn, garden, and snow equipment, including parts and attachments, was \$5,984.0 million in 1997, a 3-percent increase over the \$5,818.0 million in 1996.

#### EXPLANATION OF TERMS

**Net engine horsepower.** Net engine horsepower (nehp) is defined as net fly wheel performance as measured by the manufacturer, with all standard accessories operated, and corrected to 29.38 inches mercury Hg and temperature of 85° Fahrenheit.

**Lawn tractors and riding mowers.** A self-propelled riding vehicle, generally designed for cutting grass, that is not capable of pulling a plow.

**Garden tractors.** A self-propelled riding vehicle designed for general-purpose lawn and garden work. This vehicle is capable of pulling a plow. All attachments for garden tractors are removable.

**Turf tractors.** A self-propelled riding vehicle, typified by a low center of gravity, equipped with wide turf-tread tires.

**Parts for farm machinery and equipment.** Parts are manufactured components essential to the completeness and proper operation of a machine, vehicle, or apparatus. Parts data include only parts sold for replacement and repair. Parts sold to manufacturers for incorporation in their own products are excluded.

**Attachments for farm machinery and equipment.** Attachments are supplementary devices designed to be attached to a vehicle or apparatus. These supplementary devices either (1) vary or extend the function of the basic unit or (2) add to the convenience or effectiveness of the basic unit.



**Table 1. Value of Shipments of Farm Machinery and Lawn and Garden Equipment by Type of Equipment: 1991 to 1997**

[Value in millions of dollars]

Product description <sup>1</sup>	1997	1996	1995	1994	1993	1992	1991
Farm dairy machines, sprayers, dusters, elevators, and farm blowers . . . . .	796.4	839.2	764.7	709.0	591.1	469.9	449.2
Planting, seeding, and fertilizing machinery . . . . .	1,107.0	862.3	852.9	949.1	804.6	634.1	601.0
Harvesting machinery . . . . .	3,248.7	2,966.8	2,666.8	2,201.4	2,036.9	1,863.7	2,158.0
Haying machinery . . . . .	792.5	670.3	729.4	748.6	622.5	558.2	659.1
Plows, harrows, rollers, pulverizers, cultivators, and weeders . . . . .	695.3	542.0	512.5	480.4	404.4	380.8	441.1
Commercial turf and grounds care equipment . . . . .	1,229.2	1,118.5	1,120.3	1,022.0	880.8	781.8	724.8
Consumer nonriding lawn, garden, and snow equipment . . . . .	3,027.9	2,957.0	3,095.0	3,003.0	2,408.8	2,133.2	1,987.5
Consumer riding lawn, garden and snow equipment . . . . .	2,956.0	2,861.0	2,874.3	2,747.6	2,394.5	2,118.6	1,985.4

<sup>1</sup>Each type of farm machinery, commercial turf and grounds care equipment, and lawn and garden equipment includes parts and attachments.

**Table 2. Manufacturers' Shipments of Farm Machinery and Lawn and Garden Equipment by Type: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3523 —	Farm machinery and equipment, including parts and attachments . . . . .	(NA)	(X)	13,992,584	(X)	12,107,527
35231 —	Wheel tractors (except contractors' off-highway wheel tractors, garden tractors, turf tractors, and motor tillers) and attachments . . . . .	19	(X)	3,841,495	(X)	2,957,778
	Wheel tractors, farm-type (PTO hp) . . . . .	(NA)	(D)	(D)	(D)	(D)
35231 01	2-wheel drive, including front wheel assist types . . . . .	9	(D)	(D)	(D)	(D)
35231 30	4-wheel drive, including tractors with equal size tires, front and rear . . . . .	6	(D)	(D)	(D)	(D)
35231 87	Attachments for wheel tractors, farm-type . . . . .	11	(X)	42,388	(X)	39,433
35239 26	Parts for wheel tractors, farm-type . . . . .	17	(X)	<sup>a</sup> 290,885	(X)	<sup>t</sup> 297,888
35232 —	Farm dairy machines, sprayers, dusters, elevators, and farm blowers . . . . .	(NA)	(X)	679,116	(X)	726,333
35232 pt.	Farm dairy machines and equipment . . . . .	16	(X)	89,018	(X)	84,078
	Mechanical installations:					
35232 04	Milking machines, complete, suspended and floor-type bucket, single and double units . . . . .	4	(D)	(D)	(D)	(D)
35232 08	Pipeline milking units, complete, including claws, shells, inflations, and air tubes, with or without pulsator . . . . .	6	(D)	(D)	(D)	(D)
35232 13	Other farm dairy machines and equipment . . . . .	14	27,621	<sup>a</sup> 24,472	25,351	25,539
35232 16	Attachments for farm dairy machines and equipment . . . . .	6	(X)	(D)	(X)	(D)
35239 30	Parts for farm dairy machines and equipment, replacement units only . . . . .	10	(X)	27,371	(X)	<sup>t</sup> 26,469
35232 pt.	Sprayers and dusters . . . . .	72	(X)	519,193	(X)	581,557
	Power sprayers, field and row crop types only:					
35232 19	Self-propelled . . . . .	16	4,355	306,147	4,983	375,244
35232 30	Tractor mounted . . . . .	29	<sup>a</sup> 8,761	<sup>b</sup> 18,120	8,257	16,704
	Other than tractor mounted:					
35232 40	Power take-off driven, piston pump type . . . . .	11	837	5,359	707	4,483
35232 45	Nonpiston pump type . . . . .	18	<sup>a</sup> 3,362	11,440	<sup>t</sup> 2,593	<sup>t</sup> 9,710
35232 48	Other power sprayers, over 4 g.p.m. . . . .	8	497	3,165	576	3,697
	Power sprayers, other than row crop and field types, over 4 g.p.m.:					
35232 47	Power take-off driven . . . . .	10	<sup>a</sup> 773	3,855	<sup>t</sup> 772	<sup>t</sup> 3,373
35232 49	Engine-driven . . . . .	14	<sup>c</sup> 4,053	<sup>b</sup> 5,584	<sup>c</sup> 3,892	<sup>c</sup> 6,801
35235 50	Air carried type power sprayers (field, row crop, and orchard types) . . . . .	6	740	<sup>a</sup> 7,475	658	<sup>a</sup> 7,584
35235 51	Foggers and mist sprayers, portable . . . . .	5	<sup>b</sup> 10,286	<sup>b</sup> 3,167	<sup>b</sup> 14,663	<sup>b</sup> 5,238
35232 58	Hand-pulled and garden-type 4 g.p.m. and under . . . . .	14	<sup>a</sup> 68,453	10,268	63,537	10,863

See footnotes at end of table.

**Table 2. Manufacturers' Shipments of Farm Machinery and Lawn and Garden Equipment by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35232 —	Farm dairy machines, sprayers, dusters, elevators, and farm blowers—Con.					
35232 pt.	Sprayers and dusters—Con.					
	Sprayers, agricultural hand:					
35232 59	Under 1 gallon . . . . .	4	692,658	3,698	534,557	2,840
	1 gallon and over:					
35232 61	Compressed air or gas . . . . .	6	6,591,679	106,160	6,244,728	104,243
35232 62	Other, including knapsack, hose end, and flame sprayers, and sprayer pumps . . . . .	10	9,229,689	14,829	7,340,445	11,642
35232 67	Dusters, power, and hand, all types. . . . .	7	82,996	1,065	80,998	1,054
35232 68	All other sprayers . . . . .	9	(X)	<sup>a</sup> 2,828	(X)	2,808
35232 69	Attachments for sprayers and dusters . . . . .	19	(X)	<sup>a</sup> 16,033	(X)	<sup>a</sup> 15,273
35239 35	Parts for sprayers and dusters, replacement units only . . . . .	40	(X)	79,804	(X)	<sup>r</sup> 77,183
35232 pt.	Farm elevators and blowers . . . . .	35	(X)	70,905	(X)	60,698
	Farm elevators, portable:					
35232 70	Single and double chain . . . . .	11	<sup>a</sup> 1,855	<sup>c</sup> 3,881	<sup>b</sup> 1,344	<sup>c</sup> 3,643
35232 72	Auger type . . . . .	11	14,215	27,391	12,416	20,543
35232 73	Other farm portable and stationary augers and elevators . . . . .	15	48,372	<sup>b</sup> 25,612	40,101	<sup>b</sup> 21,680
35232 74	Other farm blowers, including forage blowers, and combination grain and forage blowers. . . . .	7	988	3,906	1,228	4,681
35232 75	Attachments for farm elevators and blowers . . . . .	12	(X)	<sup>c</sup> 10,115	(X)	<sup>a</sup> 10,151
35239 40	Parts for farm elevators and for grain and forage blowers, replacement units only . . . . .	20	(X)	<sup>b</sup> 10,133	(X)	<sup>b</sup> 9,215
35233 —	Planting, seeding, and fertilizing machinery . . . . .	127	(X)	974,449	(X)	757,215
35233 21	Corn planters, corn and cotton planters, and lister planters, pull-type and mounted (total rows mounted) . . . . .	10	(D)	(D)	(D)	(D)
35233 24	Grain drills (fixed frame), all types . . . . .	12	10,549	185,609	10,366	177,812
35233 40	Transplanters (pull-type or mounted) and broadcast seeders (end-gate, mounted and drawn) . . . . .	8	12,339	8,619	13,018	7,585
	Fertilizer distributors (pull-type or mounted):					
35233 50	Dry, including lime spreaders . . . . .	28	<sup>a</sup> 5,504	39,652	<sup>a</sup> 5,102	33,043
35233 57	Liquid and anhydrous ammonia . . . . .	19	<sup>a</sup> 9,407	36,752	<sup>b</sup> 8,292	30,377
35233 61	Manure spreaders, rear discharge . . . . .	14	4,186	30,540	3,668	23,587
35233 65	Manure spreaders, side discharge . . . . .	8	<sup>b</sup> 3,057	<sup>b</sup> 30,420	2,461	24,362
35233 69	Manure pumps, liquid . . . . .	9	<sup>c</sup> 1,244	<sup>c</sup> 4,512	994	3,343
35233 73	Front and rear tractor-mounted loaders (farm-type), manure and general utility (except beet and sugar cane loaders) . . . . .	15	<sup>a</sup> 35,399	<sup>a</sup> 105,152	31,895	85,727
35233 77	Row crop unit planters (quantity in rows) . . . . .	9	55,397	44,968	52,178	<sup>r</sup> 44,067
35233 79	Other planting, seeding, and fertilizing machinery. . . . .	28	(D)	(D)	(D)	(D)
35233 84	Attachments for planting, seeding, and fertilizing machinery . . . . .	31	(X)	59,491	(X)	<sup>a</sup> 60,355
35239 71	Parts for planting, seeding, and fertilizing machinery, replacement units only . . . . .	71	(X)	132,556	(X)	105,056
35235 —	Harvesting machinery . . . . .	79	(X)	2,942,460	(X)	2,686,059
35235 11	Combines (harvester-threshers), grain-types only (self-propelled and pull-type). . . . .	11	(D)	(D)	(D)	(D)
35235 21	Small grain header for combines, all sizes . . . . .	8	(D)	(D)	(D)	(D)
35235 31	Corn heads, all sizes. . . . .	8	7,604	165,837	5,140	112,929
35235 41	Other grain-type combines. . . . .	2	(D)	(D)	(D)	(D)
	Field forage harvesters:					
35235 63	Shear bar, self-propelled type and pull-type (basic machines) . . . . .	4	1,629	28,501	1,598	26,389
35235 67	Attachments for shear bar type forage harvester . . . . .	6	(X)	(D)	(X)	(D)
35235 70	Flail-type (horizontal knives or vertical free-swinging knives or hammers), including discharge spouts. . . . .	3	<sup>b</sup> 132	1,182	157	1,317
35235 79	Other harvesting machinery, including potato diggers, cane harvesting equipment, and picker-shellers. . . . .	52	<sup>a</sup> 6,195	<sup>a</sup> 396,299	<sup>a</sup> 6,113	<sup>a</sup> 531,121
35235 83	Attachments for harvesting machinery, including platform and seeder, reel, straw spreaders, load levelers, weed stripper, grate unit, knife grinders, and stalk walkers . . . . .	27	(X)	114,379	(X)	125,876
35239 50	Parts for harvesting machinery, replacement units only . . . . .	60	(X)	306,237	(X)	280,702

See footnotes at end of table.

**Table 2. Manufacturers' Shipments of Farm Machinery and Lawn and Garden Equipment by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
35236 —	Haying machinery .....	41	(X)	662,120	(X)	592,287
35236 13	Mowers, cutter bar type, including drum and disc .....	7	4,077	20,043	4,425	21,031
35236 23	Mower-conditioners and windrowers with conditioner auger and draper-type (pull-type and self-propelled) .....	7	14,458	196,189	14,143	170,516
35236 31	Rakes, side delivery, cylinder type, and finger wheel type .....	12	9,044	34,065	9,055	39,225
35236 55	Hay balers, hay stackers (field type), hay bale loaders, and bale throwing attachments .....	17	22,631	361,252	21,291	316,842
36236 82	Other haying machinery .....	18	(D)	(D)	(D)	(D)
35236 83	Other attachments for haying machinery (stripper, bale chute, and knife attachments) .....	7	(X)	(D)	(X)	(D)
35239 55	Parts for haying machinery, replacement units only .....	24	(X)	130,415	(X)	<sup>r</sup> 77,970
3523C —	Plows, harrows, rollers, pulverizers, cultivators, and weeders ..	(NA)	(X)	572,410	(X)	443,668
3523C pt.	Plows (primary tillage equipment) .....	69	(X)	170,915	(X)	128,648
3523C 15	Subsoilers, deep tillage .....	26	4,664	35,275	4,145	<sup>a</sup> 26,984
3523C 17	Terracing and ditching plows .....	10	<sup>b</sup> 577	<sup>b</sup> 1,190	<sup>r</sup> 473	<sup>r</sup> 1,026
3523C 19	Chisel plows, deep tillage (chisel or sweep type):					
3523C 19	Pull-type .....	13	1,590	23,171	1,289	15,827
3523C 21	Mounted .....	12	953	2,778	(D)	(D)
3523C 25	Other plows (except snow plows) .....	15	5,670	63,259	4,679	46,987
3523C 27	Middlebusters and disc bedders .....	15	3,465	4,129	(D)	(D)
3523C 29	Attachments for plows (coulters, jointers, root cutters, subsoilers, fertilizer distributors, etc.), excluding lister planting attachments .....	23	(X)	30,499	(X)	21,242
3523C 31	Plowshares (quantity in thousands of pounds) .....	7	12,499,605	10,614	12,864,537	10,234
35239 60	Parts for plows (except plowshares), replacement units only .....	24	(X)	34,615	(X)	<sup>a</sup> 29,552
3523C pt.	Harrows, rollers, pulverizers and similar equipment (secondary tillage) .....	94	(X)	218,873	(X)	179,058
3523C 41	Spike-tooth harrow sections and spring-tooth and tine-tooth harrow sections .....	21	25,491	16,563	<sup>r</sup> 21,829	12,825
3523C 44	Disc harrows, single, tandem, and offset .....	25	11,679	91,683	10,233	68,805
3523C 53	Combination tillage equipment, roller/harrows, disc or coulters/field cultivators, and disc or coulters/spring tooth .....	30	16,637	51,190	12,034	45,038
3523C 54	Blade terracers or scrapers (farm-size) .....	38	58,132	<sup>a</sup> 26,732	60,675	<sup>a</sup> 24,714
3523C 59	Land levelers .....	9	1,968	3,020	775	1,836
3523C 61	Other harrows, rollers, pulverizers, and similar equipment .....	28	8,832	24,024	<sup>a</sup> 7,396	20,542
3523C 63	Attachments for harrows, rollers, pulverizers, and similar equipment .....	15	(X)	5,661	(X)	5,298
35239 45	Parts for harrows, rollers, pulverizers, and similar equipment, replacement units only .....	45	(X)	36,664	(X)	29,191
3523C pt.	Cultivators and weeders .....	53	(X)	182,622	(X)	135,962
3523C 70	Corn and cotton type cultivators, shank and sweep type (front and rear mounted) .....	21	8,780	<sup>a</sup> 41,034	7,999	<sup>a</sup> 38,719
3523C 80	Rotary cultivators, ground and power driven .....	10	2,090	5,834	1,754	5,551
3523C 90	Field cultivators .....	15	6,856	85,807	5,124	57,924
3523C 94	Other cultivators and weeders, including tool bars (basic units) .....	21	4,317	<sup>a</sup> 9,673	4,053	<sup>b</sup> 8,956
3523C 98	Attachments for cultivators and weeders (front mounting frame, disc weeders, rear section, and drawbars) .....	23	(X)	40,274	(X)	<sup>b</sup> 24,812
35239 65	Parts for cultivators and weeders, replacement units only .....	31	(X)	<sup>a</sup> 51,658	(X)	39,568
3523E —	All other farm machinery and equipment (except parts) .....	(NA)	(X)	1,705,486	(X)	1,566,591
3523E pt.	Stalk shredders and cutters or rotary mowers (PTO) .....	43	115,259	195,551	104,976	181,662
3523E 01	Flail type (without spout) .....	14	<sup>a</sup> 1,810	<sup>a</sup> 12,782	1,881	12,315
3523E 05	Horizontal blade type:					
3523E 05	66 inches cutting width and under .....	28	<sup>a</sup> 65,174	<sup>a</sup> 44,279	55,274	34,822
3523E 07	Over 66 inches up to 100 inches cutting width .....	26	<sup>a</sup> 35,398	<sup>b</sup> 54,275	34,753	49,037
3523E 09	Over 100 inches cutting width .....	17	<sup>b</sup> 12,877	<sup>b</sup> 84,215	13,068	85,488
35239 85	Parts for stalk shredders, and cutters or rotary mowers (PTO), replacement units only .....	26	(X)	<sup>b</sup> 37,020	(X)	50,284

See footnotes at end of table.

**Table 2. Manufacturers' Shipments of Farm Machinery and Lawn and Garden Equipment by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3523E —	All other farm machinery and equipment (except parts)—Con.					
3523E pt.	Machines for preparing crops for market or for use .....	85	(X)	317,088	(X)	255,740
3523E 11	Feed grinders and crushers, power .....	12	1,807	29,497	(D)	(D)
3523E 13	Feed mixers, farm-size, stationary and portable .....	19	2,986	49,514	3,014	43,752
3523E 14	Combination grinder-mixers .....	9	784	8,032	759	8,937
	Dryers (grain, hay, and seed):					
3523E 25	Heated air crop dryers .....	17	13,179	102,818	11,665	70,751
3525E 26	Crop drying fans (over 15,000 c.f.m. at approximately 1-inch pressure) .....	10	12,135	11,967	(D)	(D)
3523E 23	Other machines for preparing crops for market or for use .....	45	26,358	107,692	24,409	90,190
3523E 24	Attachments for machines for preparing crops for market or for use .....	14	(X)	7,568	(X)	6,187
35239 70	Parts for machines for preparing crops for market or for use, replacement units only .....	45	(X)	31,517	(X)	31,296
3523E pt.	Farm poultry equipment .....	45	(X)	217,844	(X)	227,232
3523E 31	Incubators (quantity represents egg capacity in thousands) .....	9	(D)	(D)	(D)	(D)
3523E 34	Brooders, floor and hanging (gas, electric, oil, coal, wood, and battery) .....	11	152,413	19,094	145,075	20,772
3523E 36	Nests and cages .....	9	3,171,690	<sup>a</sup> 45,354	1,921,908	<sup>a</sup> 28,029
3523E 38	Poultry feeders (trough, hanging, and mechanical) and waterers (except turkey feeders and waterers) .....	17	10,103,982	57,382	15,352,255	84,307
3523E 48	Other farm poultry equipment, including turkey waterers, mechanized egg graders, and egg washers .....	20	(D)	(D)	(D)	(D)
3523E 49	Attachments for farm poultry equipment .....	14	(X)	13,700	(X)	13,767
35239 75	Parts for farm poultry equipment, replacement units only .....	17	(X)	15,407	(X)	14,492
3523E pt.	Hog equipment .....	49	(X)	158,650	(X)	122,002
3523E 50	Feeding equipment .....	27	129,662	32,634	177,404	27,168
3523E 55	Handling equipment .....	15	1,276,144	71,396	<sup>r</sup> 984,069	<sup>r</sup> 56,462
3523E 59	Watering equipment .....	22	927,893	7,690	792,700	6,393
3523E 61	Other hog equipment .....	25	1,659,081	45,249	1,038,085	29,921
3523E 62	Attachments for hog equipment .....	13	(X)	1,681	(X)	<sup>a</sup> 2,058
35239 88	Parts for hog equipment, replacement units only .....	21	(X)	3,948	(X)	4,810
3523E pt.	Other barn and barnyard equipment .....	93	(X)	166,084	(X)	177,957
3523E 63	Silo and grain bin unloaders, forage and grain, including sealed storage unloaders (farm-type) .....	13	47,834	26,365	39,780	25,758
	Cattle and dairy barn equipment:					
3523E 64	Feeding equipment .....	36	197,331	30,754	<sup>b r</sup> 138,451	28,361
3523E 71	Handling equipment .....	34	<sup>c</sup> 1,020,797	<sup>b</sup> 36,919	<sup>c r</sup> 1,223,649	<sup>b r</sup> 41,841
3523E 79	Water equipment .....	27	354,329	21,788	<sup>b</sup> 414,987	<sup>a</sup> 21,515
3523E 85	Other barn and barnyard equipment .....	44	<sup>b</sup> 511,747	<sup>a</sup> 44,512	<sup>r</sup> 726,924	<sup>r</sup> 55,256
3523E 86	Attachments for barn and barnyard equipment .....	16	(X)	5,746	(X)	5,226
35239 80	Parts for barn and barnyard equipment, replacement units only .....	31	(X)	27,686	(X)	25,769
3523E pt.	Farm wagons, and other farm transportation equipment .....	78	(X)	200,456	(X)	186,600
3523E 88	Wagons (chassis only) and trailer gears, excluding motor trucks, 4-wheel .....	33	<sup>a</sup> 17,522	31,949	18,108	32,582
	Boxes and racks for mounting on wagons and trailer gears:					
3523E 90	Manual unloading or dump .....	11	1,658	10,243	1,535	6,522
3523E 91	Gravity unloading, grain-type only .....	13	<sup>b</sup> 8,109	<sup>b</sup> 25,427	10,977	27,158
3523E 92	Power unloading .....	16	<sup>b</sup> 7,106	<sup>b</sup> 58,149	7,215	51,324
3523E 94	Boxes with integral running gear, grain- and forage-type .....	14	4,882	33,063	3,800	23,566
3523E 95	Other farm transportation equipment .....	22	8,456	38,693	<sup>a</sup> 9,623	<sup>a</sup> 39,174
3523E 96	Attachments for farm transportation equipment .....	13	(X)	<sup>b</sup> 2,932	(X)	<sup>c</sup> 6,274
35239 89	Parts for farm transportation equipment, including operator cabs for farm tractors .....	42	(X)	98,278	(X)	91,675
3523E pt.	Irrigation systems .....	20	(X)	449,813	(X)	415,398
3523E 98	Self-propelled irrigation systems, center-pivot (quantity in ten-tower equivalents) .....	10	12,081	406,751	<sup>b</sup> 11,186	<sup>a</sup> 372,467
3523E 99	All other systems using 100-foot flexible hose feeder line and over .....	10	<sup>a</sup> 5,705	<sup>a</sup> 43,062	<sup>a</sup> 5,672	<sup>a</sup> 42,931
35239 82	Parts for irrigation systems, replacement units only .....	9	(X)	71,663	(X)	67,992

See footnotes at end of table.

**Table 2. Manufacturers' Shipments of Farm Machinery and Lawn and Garden Equipment by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3523F —	Commercial turf and grounds care equipment, including parts and attachments. . . . .	(NA)	(X)	1,229,191	(X)	1,118,484
3523F pt.	Commercial turf and grounds mowing equipment. . . . .	46	(X)	973,895	(X)	882,019
3523F 01	Powered nonriding mowers . . . . .	18	90,817	125,140	83,663	115,216
3523F 03	Riding reel-type turf mowers, including greens mowers. . .	10	15,648	197,348	16,839	188,362
3523F 07	Riding rotary turf mowers. . . . .	19	57,996	422,306	49,347	361,830
3523F 09	Gang rotary cutting units, reel and rotary, individual sections . . . . .	9	(D)	(D)	(D)	(D)
3523F 11	Flail mower cutting units, including gang . . . . .	5	(D)	(D)	(D)	(D)
3523F 13	Other mowing equipment . . . . .	7	<sup>a</sup> 11,048	23,366	8,058	17,075
3523F 17	Parts for commercial turf and grounds mowing equipment . . . . .	34	(X)	97,879	(X)	<sup>r</sup> 93,083
3523F 19	Attachments for commercial turf and grounds mowing equipment . . . . .	20	(X)	33,423	(X)	<sup>r</sup> 33,214
3523F pt.	Other commercial turf and grounds care equipment. . . . .	52	(X)	255,296	(X)	236,465
3523F 23	Sod cutters and sod harvesters . . . . .	3	3,484	12,377	3,215	10,670
3523F 25	Seeders, spreaders, and top dresser attachments . . . . .	7	<sup>b</sup> 49,208	<sup>a</sup> 15,516	<sup>b</sup> 37,013	<sup>a</sup> 16,737
3523F 27	Aerators, spikers, and pluggers . . . . .	15	<sup>a</sup> 9,778	28,279	<sup>a</sup> 12,256	27,885
3523F 29	Dethatchers. . . . .	10	<sup>c</sup> 5,293	<sup>b</sup> 4,066	<sup>c</sup> 6,120	<sup>b</sup> 4,987
3523F 31	Power brooms, blowers, vacuums, and sweepers . . . . .	13	<sup>b</sup> 24,292	22,984	<sup>c</sup> 23,987	<sup>b</sup> 21,976
3523F 33	Irrigation systems (except agricultural and residential). . . . .	5	570,519	24,221	637,579	24,048
3523F 36	Other commercial turf and grounds care equipment, including trap rakes, transport trailers, and turf tractors and trucks . . . . .	27	<sup>c</sup> 54,276	96,028	<sup>c</sup> 51,868	<sup>a</sup> 89,426
3523F 41	Parts for other commercial turf and ground care equipment. . . . .	24	(X)	16,512	(X)	<sup>a</sup> 17,577
3523F 43	Attachments for other commercial turf and ground care equipment. . . . .	19	(X)	35,313	(X)	<sup>r</sup> 23,159
3524 —	Lawn and garden equipment. . . . .	(NA)	(X)	5,983,942	(X)	5,817,804
35241 —	Consumer nonriding lawn, garden, and snow equipment . . . . .	48	24,470,087	2,804,454	22,866,499	2,673,735
	Lawnmowers:					
35241 02	Push-type: reel (powered and nonpowered) and rotary-gas powered . . . . .	19	3,916,581	564,835	4,250,131	563,510
35241 12	Rotary, self-propelled, gas-powered. . . . .	20	2,203,248	577,773	1,892,623	500,724
35241 15	Electric, all types, including battery-powered . . . . .	2	(D)	(D)	(D)	(D)
35241 20	Rotary garden motor tillers. . . . .	13	492,028	176,056	380,845	163,650
35241 30	2-wheel tractors walking type (except rotary tillers) . . . . .	1	(D)	(D)	(D)	(D)
	Snow throwers (snow blowers) (except attachment-type):					
35241 41	Single stage . . . . .	7	383,834	103,955	344,796	112,933
35241 42	Dual stage. . . . .	10	512,795	340,397	611,992	366,636
	Powered lawn edgers/trimmers:					
35241 50	Fixed blade . . . . .	14	533,675	66,349	613,459	70,954
35241 52	Other than fixed blades . . . . .	10	9,078,746	561,336	8,261,346	524,364
35241 61	Shredders and shredder-grinders. . . . .	9	(D)	(D)	(D)	(D)
35241 63	Yard vacuums and blowers . . . . .	14	2,878,922	202,172	2,628,200	197,403
35241 91	Other consumer nonriding lawn, garden, and snow equipment . . . . .	17	<sup>a</sup> 4,312,888	<sup>a</sup> 158,762	3,746,419	120,763
35244 —	Consumer riding lawn, garden, and snow equipment . . . . .	25	1,780,819	2,413,523	1,799,120	2,363,962
	Lawn tractors and riding mowers, front engine:					
35244 03	Under 10.0 hp (under 7.5 kW) . . . . .	2	(D)	(D)	(D)	(D)
35244 07	10.0 hp and over (7.5 kW and over) . . . . .	11	1,449,664	1,602,655	1,481,684	1,629,366
	Lawn tractors and riding mowers, rear engine:					
35244 09	Under 10.0 hp (under 7.5 kW) . . . . .	8	60,227	65,614	66,653	70,455
35244 11	10.0 hp and over (7.5 kW and over) . . . . .	15	86,786	132,442	99,147	131,948
	Garden tractors:					
35244 13	Under 16.0 hp (under 12.0 kW) . . . . .	6	5,530	15,943	5,760	16,673
35244 17	16.0 hp to 19.9 hp (12.0 kW to 14.9 kW) . . . . .	7	93,528	303,467	93,787	284,681
35244 19	20.0 hp and over (15.0 kW and over) . . . . .	10	47,078	245,929	<sup>t</sup> 43,125	215,271
35244 31	Other consumer riding lawn, garden, and snow equipment . . . . .	5	(D)	(D)	(D)	(D)

See footnotes at end of table.

**Table 2. Manufacturers' Shipments of Farm Machinery and Lawn and Garden Equipment by Type: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3524 — 35246 —	Lawn and garden equipment—Con. Parts and attachments for consumer lawn, garden, and snow equipment.....	(NA)	(X)	765,965	(X)	780,107
35246 03	Nonriding: Parts.....	33	(X)	128,095	(X)	182,037
35246 05	Attachments.....	19	(X)	95,348	(X)	<sup>1</sup> 101,018
35246 11	Riding: Parts: For tractors and riding mowers.....	24	(X)	<sup>a</sup> 263,024	(X)	232,687
35246 13	For other equipment.....	7	(X)	<sup>c</sup> 8,325	(X)	8,482
35246 15	Attachments: Rotary mower decks.....	12	(X)	<sup>a</sup> 87,394	(X)	81,211
35246 17	Rotary tiller attachments.....	11	(X)	<sup>a</sup> 10,312	(X)	6,380
35246 19	Blades, dozer.....	11	(X)	18,865	(X)	17,493
35246 21	Snow throwers.....	8	(X)	23,771	(X)	20,185
35246 23	Carts and wagons.....	10	(X)	21,729	(X)	22,583
35246 25	All other attachments.....	26	(X)	109,102	(X)	108,031

D Withheld to avoid disclosing data for individual companies. NA Not available. pt. Part. <sup>1</sup>Revised by 5 percent or more from previously published data. X Not applicable.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>10 to 25 percent of this item is estimated. <sup>b</sup>25 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.

**Table 3. Shipments, Exports, and Imports of Farm Machinery and Equipment: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>2</sup>		Apparent consumption	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>								
Farm-type wheel tractors.....	(D)	(D)	53,118	1,217,018	97,457	1,447,917	(D)	(D)
Farm dairy mechanical installations, including milking machine vacuum pumping outfits.....	(D)	(D)	2,758	29,682	19,122	6,744	(D)	(D)
Sprayers and dusters (except aerial types).....	(X)	503,160	(NA)	150,656	(NA)	28,420	(NA)	380,924
Planting machinery and fertilizer distributors, pull-type or mounted.....	(X)	914,958	23,566	125,578	148,081	72,839	(NA)	862,219
Disc harrows.....	11,679	91,683	3,579	18,639	63,599	35,029	71,699	108,073
Other harrows, rollers, pulverizers, and similar equipment.....	111,060	121,529	9,445	9,021	17,787	6,948	119,402	119,456
Combines.....	(D)	(D)	9,038	717,799	1,301	43,115	(D)	(D)
Other harvesting machines.....	(D)	(D)	3,323	89,580	11,849	44,336	(D)	(D)
Field forage harvesters.....	1,761	29,683	1,354	19,265	451	33,072	858	43,490
Hay mowers, mower-conditioners, and windrowers.....	172,521	411,783	17,702	48,479	36,191	73,901	191,010	437,205
Other haymaking machines.....	(X)	57,898	2,447	39,333	19,767	17,330	(NA)	35,895
Balers, including pickup balers.....	22,631	361,252	5,495	78,158	3,529	19,645	20,665	302,739
Plows.....	(X)	129,802	3,498	16,638	5,091	8,807	(NA)	121,971
Cultivators and weeders.....	22,043	142,348	51,773	35,231	50,768	58,781	21,038	165,898
Machinery for preparing animal feed....	5,577	87,043	6,398	54,488	21,168	11,376	20,347	43,931

See footnotes at end of table.

**Table 3. Shipments, Exports, and Imports of Farm Machinery and Equipment: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>2</sup>		Apparent consumption	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997—Con.</b>								
Other machines for preparing crops for market or for use .....	51,672	222,477	7,673	30,281	11,694	4,718	55,693	196,914
Farm poultry incubators and brooders ..	(D)	(D)	30,427	23,006	146,201	7,682	(D)	(D)
Nests and cages (poultry equipment) ...	(X)	45,354	241,283	89,036	37,810	12,383	(NA)	(NA)
Other barn and barnyard equipment....	(D)	(D)	14,614	10,372	15,203	3,530	(D)	(D)
Self-propelled irrigation systems, center-pivot .....	12,081	406,751	1,811	49,017	351	430	10,621	358,164
All other self-propelled irrigation systems using 100-foot flexible hose feeder line and over .....	5,705	43,062	(NA)	192,159	(NA)	16,996	(NA)	(NA)
Farm wagons and other farm transportation equipment.....	47,733	197,524	-	-	42,804	5,927	90,537	203,451
Riding turf mowers and flail and gang mowers .....	123,031	694,087	21,491	65,170	5,519	2,374	107,059	631,291
Mowers for lawns, parks, or sports grounds and other commercial and turf grounds mowers .....	5,616,754	2,516,926	1,126,458	411,894	222,760	72,008	4,713,056	2,177,040
Snowblowers (snowthrowers).....	896,629	444,352	57,068	36,936	33,686	25,575	873,247	432,991
Powered lawn and hedge trimmers.....	9,612,421	627,685	130,295	96,909	2,204,042	110,035	11,686,168	640,811
<b>1996</b>								
Farm-type wheel tractors.....	(D)	(D)	43,059	1,000,089	89,120	1,309,552	(D)	(D)
Farm dairy mechanical installations, including milking machine vacuum pumping outfits .....	(D)	(D)	3,423	26,831	73,557	2,586	(D)	(D)
Sprayers and dusters (except aerial types) .....	(X)	566,284	(NA)	126,838	(NA)	29,549	(NA)	468,995
Planting machinery and fertilizer distributors, pull-type or mounted .....	(X)	696,860	29,866	108,529	163,442	81,321	(NA)	669,652
Disc harrows .....	10,233	68,805	2,506	13,047	61,564	26,858	69,291	82,616
Other harrows, rollers, pulverizers, and similar equipment .....	102,709	104,955	8,291	10,577	18,131	7,179	112,549	101,557
Combines .....	(D)	(D)	6,529	524,301	2,077	20,384	(D)	(D)
Other harvesting machines.....	(D)	(D)	4,499	87,572	4,644	39,477	(D)	(D)
Field forage harvesters .....	1,755	27,706	1,057	14,094	276	17,700	974	31,312
Hay mowers, mower-conditioners, and windrowers .....	123,544	373,209	15,813	41,567	34,211	66,408	141,942	398,050
Other haymaking machines .....	(X)	61,504	2,320	28,714	10,474	11,943	(NA)	44,733
Balers, including pickup balers.....	21,291	316,842	5,088	70,000	1,403	8,162	17,606	255,004
Plows.....	(X)	97,172	2,846	11,850	7,382	11,896	(NA)	97,218
Cultivators and weeders .....	18,930	111,150	32,701	22,192	49,208	73,925	35,437	162,883
Machinery for preparing animal feed....	5,550	80,101	6,149	46,247	28,135	9,675	27,536	43,529
Other machines for preparing crops for market or for use .....	47,089	169,452	5,577	23,433	3,089	5,795	44,601	151,814
Farm poultry incubators and brooders ..	(D)	(D)	23,378	26,470	80,437	8,163	(D)	(D)
Nests and cages (poultry equipment) ...	(X)	28,029	204,060	88,997	5,121	7,265	(NA)	(NA)
Other barn and barnyard equipment....	(D)	(D)	13,931	8,758	27,150	3,463	(D)	(D)
Self-propelled irrigation systems, center-pivot .....	11,186	372,467	1,729	48,209	37	57	9,494	324,315
All other self-propelled irrigation systems using 100-foot flexible hose feeder line and over .....	5,672	42,931	(NA)	148,478	(NA)	16,136	(NA)	(NA)
Farm wagons and other farm transportation equipment.....	51,258	180,326	-	-	32,638	5,471	83,896	185,797

See footnotes at end of table.

Table 3. **Shipments, Exports, and Imports of Farm Machinery and Equipment: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1</sup>		Imports for consumption <sup>2</sup>		Apparent consumption	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1996—Con.</b>								
Riding turf mowers and flail and gang mowers . . . . .	113,333	623,431	28,076	89,280	8,623	5,021	93,880	539,172
Mowers for lawns, parks, or sports grounds and other commercial and turf grounds mowers . . . . .	5,991,953	2,531,657	860,893	381,947	160,971	42,380	5,292,031	2,192,090
Snowblowers (snowthrowers) . . . . .	956,788	479,569	22,854	15,620	64,841	42,317	998,775	506,266
Powered lawn and hedge trimmers . . . . .	8,874,805	595,318	1,296,420	87,258	1,803,875	82,549	9,382,260	590,609

- Represents zero. D Withheld to avoid disclosing data for individual companies. NA Not available. † Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>2</sup>Source: Census Bureau report IM 146, *U.S. Imports for Consumption*.

Note: For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

**HISTORICAL NOTE**

Data on farm machinery and equipment have been collected by the Census Bureau since 1920; data on lawn and garden equipment since 1978. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Brian Appert, 301-457-4748.



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## CONSTRUCTION MACHINERY (MA35D)

### INTRODUCTION

These data cover firms engaged in the manufacture of selected types of construction machinery. Very small firms (generally less than five employees) for which 1992 Census of Manufactures data were derived from administrative records of other government agencies are excluded. The statistics were collected by mail on Census Bureau annual Form MA35D, Construction Machinery. The survey panel includes all known producers of these types of products covered on the survey, except the very small firms excluded from the scope of the survey. Approximately 260 companies are included. No estimate is derived for the small firms excluded from the survey.

### SUMMARY OF FINDINGS

Shipments of the types of construction machinery included in this report, except motor graders and light maintainers, machinery for mounting on trucks and tractors, etc., winches and other materials-handling equipment for mounting on construction machinery, and aerial work platforms totaled \$13.3 billion, an 11-percent increase from the 1996 total of \$12.0 billion. Shipments of power cranes, excavators, draglines, and shovels in 1997 totaled \$2,928.8 million, an increase of 7 percent from the 1996 shipments of \$2,740.3 million. The 1997 shipments of mixers, pavers, and related equipment totaled \$1,276.3 million, an increase of 11 percent from the 1996 total of \$1,145.8 million.

The 1997 shipments of off-highway trucks, trailers, and wagons totaled \$1,590.1 million, a decrease of 3 percent from the 1996 total of \$1,632.6 million. The 1997 shipments of tractor shovel loaders totaled \$3,911.6 million, an increase of 17 percent from the 1996 total of \$3,340.1 million. Shipments of crawler tractors, contractors' off-highway-type wheel tractors, dozers, and self-propelled wheeled log skidders in 1997 totaled \$1,720.3 million, an increase of 1 percent from the 1996 shipments of \$1,697.2 million.

Shipments of rollers and compactors in 1997 totaled \$654.6 million, an increase of 26 percent over the 1996 figure of \$517.6 million. The 1997 shipments for construction machinery (except winches and other materials handling equipment) for mounting on trucks and tractors is \$254.7 million, an increase of 19 percent over the 1996 total of \$214.5 million. The 1997 shipments of rough-terrain forklifts totaled \$499.9 million, an increase of 21 percent from the 1996 total of \$412.3 million. Shipments of scraper bowls in 1997 totaled \$237.5 million, an increase of 95 percent from the 1996 shipments of \$121.5 million. The 1997 shipments of self-propelled continuous ditchers and trenchers totaled \$238.7 million, an increase of 14 percent from the 1996 shipments of \$209.1 million.

Data for shipments of other products were not published due to confidentiality and revised historic data.

### EXPLANATION OF TERMS

**Wheel tractors, contractors' off-highway type.** Wheel tractors designed primarily to be used as towing units for scrapers, trailers, wagons, and similar types of towed equipment for use on natural terrain. These units may be 2- or 4-wheel type.

**Loaders.** Wheel type, front-end load, integral design, rear engine mount. Complete machines originally conceived and designed as heavy duty, wheel type, front-end loaders, and not as wheel tractors, to receive shovel loading attachments.

**Off-highway vehicles.** Vehicles designed for operation off public highways to transport materials or equipment on mining, construction, logging, petroleum development, and similar project sites. (Vehicles which provide similar functions on smooth surfaces in and around warehouses, depots, and terminals are excluded from this survey.)

**Excavator.** A commercial earth-moving machine equipped with a bucket-mounted front-end attachment mounted on a 360-degree revolving superstructure.

**Crane.** A machine having a front-end lifting attachment and operating machinery mounted on a revolving superstructure.

**Cable-operated.** A machine with front-end attachment functions performed by wire rope.

**Hydraulic excavator.** A machine with front-end attachment functions performed hydraulically.

**Crawler mounted.** A machine with two parallel continuous crawlers or tread belts.

**Truck-mounted (rubber).** A machine that generally has two engines, one to propel the carrier and another to power the work functions. A truck- or carrier-mounted machine has two operator stations and is designed for on- and off-highway travel.

**Self-propelled (rubber).** A machine which has only one engine and one operator station. The engine may be mounted in either the upper or lower works.

**Net engine horsepower (nehp).** Net flywheel performance as measured by manufacturer, with all standard accessories installed, operated, and corrected to 29.38 inches mercury (Hg) and temperature of 85 degrees Fahrenheit.

**Hydraulic crane.** A crane with 360-degree rotation on which the boom is designed primarily for lifting the load by wire rope and can be extended, retracted, raised, and lowered hydraulically.

**Pinned-on telescopic crane.** A hydraulically powered multipurpose rotating crane with fixed or telescoping booms designed to lift and place materials by winch and load line and which is mounted onto a commercially available vehicle having a platform or body.

**Pinned-on articulated crane.** A stationary or vehicle-mounted hydraulically powered multipurpose knuckle boom crane consisting of an inner and outer boom that can fold to a stowable position. Excluded are those machines commonly known as knuckle boom loaders.

**Unmounted cranes.** These cranes are classified under "Construction machinery for mounting."

**ABBREVIATIONS AND METRIC EQUIVALENTS**

hp	horsepower = .7457 kilowatts (kW)
yd <sup>3</sup>	cubic yard = .7646 cubic meters (m <sup>3</sup> )
kg	kilogram = 2.205 pounds (lb)
ft	feet = .305 meters (m)
st	short ton = .907 metric tons
nehp	net engine horsepower
tph	tons per hour
lb	pounds

**Table 4. Value of Shipments of Selected Construction Machinery: 1993 to 1997**

[Millions of dollars]

Product description	1997	1996	1995	1994	1993
Power cranes, draglines, and excavators, including surface mining equipment, and attachments .....	2,928.8	2,740.3	2,561.4	2,252.5	1,719.4
Mixers, pavers, and related equipment .....	1,276.3	1,145.8	1,168.8	1,079.8	877.1
Off-highway trucks, truck-type trailer chassis, trailers, coal haulers, wagons.....	1,590.1	1,632.6	1,326.9	961.9	876.1
Track shovel loaders .....	3,911.6	3,340.1	3,041.8	2,632.6	2,354.4
Crawler tractors, contractors' off-highway type wheel tractors, dozers, and self-propelled wheeled log skidders .....	1,720.3	1,697.2	1,597.4	(D)	(D)
Motor graders and light maintainers .....	(D)	588.4	479.9	445.2	(D)
Rollers and compactors.....	654.6	517.6	(S)	361.3	303.2
Rough-terrain forklifts.....	499.9	412.3	355.4	270.9	201.9
Scraper bowls .....	237.5	121.5	142.2	124.9	(D)
Self-propelled ditchers and trenchers (integral units) ...	238.7	209.1	193.5	174.0	143.6
Construction machinery for mounting on trucks, tractors, etc.....	(X)	(X)	(X)	286.6	249.8
Construction machinery (except winches and other materials-handling equipment) for mounting on trucks, tractors, etc.....	254.7	214.5	(D)	(X)	(X)
Winches and other materials-handling equipment, for mounting on construction machinery .....	(D)	(D)	(D)	(X)	(X)
Aerial work platforms .....	(D)	(D)	1,131.1	844.9	637.4

D Withheld to avoid disclosing data for individual companies. meet publication standards.

X Not applicable.

'Revised by 5 percent or more from previously published data.

S Does not

**Table 5. Quantity and Value of Shipments of Selected Types of Construction Machinery: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3531E —	Power cranes, draglines, and excavators, including surface mining equipment, and attachments . . . . .	(X)	91,429	2,927,780	'80,611	2,740,306
	Hydraulic operated excavators:					
	Crawler mounted, rated size in metric tons:					
3531E 05	Not more than 24 metric tons . . . . .	7	9,859	570,341	'8,611	'577,893
3531E 06	More than 24 but not more than 40 metric tons . . .	6	4,437	712,945	'3,396	'533,896
3531E 07	More than 40 metric tons . . . . .	5	886	287,129	945	359,705
3531E 19	Wheel (rubber) mounted, all sizes . . . . .	2	(D)	(D)	(D)	(D)
	Cranes, lattice boom:					
	Crawler mounted, maximum working load:					
3531E 22	Not more than 110 metric tons . . . . .	3	5	1,965	17	8,313
3531E 24	More than 110 metric tons . . . . .	3	(D)	(D)	(D)	(D)
3531E 35	Wheel (rubber) mounted . . . . .	5	43	38,167	39	29,701
	Cranes, hydraulic operated, telescopic boom:					
	Wheel cranes (integral), multiple control stations (rubber mounted), maximum working load of:					
3531E 42	Not more than 18 metric tons . . . . .	4	(D)	60,698	(S)	(S)
3531E 44	More than 18 but not more than 27 metric tons . . .	4	(D)	(D)	(D)	(D)
3531E 46	More than 27 but not more than 50 metric tons <sup>1</sup> . .	4	153	42,443	(D)	(D)
3531E 48	More than 50 metric tons <sup>1</sup> . . . . .	3	(D)	(D)	(D)	(D)
3531E 57	Pinned on type, telescopic and articulated . . . . .	6	2,729	127,308	'2,218	'97,919
	Wheel cranes, one control station (self-propelled, rubber mounted), maximum working load of:					
3531E 61	Not more than 16 metric tons . . . . .	7	1,133	69,888	1,090	69,240
3531E 64	More than 16 metric tons but not more than 22.7 metric tons . . . . .	5	285	49,222	125	19,583
3531E 67	More than 22.7 metric tons . . . . .	4	844	237,944	759	201,455
	All-terrain cranes, maximum work loads of:					
3531E 72	Not more than 20 metric tons . . . . .	3	(D)	(D)	(D)	(D)
3531E 74	More than 20 metric tons but not more than 35 metric tons . . . . .	(S)	(S)	(S)	(S)	(S)
3531E 76	More than 35 metric tons but not more than 110 metric tons . . . . .	(S)	(D)	(D)	(S)	(S)
3531E 78	More than 110 metric tons . . . . .	(S)	(S)	(S)	(S)	(S)
	Other cranes and excavators:					
3531E 84	Pedestal or shipmounted marine cranes . . . . .	6	79	27,572	81	15,532
3531E 89	All other cranes, excavators, and draglines, n.e.c. . . .	8	(D)	177,549	791	168,868
3531E 00	Cranes, excavators, and draglines, n.s.k. <sup>2</sup> . . . . .	(X)	(X)	(X)	1,381	27,100
	Attachments for power cranes, draglines, and excavators, sold separately:					
3531E 94	Hoe . . . . .	6	15,594	33,609	13,740	29,839
3531E 95	Dragline buckets, all sizes . . . . .	5	104	9,145	94	8,028
3531E 97	Clamshell/grapple . . . . .	8	606	14,849	593	14,758
3531E 98	All other attachments, n.e.c. . . . .	23	51,477	138,065	'43,903	'111,454
3531F —	Mixers, pavers, and related equipment . . . . .	(X)	103,959	1,276,285	125,268	1,145,834
	For concrete, plaster, or mortar applications:					
3531F 22	Concrete mixers (except plaster and mortar), portable, including truck or other mixer or agitator, all sizes . . . . .	19	8,750	338,592	'8,910	330,986
3531F 31	Plaster and mortar mixers, all sizes . . . . .	7	11,673	22,585	'11,766	'22,581
3531F 33	Slipform concrete paving machines, including multi-purpose, automated curb and gutter and concrete slipform pavers, up to and including 34-feet wide . .	11	481	61,137	470	52,415
3531F 39	Concrete trowels . . . . .	7	14,401	26,472	12,991	24,799
3531F 40	Concrete vibrators (electric motor gasoline engine, structural high-cycle, pneumatic, etc.) . . . . .	10	57,128	54,649	80,409	40,200
3531F 42	Concrete screeds (hand-propelled or winch type) . . .	6	2,814	4,830	2,374	5,441
3531F 43	Concrete batching plants, bin and batch for concrete aggregate only, and bulk cement . . . . .	16	740	82,175	'651	'72,521
3531F 50	Concrete pumps, mobile . . . . .	3	(D)	(D)	(D)	(D)
3531F 56	Other concrete, plaster, and mortar mixing and paving machinery . . . . .	4	880	11,143	(D)	(D)
	For asphalt or bituminous applications:					
3531F 66	Bituminous distributors . . . . .	7	576	20,563	612	21,475
3531F 71	Bituminous pavers, self-propelled:					
3531F 71	21,999 lb gross weight and under (basic unit) . . . .	8	974	59,163	1,053	48,195
3531F 75	22,000 lb gross weight and over (basic unit) . . . . .	5	626	113,785	767	123,647

See footnotes at end of table.

Table 5. **Quantity and Value of Shipments of Selected Types of Construction Machinery: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3531F —	Mixers, pavers, and related equipment—Con. For asphalt or bituminous applications:					
	Asphalt plants, including cold mix central plants:					
3531F 82	Less than 7,500 lb (239 tph) . . . . .	4	47	28,299	30	18,914
3531F 84	7,500 lb and over (240 tph and over) . . . . .	4	96	148,566	104	135,377
3531F 85	Bituminous stabilization mixing equipment, including central mixing plants and mix-in-place . . . . .	5	190	52,737	181	45,602
3531F 89	Bituminous cold planers/milling machines (self-propelled) . . . . .	4	(D)	(D)	75	24,399
3531F 91	Other asphalt and bituminous mixing and paving machinery . . . . .	9	889	14,724	907	15,725
3531F 95	Other products, for use in either concrete or bituminous applications . . . . .	6	(D)	28,795	(D)	(D)
3531G pt.	Off-highway trucks, truck-type tractor chassis, trailers, or wagons . . . . .	(X)	5,718	1,590,127	4,801	1,632,585
3531G 71	Off-highway rear dump haulers . . . . .	8	(D)	1,457,286	(D)	1,518,782
3531G 76	Other . . . . .	9	(D)	132,841	(D)	113,803
3531C —	Tractor shovel loaders . . . . .	(X)	102,159	3,911,610	86,629	3,340,124
3531C 60	Skid steer loaders, 4-wheel drive skid steer, all sizes . . . . .	7	61,588	957,591	53,952	840,304
	Wheel loaders, rear engine mount, integral design, 4-wheel drive, nonskid steer:					
3531C 71	Under 79 nehp . . . . .	3	(D)	(D)	(D)	(D)
3531C 72	80 through 149 nehp . . . . .	7	6,448	529,000	5,017	376,701
3531C 73	150 through 249 nehp . . . . .	8	3,701	513,265	3,550	513,497
3531C 74	250 nehp and over . . . . .	6	2,490	860,069	1,862	782,589
3531C 82	Crawler loaders . . . . .	2	(D)	(D)	(D)	(D)
3531C 95	Integral design tractor shovel loader/backhoes (wheel tractor-chassis shipped as part of front engine mount contractor tractor) . . . . .	5	26,878	974,567	21,502	797,644
35315 —	Crawler tractors, contractors' off-highway -type wheel tractors, dozers, and self-propelled wheeled log skidders . . . . .	(X)	11,630	1,720,279	11,961	1,697,202
35315 37	Wheeled log skidders, self-propelled . . . . .	8	2,140	240,774	3,086	326,764
35315 99	Crawler tractors (except crawler loaders) and tracklaying and other contractors' off-highway-type wheel tractors and dozers . . . . .	11	9,490	1,479,505	8,875	1,370,438
3531G pt.	Motor graders and light maintainers . . . . .	(X)	(D)	(D)	3,762	588,373
3531G 11	Under 144 nehp . . . . .	6	(D)	(D)	(D)	(D)
3531G 17	145 nehp and over . . . . .	3	(D)	(D)	(D)	(D)
3531G pt.	Rollers and compactors . . . . .	(X)	(D)	654,605	(D)	517,602
	Static smooth steel wheel rollers, tandem:					
3531G 21	Under 3 metric tons . . . . .	5	1,297	13,569	1,152	11,866
3531G 23	At least 3 but less than 5.5 metric tons . . . . .	2	(D)	(D)	(D)	(D)
3531G 26	5.5 metric tons and over . . . . .	5	(D)	(D)	(D)	(D)
3531G 32	Pneumatic tire rollers . . . . .	7	537	22,947	406	16,261
	Vibratory single drum with one or two drive wheels:					
3531G 37	Under 5 metric tons . . . . .	7	1,197	30,487	1,094	29,736
3531G 39	At least 5 but less than 8 metric tons . . . . .	3	970	56,809	961	57,083
3531G 42	8 metric tons and over . . . . .	4	2,201	153,868	2,047	141,292
	Vibratory double drum, two drums vibrating:					
3531G 46	Under 5 metric tons . . . . .	5	(D)	(D)	(D)	(D)
3531G 49	At least 5 but less than 8 metric tons . . . . .	2	(D)	(D)	(D)	(D)
3531G 52	8 metric tons and over . . . . .	3	736	57,414	734	58,193
3531G 56	All other compaction equipment (except handheld); including, embankment and landfill compactors, towed roller and double drum compactors with one drum vibrating . . . . .	4	(D)	(D)	(D)	(D)
3531G pt.	Rough terrain forklifts (integral units only) . . . . .	(X)	8,100	499,872	6,803	412,330
3531G 81	Vertical mast, 2-wheel drive . . . . .	10	2,826	173,606	2,604	152,943
3531G 83	Vertical mast, 4-wheel drive . . . . .	7	577	19,765	294	8,911
3531G 85	Telescopic handlers, 2- and 4-wheel drive . . . . .	5	4,697	306,501	3,905	250,476
3531G 02	Scraper bowls . . . . .	4	2,427	237,532	2,013	121,467

See footnotes at end of table.

Table 5. **Quantity and Value of Shipments of Selected Types of Construction Machinery: 1997 and 1996—Con.**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3531J —	Ditchers and trenchers, self-propelled (integral units only) .....	(X)	10,543	238,663	10,098	209,120
	Ladder-type digging element:					
3531J 14	Under 2,000 lb gross weight .....	4	(D)	(D)	(D)	(D)
3531J 15	2,000 to 4,999 lb gross weight .....	4	(D)	55,799	(D)	50,607
3531J 16	5,000 lb gross weight and over .....	4	3,935	149,090	3,728	127,901
3531J 18	Wheel-type digging element .....	3	(D)	(D)	(D)	(D)
3531Q —	Construction machinery for mounting on trucks, tractors, and other prime movers (except winches, hoists, and other materials-handling equipment) .....	(X)	60,030	254,715	<sup>1</sup> 50,248	<sup>1</sup> 214,466
3531Q 12	Backhoes, either shipped for mounting separately or already mounted on an integral unit .....	9	20,148	120,638	13,448	87,448
3531Q 99	All other construction machinery for mounting, including sidebooms, pipehandlers, dozers, front-end loaders, shovel loaders, logging arches, rippers, rooters, continuous ditching and trenching attachments, forklift attachments, cranes, cable power control units, hydraulic power control units, etc. ....	28	39,882	134,077	<sup>1</sup> 36,800	<sup>1</sup> 127,018
3531W pt.	Winches and materials-handling equipment for mounting.	(X)	(D)	(D)	(D)	(D)
3531W 90	Winches (towing, logging, and oil field types) .....	7	(D)	103,691	(D)	91,069
3531W 99	Other equipment .....	2	(D)	(D)	(D)	(D)
3531W pt.	Aerial work platforms .....	(X)	(D)	(D)	(D)	(D)
3531W 81	Boom type, self-propelled .....	9	17,429	852,548	13,763	714,362
3531W 83	Scissors type, self-propelled .....	11	27,289	406,819	24,927	365,192
3531W 85	Not self-propelled, boom and scissors type .....	6	(D)	(D)	(D)	(D)
3531W 87	Truck mounted .....	13	12,257	392,240	10,602	330,976

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. nehp Net engine horsepower.  
n.s.k. Not specified by kind. <sup>1</sup>Revised by 5 percent or more from previously published data. S Does not meet publication standards.  
tph Tons per hour. X Not applicable.

<sup>1</sup>For 1996, products 3531E 46 and 3531E 48 sum to: quantity, 323; value, 121,618.

<sup>2</sup>For 1996, several new categories were created from one former category of "All other" products in product class 3531E. Estimates for three companies did not meet publication standards for any of the resulting categories and are placed in product code 3531E 00.

**Table 6. Shipments, Exports, and Imports of Selected Construction Machinery: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product description <sup>1</sup>	Manufacturers' shipments		Export shipments <sup>2</sup>		Imports for consumption <sup>3</sup>	
	Quantity	Value <sup>1</sup>	Quantity	Value as reported	Quantity	Value <sup>4</sup>
<b>1997</b>						
Wheel tractors, contractors' off-highway type, 2- and 4-wheel for use on natural terrain.....	(D)	(D)	3,568	114,369	4,315	29,053
Rubber-tired dozers .....	(D)	(D)	455	23,625	145	4,107
Wheeled log skidders, self-propelled.....	2,140	240,774	1,458	65,798	1,007	87,025
Crawler tractors (except crawler loaders).....	(D)	(D)	1,735	325,441	5,753	393,178
Wheel loaders, rear engine mount, integral design 4-wheel drive, nonskid steer .....	(D)	(D)	17,918	639,114	5,152	357,481
Skid steer loaders .....	61,588	957,591	1,836	86,648	1,090	52,077
Crawler loaders .....	(D)	(D)	202	8,746	1,556	167,062
Excavators, hydraulic operated, crawler mounted .....	15,182	1,570,415	2,495	302,035	9,422	733,016
Excavators, hydraulic operated, wheel (rubber) mounted .....	(D)	(D)	65	7,550	1,327	106,788
Cranes, lattice boom, wheel (rubber) mounted ...	43	38,167	192	29,293	216	41,843
Cranes, wheel (integral), hydraulic operated, telescopic boom, multiple control stations (rubber mounted), including pinned on type, telescopic and articulated .....	(D)	(D)	523	72,780	185	52,656
Cranes, wheel, hydraulic operated, telescopic boom, one control station (self-propelled, rubber mounted) .....	2,262	357,054	911	99,271	160	19,302
Cranes, pedestal or ship mounted.....	79	27,572	790	13,266	188	56,284
Cranes, other .....	(D)	(D)	636	120,621	327	54,498
Clamshell/grapple attachments.....	606	14,849	3,997	6,875	3,210	5,623
Dragline buckets (attachments) .....	104	9,145	-	-	1,187	2,235
Concrete mixers.....	21,163	443,352	1,800	14,566	39,748	28,461
Concrete pavers, finishers, and spreaders.....	74,824	147,088	1,412	35,239	2,249	3,813
Concrete pumps .....	(D)	(D)	1,865	20,381	16,731	19,529
Bituminous pavers, finishers, and spreaders.....	(D)	(D)	614	39,328	2,798	3,212
Asphalt plants and bituminous stabilization mixing equipment .....	333	229,602	940	28,180	39	116
Scraper bowls .....	2,427	237,532	3,762	6,217	1,027	11,104
Motor graders and light maintainers .....	(D)	(D)	1,783	178,525	720	73,320
Self-propelled vibratory compaction equipment... ..	(D)	(D)	2,262	79,622	3,940	110,436
Self-propelled static compaction equipment.....	(D)	(D)	924	46,650	605	15,254
Off-highway rear dump haulers, trucks, and truck trailers, including ridged and articulated.....	(D)	1,457,286	3,126	412,977	294	51,557
Off-highway trucks, truck-type tractor chassis, trailers, and wagons .....	(D)	132,841	1,950	253,701	1,753	276,124
Winches for mounting (towing, logging, and oil field types).....	(D)	103,691	440,623	76,430	2,505,578	76,776
Backhoes for mounting.....	20,148	120,638	2,699	9,032	4,322	2,984
Other construction machinery for mounting .....	39,882	134,077	21,143	52,362	57,026	81,801
Self-propelled continuous ditchers and trenchers (integral units), ladder-type digging element ....	(D)	(D)	1,639	22,490	-	-
Self-propelled continuous ditchers and trenchers (integral units), wheel-type digging element.....	(D)	(D)	374	14,194	43	3,067
<b>1996</b>						
Wheel tractors, contractors' off-highway type, 2- and 4-wheel for use on natural terrain.....	(D)	(D)	2,822	47,231	5,375	31,848
Rubber-tired dozers .....	(D)	(D)	303	12,090	32	3,561
Wheeled log skidders, self-propelled.....	3,086	326,764	1,019	61,339	588	59,359
Crawler tractors (except crawler loaders).....	(D)	(D)	1,873	337,147	4,541	296,965
Wheel loaders, rear engine mount, integral design 4-wheel drive, nonskid steer .....	(D)	(D)	15,355	584,447	4,592	304,415
Skid steer loaders .....	53,952	840,304	1,074	79,176	1,633	64,039
Crawler loaders .....	(D)	(D)	72	4,899	1,156	131,261
Excavators, hydraulic operated, crawler mounted .....	12,952	1,471,494	2,016	246,279	7,025	586,480
Excavators, hydraulic operated, wheel (rubber) mounted .....	(D)	(D)	48	8,181	1,253	110,723

See footnotes at end of table.

Table 6. **Shipments, Exports, and Imports of Selected Construction Machinery: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product description <sup>1</sup>	Manufacturers' shipments		Export shipments <sup>2</sup>		Imports for consumption <sup>3</sup>	
	Quantity	Value <sup>1</sup>	Quantity	Value as reported	Quantity	Value <sup>4</sup>
<b>1996—Con.</b>						
Cranes, lattice boom, wheel (rubber) mounted . . .	39	29,701	165	24,427	31	25,875
Cranes, wheel (integral), hydraulic operated, telescopic boom, multiple control stations (rubber mounted), including pinned on type, telescopic and articulated . . . . .	(D)	(D)	513	68,082	157	83,349
Cranes, wheel, hydraulic operated, telescopic boom, one control station (self-propelled, rubber mounted) . . . . .	1,974	290,278	991	102,200	153	20,544
Cranes, pedestal or ship mounted . . . . .	81	15,532	306	7,010	132	25,856
Cranes, other . . . . .	(D)	(D)	691	93,009	378	46,124
Clamshell/grapple attachments . . . . .	593	14,758	3,142	6,102	1,971	5,879
Dragline buckets (attachments) . . . . .	94	8,028	-	-	2,966	784
Concrete mixers . . . . .	21,327	426,088	1,426	15,992	32,371	17,961
Concrete pavers, finishers, and spreaders . . . . .	96,244	122,855	841	20,647	628	3,151
Concrete pumps . . . . .	(D)	(D)	1,617	16,879	7,073	15,572
Bituminous pavers, finishers, and spreaders . . . . .	2,507	217,716	573	27,094	94	537
Asphalt plants and bituminous stabilization mixing equipment . . . . .	315	199,893	368	13,973	37	1,108
Scraper bowls . . . . .	2,013	121,467	140	141	1,058	12,618
Motor graders and light maintainers . . . . .	3,762	588,373	2,114	195,435	474	39,175
Self-propelled vibratory compaction equipment . . . . .	(D)	(D)	1,707	65,832	4,358	93,058
Self-propelled static compaction equipment . . . . .	(D)	(D)	489	34,914	424	16,176
Off-highway rear dump haulers, trucks, and truck trailers, including rigid and articulated . . . . .	2,636	1,518,782	3,133	495,297	191	46,806
Off-highway trucks, truck-type tractor chassis, trailers, and wagons . . . . .	2,165	113,803	1,469	251,441	1,345	208,353
Winches for mounting (towing, logging, and oil field types) . . . . .	(D)	91,069	282,728	70,005	2,106,101	56,776
Backhoes for mounting . . . . .	13,448	87,448	1,688	5,701	2,008	2,069
Other construction machinery for mounting . . . . .	36,800	127,018	29,095	50,774	41,597	60,756
Self-propelled continuous ditchers and trenchers (integral units), ladder-type digging element . . . . .	(D)	(D)	978	13,501	-	-
Self-propelled continuous ditchers and trenchers (integral units), wheel-type digging element . . . . .	(D)	(D)	321	10,220	58	1,731

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>†</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Value f.o.b. plant.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau reports IM 145, *U.S. General Imports*, and IM 146, *U.S. Imports for Consumption*.

<sup>4</sup>Value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus import duties.

**HISTORICAL NOTES**

Data on construction machinery have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal

Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Keeley Voor, 301-457-4746.

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## MINING MACHINERY AND MINERAL PROCESSING EQUIPMENT (MA35F)

### INTRODUCTION

These data cover firms engaged in the manufacture of underground mining machinery; mineral processing equipment; crushing, pulverizing, and screening machinery; portable oil and gas and water drilling rigs; and related mining machinery and equipment, including underground drills and breakers, and mine cars.

The statistics were collected by mail on Census Bureau annual Form MA35F, Mining Machinery and Mineral Processing Equipment. The survey panel includes all known manufacturers of mining machinery and mineral processing equipment, approximately 117 companies.

### SUMMARY OF FINDINGS

In 1997, the manufacturers' value of shipments of selected types of mining machinery and related equipment totaled \$2.1 billion, an increase of 18.9 percent from the 1996 figure of \$1.8 billion. The 1997 total included shipments of \$130.4 million of portable crushing, screening, washing, and combination plants which was a 34.4-percent increase from the 1996 total of \$97.0 million. Underground mining machinery equipment totaled \$671.4 million in 1997, a 51.5-percent increase from the 1996 total of \$443.3 million. In 1997, stationary, crushing, pulverizing, and screening machinery totaled \$433.2 million, a 25.8-percent increase from the \$344.6 million reported in 1996. Drills and other mining machinery totaled \$458.8 million in 1997, a 0.7-percent decrease from the \$461.8 million reported in 1996. Portable drilling rigs totaled \$433.9 million in 1997, a 2.2-percent decrease from the \$443.9 million reported in 1996.

### EXPLANATION OF TERMS

**Mining machinery.** Heavy machinery and equipment used by the mining industry in the exploration and development of solid mineral properties. Mining is used here in

the broad sense to include the extraction of solid minerals occurring naturally such as coal and ores. The term mining also includes quarrying, milling (crushing, screening, washing, flotation, etc.), and other preparations customarily done at the mine site or as a part of mining activity. Portable drilling rigs for use in oil and gas fields or for drilling water wells are also included for the purpose of this survey.

**Auger drills.** Machines that use continuous flight auger bits for removing cuttings.

**Bucket drills.** Machines that rotate a bucket and remove cuttings by lifting the bucket to be dumped.

**Cable tools.** Machines using percussion-type tools and those that clean the hole using tubular-type bailing tools.

**Portable drilling rigs.** Drills mounted on a carrier and used on the surface (above ground).

**Pull-back capacity.** Lifting capacity of drawworks or hoisting capacity of taphead.

**Pull-down capacity.** Capacity to apply bit pressure.

**Reverse circulation.** Machines using a rotary drilling process where the drill cuttings and fluid return to the surface inside the drill stem (large diameter holes, 18" or larger).

**Rotary drills.** Machines using rotary drill pipe, continuous fluid, and a mud pump, air compressor, or combination to clear the hole of filling.

**Screens, vibrating.** Machines used for dry or wet screening applications such as sizing, washing, and dewatering of ores, coal, sand, and gravel.

**Unit.** Complete rig, including carrier.



**Table 7. Manufacturers' Shipments of Mining Machinery and Mineral Processing Equipment by Type: 1997 and 1996**

[Quantity in units except as specified. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
3531K 70	Mining machinery and mineral processing equipment. . . . .	(X)	(X)	2,128,011	(X)	1,790,505
	Portable crushing, screening, washing, and combination plants . . . . .	17	976	130,371	676	97,018
	Crushing plants (classification based upon the type of crusher first in the processing flow):					
3531K 41	Gyratory . . . . .	7	130	35,164	72	20,064
3531K 42	Impact . . . . .	9	58	10,964	25	6,532
3531K 43	Jaw <sup>1</sup> . . . . .	9	(D)	(D)	(D)	(D)
3531K 44	Roll <sup>1</sup> . . . . .	1	90	24,781	88	25,779
3531K 47	Screening, washing, and other plants. . . . .	12	698	59,462	491	44,643
35325 —	Underground mining machinery (except parts sold separately) . . . . .	28	16,741	671,380	6,849	443,260
35325 41	Continuous mining machines, borer, ripper, auger, and drum, including roadheading machines <sup>2</sup> . . . . .	8	(D)	(D)	184	152,011
35325 56	Face haulage vehicles, rubber-tired, self-propelled <sup>2</sup> . . . . .	7	504	323,843	172	42,066
35325 70	Support vehicles, rubber-tired or track-mounted. . . . .	13	330	20,777	300	22,418
35325 97	All other underground mining machinery, n.e.c. . . . .	21	15,907	326,760	<sup>a</sup> 6,193	226,765
35327 —	Crushing, pulverizing, and screening (except portable machinery (except parts sold separately). . . . .	40	4,153	433,519	4,030	344,564
	Crushers, stationary type, including skid-mounted:					
35327 11	Gyratory . . . . .	6	<sup>a</sup> 261	<sup>a</sup> 82,855	279	79,075
35327 13	Impact . . . . .	12	392	52,231	336	26,292
35327 17	Jaw . . . . .	8	<sup>a</sup> 111	15,152	113	17,645
35327 19	Roll <sup>3</sup> . . . . .	9	(D)	(D)	(D)	(D)
35327 31	Grinding mills and pulverizers <sup>3</sup> . . . . .	8	<sup>a</sup> 287	<sup>a</sup> 166,583	250	<sup>r</sup> 114,403
	Screens, vibrating, stationary:					
35327 56	Horizontal . . . . .	15	<sup>a</sup> 939	<sup>a</sup> 39,042	934	34,201
35327 57	Inclined . . . . .	20	<sup>a</sup> 1,743	<sup>a</sup> 56,740	1,742	56,822
53527 58	Other, including trommell. . . . .	8	<sup>a</sup> 139	6,878	104	2,816
35327 59	Other crushing, pulverizing, and screening machinery, n.e.c. . . . .	9	281	14,038	272	13,310
35328 —	Drills and other mining machinery, n.e.c. (except parts) . . . . .	25	16,453,351	458,797	16,739,738	461,801
	Drills and breakers (rotary and percussion):					
35328 11	Rock drills, air and hydraulic powered <sup>4</sup> . . . . .	3	(D)	(D)	(D)	(D)
35328 15	Coal drills and core drills <sup>4</sup> . . . . .	3	(D)	(D)	(D)	(D)
35328 50	Roof bolters <sup>4</sup> . . . . .	5	10,751,063	165,471	10,257,752	171,369
35328 75	All other mining machinery and equipment (except parts sold separately) . . . . .	23	5,702,288	<sup>a</sup> 293,326	6,481,986	<sup>a</sup> 290,432
3533A —	Portable drilling rigs and parts . . . . .	31	3,146,465	433,944	2,267,787	443,862
	Rotary, trailer- and truck-mounted with pull-back capacity:					
3533A 21	Up to 14,999 lb . . . . .	5	78	7,024	65	4,126
3533A 23	15,000 to 29,999 lb . . . . .	8	121	25,773	105	19,076
3533A 25	30,000 to 59,999 lb <sup>5</sup> . . . . .	5	(D)	(D)	(D)	(D)
3533A 28	60,000 lb and over <sup>5</sup> . . . . .	2	138	52,768	162	53,321
	Rotary blasthole drills, truck-, trailer-, or track-mounted:					
3533A 35	Up to 59,999 lb . . . . .	5	229	79,956	232	76,068
3533A 38	60,000 lb and over . . . . .	4	46	61,674	71	93,639
3533A 40	Construction drills . . . . .	11	135	18,869	1,753	17,449
3533A 49	Other portable drilling rigs, including workover (service) rigs <sup>6</sup> . . . . .	6	(D)	63,203	(D)	63,032
3533A 78	Parts for portable drilling rigs <sup>6</sup> . . . . .	21	3,145,718	124,677	2,265,399	117,151

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. <sup>r</sup>Revised by 5 percent or more from previously published data. X Not applicable.

<sup>1</sup>Product codes 3531K 43 and 3531K 44 are combined to avoid disclosing data for individual companies.

<sup>2</sup>1997 data for product codes 35325 41 and 35325 56 are combined to avoid disclosing data for individual companies.

<sup>3</sup>Product codes 35327 19 and 35327 31 are combined to avoid disclosing data for individual companies.

<sup>4</sup>Product codes 35328 11, 35328 15, and 35328 50 are combined to avoid disclosing data for individual companies.

<sup>5</sup>Product codes 3533A 25 and 3533A 28 are combined to avoid disclosing data for individual companies.

<sup>6</sup>Product codes 3533A 49 and 3533A 78 were combined to avoid disclosing individual company data.

Note: Percent estimation of each item is indicated as follows: <sup>a</sup>15 to 25 percent of this item is estimated.

**Table 8. Shipments, Exports, and Imports of Selected Mining Machinery and Mineral Processing Equipment: 1997 and 1996**

[Value in thousands of dollars]

Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise <sup>1 2</sup> (value at port)	Value of imports for consumption <sup>1 3 4</sup>
<b>1997</b>			
Portable crushing plants and stationary grinding machines.....	179,313	82,391	45,728
Sorting, screening, separating, or washing machines.....	176,160	80,676	89,895
Rock breaking machines, coal or rock cutters, and tunneling machinery and rock drilling and earth boring tools.....	418,461	121,213	206,662
Mine wagon pushers, locomotive or wagon tracers, wagon tippers, and similar railway wagon handling equipment.....	91,630	9,086	981
Stationary crushing machines.....	162,289	34,586	36,579
<b>1996</b>			
Portable crushing plants and stationary grinding machines.....	125,951	91,982	36,748
Sorting, screening, separating, or washing machines.....	151,792	53,331	69,720
Rock breaking machines, coal or rock cutters, and tunneling machinery and rock drilling and earth boring tools.....	323,380	138,816	165,693
Mine wagon pushers, locomotive or wagon tracers, wagon tippers, and similar railway wagon handling equipment.....	62,684	5,079	3,155
Stationary crushing machines.....	137,243	14,914	35,407

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report FT 446, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>4</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus U.S. import duties.

#### HISTORICAL NOTE

Data on mining machinery and equipment have been collected by the Census Bureau since 1961. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

#### CONTACT FOR DATA USERS

For additional information about these data, contact Larry Blumberg, 301-457-4744.

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## INTERNAL COMBUSTION ENGINES (MA35L)

### INTRODUCTION

These data cover manufacturers of internal combustion engines in the United States, except outboard, aircraft, military tank, and nondiesel automotive engines.

The statistics were collected by mail on Census Bureau annual Form MA35L, Internal Combustion Engines. The survey panel includes all known domestic manufacturers of the specified types of internal combustion engines, approximately 38 companies.

### SUMMARY OF FINDINGS

In 1997, a total of 23,874,385 internal combustion engines (except outboard, nondiesel automotive, aircraft and military tank) were shipped or produced and incorporated at the same plant, representing a 2-percent increase from the 23,352,739 produced in 1996. Gasoline or gas-gasoline engines totaled 22,788,206 in 1997, 1 percent above the figure of 22,658,575 for 1996. The number of nonautomotive diesel, semidiesel, and dual-fuel engines produced in 1997 amounted to 313,918, a 14-percent increase from the 269,727 reported in 1996. There were 763,075 automotive diesel, semidiesel, and dual-fuel engines produced in 1997, 10 percent more than the 685,072 produced in 1996. Production of gas engines (LPG and natural) was 9,186 in 1997, 1 percent more than the 9,092 produced in 1996.

### EXPLANATION OF TERMS

**Total number of engines produced.** Represents all production of engines for sale to other companies, for transfer to other plants of the same company or for the incorporation into other products produced at the plant.

**Shipments to distributors and other companies.** Represents all shipments to affiliated and nonaffiliated distributors, plus all other shipments to nonaffiliated companies.

**Interplant transfers.** Represents the number and value of engines transferred to other plants of the reporting company for incorporation into machinery or equipment in those plants. Shipments to distributors (whether affiliated with the company or not affiliated) are excluded. Transfers to other plants of the same company are reported at market value.

**Produced and incorporated.** Represents engines produced and incorporated into other products in the same plant such as construction and farm machinery (including tractors); engine-driven generator sets; and other products incorporating an engine manufactured in the same plant.

**Horsepower.** A unit for measuring the power of motors or engines, equal to 746 watts or to a rate of 33,000 foot-pounds per minute (the force required to raise 33,000 pounds at the rate of 1 foot per minute).

**Piston displacement.** The volume (measured in cubic inches) displaced by a stroke of a piston (one cubic inch is approximately 16.387 cubic centimeters).

**End application.** The end application or use to which the engine was destined. Engines may not be used ultimately for the specific application intended or supposed by the producer.

**Table 9. Internal Combustion Engines by Type of Engine: 1997 and 1996**

[Engines and quantity in units. Value in thousands of dollars]

Product description	Engines produced <sup>1</sup>	Total shipments and interplant transfers		Shipments to other companies		Interplant transfers		Engines produced and incorporated <sup>2</sup>
		Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	
<b>1997</b>								
<b>Total</b> .....	<b>23,874,385</b>	<b>(D)</b>	<b>11,511,147</b>	<b>(D)</b>	<b>(D)</b>	<b>(D)</b>	<b>(D)</b>	<b>8,271,850</b>
Gasoline (except automotive).....	22,788,206	(D)	2,405,706	(D)	2,091,504	544,834	314,202	8,247,040
Nonautomotive diesel.....	313,918	289,262	2,707,749	204,538	1,797,578	84,724	910,171	(D)
Automotive diesel .....	763,075	763,075	6,014,021	587,289	4,788,280	175,786	1,225,741	-
Natural gas and liquefied petroleum gas.....	9,186	(D)	(D)	8,833	369,691	(D)	(D)	(D)
<b>1996</b>								
<b>Total</b> .....	<b>23,352,739</b>	<b>(D)</b>	<b>9,865,306</b>	<b>(D)</b>	<b>(D)</b>	<b>874,658</b>	<b>(D)</b>	<b>(D)</b>
Gasoline (except automotive).....	22,658,575	(D)	2,251,561	(D)	1,953,414	643,695	298,147	8,859,280
Nonautomotive diesel.....	269,727	(D)	2,235,768	185,081	1,565,740	(D)	670,028	(D)
Automotive diesel .....	685,072	685,031	5,051,380	518,991	4,101,925	166,040	949,455	(D)
Natural gas and liquefied petroleum gas.....	9,092	(D)	(D)	8,750	307,683	(D)	(D)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Represents total number of engines produced; incorporated into products at same establishment or shipped.

<sup>2</sup>Represents engines produced and incorporated (in same plant) into products such as construction machinery, farm machinery, tractors, engine-generator sets, and other products.

**Table 10. Gasoline Engines by Horsepower Rating: 1997 and 1996**

[Engines and quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Engines produced <sup>1</sup>	Total shipments and interplant transfers		Shipments to other companies		Interplant transfers		Engines produced and incorporated <sup>2</sup>
				Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	
<b>1997</b>										
35191 —	Gasoline engines .....	23	22,788,206	(D)	2,405,706	(D)	2,091,504	544,834	214,202	8,247,040
35191 01	Under 11 hp .....	14	20,181,320	(D)	(D)	(D)	(D)	356,732	46,122	8,218,085
35191 02	11 to under 21 hp ...	6	2,192,033	(D)	(D)	2,147,393	733,410	(D)	(D)	(D)
35191 03	21 to under 61 hp ...	7	137,830	129,444	(D)	(D)	88,869	(D)	(D)	(D)
35191 07	61 hp and over .....	8	277,023	277,023	430,235	(D)	(D)	(D)	(D)	-
<b>1996</b>										
35191 —	Gasoline engines .....	23	22,737,214	(D)	2,251,561	(D)	1,953,414	643,695	298,147	8,859,280
35191 01	Under 11 hp .....	14	20,412,192	(D)	(D)	(D)	(D)	472,359	45,815	8,827,343
35191 02	11 to under 21 hp ...	5	1,945,060	1,924,051	641,978	(D)	(D)	(D)	(D)	(D)
35191 03	21 to under 61 hp ...	7	126,502	(D)	(D)	101,089	79,266	(D)	(D)	(D)
35191 07	61 hp and over .....	8	253,458	253,227	386,511	(D)	(D)	(D)	(D)	-

- Represents zero. D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Represents total number of engines produced; incorporated into products at same establishment or shipped.

<sup>2</sup>Represents engines produced and incorporated (in same plant) into products such as construction machinery, farm machinery, tractors, engine-generator sets, and other products.

Note: Horsepower is defined as maximum published horsepower rating at maximum recommended revolutions per minute (r/min).

**Table 11. Nonautomotive Diesel Engines by Horsepower Rating: 1997 and 1996**

[Engines and quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Engines produced <sup>1</sup>	Total shipments and interplant transfers		Shipments to other companies		Interplant transfers		Engines produced and incorporated <sup>2</sup>
				Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	
<b>1997</b>										
35193 —	Nonautomotive diesel engines . . .	16	313,918	289,262	2,707,749	204,538	1,797,578	84,724	910,171	(D)
35193 31	Under 101 hp . . . . .	9	(D)	(D)	(D)	15,546	53,724	(D)	(D)	(D)
35193 33	101 to under 151 hp . . . . .	6	(D)	87,943	292,268	(D)	(D)	(D)	(D)	(D)
35193 35	151 to under 176 hp . . . . .	6	34,605	33,968	139,443	(D)	(D)	(D)	(D)	(D)
35193 37	176 to under 251 hp . . . . .	7	44,582	(D)	(D)	21,761	142,750	(D)	(D)	(D)
35193 39	251 to under 301 hp . . . . .	6	(D)	47,349	313,325	38,402	234,705	8,974	78,620	(D)
35193 41	301 to under 401 hp . . . . .	6	27,754	25,218	351,958	14,551	213,456	10,667	138,502	(D)
35193 43	401 to under 451 hp . . . . .	5	7,072	(D)	(D)	(D)	(D)	3,717	62,475	(D)
35193 45	451 to under 601 hp . . . . .	3	13,655	(D)	(D)	9,634	215,170	(D)	(D)	(D)
35193 47	601 to under 701 hp . . . . .	3	3,865	(D)	(D)	2,633	72,251	(D)	(D)	(D)
35193 49	701 to under 801 hp . . . . .	3	(D)	(D)	(D)	1,791	62,716	(D)	(D)	-
35193 51	801 to under 1,501 hp . . . . .	5	4,873	(D)	(D)	3,446	202,805	(D)	(D)	(D)
35193 28	1,501 hp and over . . . . .	6	3,291	(D)	(D)	1,092	275,671	(D)	(D)	(D)
<b>1996</b>										
35193 —	Nonautomotive diesel engines . . .	16	269,727	(D)	2,235,768	185,081	1,565,740	(D)	670,028	(D)
35193 31	Under 101 hp . . . . .	9	18,112	(D)	(D)	15,438	54,071	(D)	(D)	(D)
35193 33	101 to under 151 hp . . . . .	6	(D)	71,056	235,093	(D)	(D)	(D)	(D)	(D)
35193 35	151 to under 176 hp . . . . .	6	40,470	39,080	(D)	(D)	90,933	(D)	(D)	(D)
35193 37	176 to under 251 hp . . . . .	6	38,104	(D)	(D)	19,466	112,940	(D)	(D)	(D)
35193 39	251 to under 301 hp . . . . .	6	19,092	(D)	(D)	10,763	118,618	(D)	(D)	(D)
35193 41	301 to under 401 hp . . . . .	7	17,723	16,143	209,608	10,879	141,420	5,264	68,188	(D)
35193 43	401 to under 451 hp . . . . .	5	6,598	6,598	125,126	4,421	76,918	2,177	48,208	-
35193 45	451 to under 601 hp . . . . .	3	10,433	(D)	(D)	8,330	178,170	(D)	(D)	(D)
35193 47	601 to under 701 hp . . . . .	4	(D)	2,573	71,522	(D)	(D)	(D)	(D)	(D)
35193 49	701 to under 801 hp . . . . .	3	4,709	(D)	(D)	1,486	47,529	(D)	(D)	(D)
35193 51	801 to under 1,501 hp . . . . .	4	3,712	2,920	(D)	(D)	150,085	(D)	(D)	(D)
35193 28	1,501 hp and over . . . . .	6	3,718	(D)	(D)	1,061	250,515	(D)	(D)	(D)

- Represents zero. (D) Withheld to avoid disclosing data for individual companies. <sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Represents total number of engines produced; incorporated into products at same establishment or shipped.

<sup>2</sup>Represents engines produced and incorporated (in same plant) into products such as construction machinery, farm machinery, tractors, engine-generator sets, and other products.

Note: Horsepower is defined as maximum published horsepower rating at maximum recommended revolutions per minute (r/min).

**Table 12. Automotive Diesel Engines by Horsepower Rating: 1997 and 1996**

[Engines in units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Engines <sup>1</sup>	Value <sup>2</sup>	Engines <sup>1</sup>	Value <sup>2</sup>
35194 —	Automotive diesel engines.....	9	763,075	6,014,021	685,072	5,051,380
35194 11	Under 226 hp.....	8	466,234	2,272,618	431,800	2,030,348
35194 14	226 to under 251 hp.....	7	27,336	167,876	19,331	131,957
35194 15	251 hp and over.....	7	269,505	3,573,112	233,900	2,889,110

<sup>1</sup>Represents total number of engines shipped, including interplant transfers.

<sup>2</sup>Represents value of all engines shipped, including interplant transfers.

Note: Horsepower is defined as maximum published horsepower rating at maximum recommended revolutions per minute (r/min).

**Table 13. Gas Engines (Except Automotive) by Horsepower Rating: 1997 and 1996**

[Engines and quantity in units. Value in thousands of dollars]

Product code	Product description	Number of companies	Engines produced <sup>1</sup>	Total shipments including interplant transfers		Engines produced and incorporated <sup>2</sup>
				Quantity	Value f.o.b. plant	
<b>1997</b>						
35196 —	Natural gas and liquefied petroleum gas engines..	10	9,148	9,032	383,671	(D)
35196 11	Under 501 hp.....	9	(D)	7,355	57,987	(D)
35196 12	501 hp and over.....	4	(D)	1,677	325,684	(D)
<b>1996</b>						
35196 —	Natural gas and liquefied petroleum gas engines..	11	9,092	8,981	326,597	(D)
35196 11	Under 501 hp.....	10	(D)	7,418	47,220	(D)
35196 12	501 hp and over.....	4	(D)	1,563	279,377	(D)

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Represents total number of engines produced; incorporated into products at same establishment or shipped.

<sup>2</sup>Represents engines produced and incorporated (in same plant) into products such as construction machinery, farm machinery, tractors, engine-generator sets, and other products.

Note: Horsepower is defined as maximum published horsepower rating at maximum recommended revolutions per minute (r/min).

**Table 14. Engines Produced by Piston Displacement and Fuel System: 1997 and 1996**

Piston displacement	1997	1996
<b>Total.....</b>	<b>25,105,267</b>	<b>23,446,849</b>
Gasoline.....	24,027,909	22,761,794
Under 251 cc.....	21,572,878	19,980,422
251 cc and over.....	2,455,031	2,781,372
Nonautomotive diesel.....	314,312	<sup>1</sup> 265,787
Under 251 cc.....	(D)	(D)
251 to 3,700 cc.....	(D)	(D)
3,701 cc and over.....	268,300	<sup>1</sup> 229,363
Automotive diesel.....	763,046	685,055
Under 251 to 3,700 cc.....	192,556	157,860
3,701 cc and over.....	570,490	525,552

cc Cubic centimeters.

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Revised by 5 percent or more from previously published data.

**Table 15. Engines Produced (Except Outboard, Automotive, and Aircraft) by Type of Engine and End Application: 1997 and 1996**

End application	Gasoline engines		Nonautomotive diesel engines	
	1997	1996	1997	1996
<b>Total</b> .....	<b>24,027,909</b>	<b>22,828,218</b>	<b>314,312</b>	<b><sup>r</sup>269,810</b>
Oilfield and petroleum-related generating and stationary equipment .....	-	-	(D)	(D)
Other generator sets .....	(D)	(D)	36,130	37,530
Irrigation .....	(D)	(D)	(D)	(D)
Agricultural vehicular .....	(D)	(D)	(D)	(D)
Off-highway mobile construction equipment .....	(D)	(D)	(D)	(D)
Marine (except outboard) .....	(D)	(D)	15,057	13,443
Railroad, motive power type .....	-	-	1,328	1,361
Chain saws .....	2,863,893	2,521,025	-	-
Garden tractors .....	(D)	(D)	-	-
Lawn, home, and recreational equipment .....	15,903,683	15,783,750	-	-
Other general industrial .....	(D)	1,158,277	45,413	<sup>r</sup> 31,181

- Represents zero. D Withheld to avoid disclosing data for individual companies. <sup>r</sup>Revised by 5 percent or more from previously published data.

**Table 16. Production, Exports, and Imports of Internal Combustion Engines: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Manufacturers' production		Exports of domestic merchandise <sup>2</sup>		Imports for consumption <sup>3</sup>	
		Quantity	Value of shipments f.o.b. plant <sup>1</sup>	Quantity	Value at port	Quantity	Value
<b>1997</b>							
	<b>Total</b> .....	<b>15,602,535</b>	<b>11,511,147</b>	<b>2,061,851</b>	<b>2,590,940</b>	<b>2,571,759</b>	<b>2,002,966</b>
35194	Automotive diesel engines .....	763,075	6,014,021	81,260	815,651	18,721	143,697
35193	Nonautomotive diesel engines .....	289,262	2,707,749	102,767	1,390,782	339,928	885,494
35191	Gasoline engines .....	14,541,166	2,405,706	1,873,972	314,703	2,169,196	948,768
35196	Gas and liquefied petroleum gas engines ...	9,032	383,671	3,852	69,804	43,914	25,007
<b>1996</b>							
	<b>Total</b> .....	<b>14,743,080</b>	<b>9,865,306</b>	<b>1,891,809</b>	<b>2,025,455</b>	<b>2,440,382</b>	<b>2,014,740</b>
35194	Automotive diesel engines .....	685,031	5,051,380	65,199	600,789	18,202	115,488
35193	Nonautomotive diesel engines .....	249,773	2,235,768	73,544	1,062,311	300,720	822,549
35191	Gasoline engines .....	13,799,295	2,251,561	1,750,109	301,032	2,105,317	1,056,756
35196	Gas and liquefied petroleum gas engines ...	8,981	326,597	2,957	61,323	16,143	19,947

<sup>1</sup>Value of shipments f.o.b. plant of production; quantities shipped as engines, including interplant transfers.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. General Imports*. These data include both import value and duty value.

**HISTORICAL NOTE**

Data on internal combustion engines have been collected by the Census Bureau since 1943. Historical data may be obtained from Current Industry Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also

available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact J. Stanis Batton, 301-457-4750.

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## METALWORKING MACHINERY (MQ35W)

### INTRODUCTION

These data cover all companies engaged in the manufacture of industrial type metal cutting and metal forming types of metalworking machinery, including numerical control types.

The statistics were collected by mail on Census Bureau quarterly Form MQ35W, Metalworking Machinery. The survey panel includes all known manufacturers of metal cutting and metal forming machinery. Approximately 391 companies are included.

### SUMMARY OF FINDINGS

Shipments of metalworking machinery during 1997 totaled \$5,010.3 million, an 8.7-percent increase from the \$4,607.8 million shipments for 1996. Exports during the year were valued at \$697.9 million, a 2.1-percent decrease from exports valued at \$713.1 million during 1996. The value of unfilled orders on December 31, 1997 totaled \$2,142.6 million. The December 31, 1996 unfilled orders were valued at \$2,347.1 million.

Shipments of metal cutting type machine tools in 1997 totaled \$3,583.3 million, a 14.1-percent increase from the \$3,141.1 million shipped during 1996. For 1997, shipments of lathes accounted for \$480.7 million; grinding and polishing machines, \$595.0 million; milling machines, \$280.2 million; and boring and drilling machines, \$169.4 million. The corresponding figures for 1996 were: lathes, \$451.1 million; grinding and polishing machines, \$541.3 million; milling machines, \$199.7 million; and boring and drilling machines, \$188.4 million.

### EXPLANATION OF TERMS

**Exports.** Includes both shipments for direct export and shipments to agent or exporters for shipment to foreign countries.

**Metal cutting type machine tools.** These are defined as new, industrial type, power-driven, complete machine tools, not supported in the hands of an operator when in use. They are used for removing metal in the form of chips, turnings, and borings. Also included are honing machines, lapping machines, grinders, and machines which cut using electrical techniques. Excluded are machine tools designed primarily for home workshops,

laboratories, garages, and services shops. These are small, low-priced machine tools of light construction. Also excluded are rolling mill machinery, power-driven hand tools, wood working machinery, and rebuilt machinery.

**Metal forming type machine tools.** These are defined as new, industrial type, power-driven, complete machine tools, not supported in the hands of an operator when in use. They are used to press, forge, emboss, hammer, extrude, blank, spin, shear, or bend metal into shape.

### Numerically Controlled Machines by Type:

*Positioning.* Machines equipped with positioning numerical control systems activated by direct data input (DNC); e.g., punched tape, punched cards, magnetic tape, cassette, or manual data input (MDI). Included in this group are all machines that have been equipped with control systems in which point-to-point positioning and cutting or forming (regardless of the number of movement "axes" or auxiliary functions) are controlled automatically via numerical programs inserted into the systems. If a machine has been equipped with a control system that permits positioning and continuous path operations, it is classified as continuous path.

*Continuous path or computer numerical control.* Machine equipped with continuous path numerical program control systems activated by direct data input (CNC); e.g., punched tape, punched cards, magnetic tape, cassette, or manual data input (MDI). Included in this group are all machines equipped with control systems in which, in addition to point-to-point positioning, the path of cutting is automatically controlled by means of numerical programs inserted into the systems. If a machine has been equipped with a control system that permits positioning and continuous path operations, it is classified as continuous path.

*Digital readout systems including dial or plugboard.* Machines equipped with digital readout systems or dial or plugboard type of prerecorded motion program control systems. Included in this group are all machines equipped with control systems in which positioning or continuous path are automatically commanded by numerical programs fed into the system, by an operator, through dials, plugs, switches, or any other numerical method.



**Table 17. Value of Shipments, Including Exports of Metalworking Machinery by Class of Product: 1988 to 1997**

[Thousands of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
	<b>Metalworking machinery . . . . .</b>	<b>5,010,262</b>	<b>4,607,757</b>	<b>4,547,133</b>	<b>3,780,074</b>	<b>3,222,456</b>	<b>3,073,862</b>	<b>3,171,748</b>	<b>3,426,081</b>	<b>3,514,224</b>	<b>2,858,174</b>
	Metal cutting type <sup>1</sup> . . . . .	3,583,298	3,141,128	3,036,592	2,463,001	2,084,864	1,999,668	2,138,713	2,371,266	2,428,520	1,734,781
3541D	Boring machines <sup>2</sup> . . . . .	80,161	88,929	172,417	129,835	84,667	97,975	77,655	(D)	(D)	(D)
3541D	Drilling machines <sup>2</sup> . . . . .	89,219	99,453	78,936	51,987	37,076	37,472	37,374	184,118	183,151	133,860
35413	Gear cutting machines . . . . .	213,507	164,258	137,121	100,612	87,662	79,600	115,226	102,678	97,304	48,897
35414	Grinding and polishing machines (except gear- tooth grinding, lapping, polishing, and buffing machines) . . . . .	595,014	541,277	549,580	443,262	360,894	335,121	378,946	433,574	419,754	359,821
35415	Lathes <sup>3</sup> . . . . .	480,672	451,115	478,003	390,407	305,488	258,885	317,087	355,632	343,223	282,480
35416	Milling machines <sup>4</sup> . . . . .	280,158	199,667	194,757	138,852	180,174	210,403	201,137	214,254	206,248	184,482
3541A	Machining centers (multifunction numerically controlled machines) . . . .	931,566	779,433	698,780	552,358	485,375	377,941	361,799	436,999	442,226	334,469
3541B	Station type machines . . . . .	551,870	498,592	477,021	455,138	374,772	434,705	450,366	502,066	562,887	225,376
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, etc.) . .	358,299	315,977	246,237	200,114	166,248	166,535	195,654	141,945	173,727	165,396
	Metal forming type . . . . .	1,426,964	1,466,629	1,510,541	1,317,073	1,139,581	1,073,994	1,033,035	1,080,181	1,085,704	1,123,393
35421 pt.	Punching and shearing machines . . . .	319,208	331,382	326,318	294,441	213,402	172,872	180,756	200,050	200,104	167,347
35421 pt.	Bending and forming machines . . . . .	258,479	283,020	256,882	253,219	255,299	270,044	204,357	222,861	217,891	204,939
35422	Presses (except forging) . . . . .	422,396	401,990	379,203	376,398	345,653	288,248	297,889	308,338	316,549	356,528
35423 pt.	Forging machines <sup>5</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)	(D)	73,947	58,478	(D)
35423 pt.	Other metal forming type machines <sup>5</sup> . . . . .	426,881	450,237	548,138	393,015	325,227	342,830	350,033	274,985	292,682	394,579

D Withheld to avoid disclosing data for individual companies. pt. Part.

<sup>1</sup>Data for "All lathes, turning machines" and "All milling machines, valued at under \$3,025 each" are included with "Metal cutting type" for 1995 and 1997.

<sup>2</sup>For 1988 through 1990, data for "Boring machines" were combined with "Drilling machines" to avoid disclosing individual company data.

<sup>3</sup>For 1991 through 1997, product code 35415, "Lathes," excludes the value for product code 35415 09, "All lathes valued under \$3,025 each."

<sup>4</sup>For 1991 through 1997, product code 35416, "Milling machines," excludes the value for product code 35416 09, "All milling machines valued under \$3,025 each."

<sup>5</sup>For 1991 through 1997, and 1988 data for "Forging machines" have been combined with "Other metal forming machines" to avoid disclosing individual company data.

**Table 18. Total Shipments and Unfilled Orders: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Company count	1997			1996		
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)
			Quantity	Value		Quantity	Value	
	Metalworking machinery	(X)	243,920	5,010,262	2,142,586	179,955	4,607,757	2,347,109
	Total metal cutting type machine tools	(X)	169,624	3,583,298	1,406,987	110,770	3,141,128	1,589,988
	Total metal forming type machine tools	(X)	74,296	1,426,964	735,599	69,185	1,466,629	757,121
	Metal cutting type machine tools valued at \$3,025 each or more	(X)	40,168	3,520,170	1,404,777	35,057	3,093,895	1,587,623
	Metal cutting type machine tools valued under \$3,025 <sup>1 2 3 4</sup>	(X)	129,456	63,128	2,210	75,713	47,233	2,365
3541D 00	Boring and drilling machines	40	6,234	169,380	109,720	7,927	188,382	113,869
3541D 10	All boring machines valued under \$3,025 each	-	(X)	(X)	(X)	(X)	(X)	(X)
	Boring machines valued at \$3,025 each or more:							
3541D 16	Horizontal boring, drilling, and milling machines, including floor, table, and rail mounted <sup>5</sup>	5	(D)	(D)	<sup>a</sup> 9,509	(D)	(D)	(D)
3541D 40	Precision boring machines, including horizontal and vertical boring machines <sup>5</sup>	8	(D)	(D)	(D)	(D)	(D)	(D)
3541D 46	Jig boring and all other boring machines (except boring lathes) <sup>5</sup>	1	982	<sup>b</sup> 80,161	46,033	<sup>a</sup> 879	88,929	57,100
3541D 05	All drilling machines valued under \$3,025 each	14	<sup>a</sup> 4,524	<sup>a</sup> 7,350	<sup>b</sup> 226	5,595	7,736	115
	Drilling machines valued at \$3,025 each or more:							
3541D 15	Vertical upright drilling machines, including plain upright and heavy duty	9	135	<sup>a</sup> 1,604	1,022	278	2,086	214
3541D 25	Radial drilling machines, including plain and universal	-	(X)	(X)	(X)	(X)	(X)	(X)
3541D 35	Deep hole drilling machines	4	<sup>b</sup> 92	<sup>b</sup> 11,301	<sup>c</sup> 3,649	<sup>b</sup> 89	<sup>a</sup> 12,102	<sup>a</sup> 4,565
	Multiple spindle drilling machines:							
3541D 45	Adjustable joint and fixed center types <sup>6</sup>	6	(D)	(D)	(D)	(D)	(D)	(D)
3541D 55	All other automatic multiple spindle drilling machines <sup>6</sup>	6	<sup>c</sup> 73	<sup>b</sup> 10,324	<sup>c</sup> 8,226	(D)	(D)	(D)
3541D 65	All other drilling machines, n.e.c. <sup>6</sup>	7	<sup>b</sup> 428	<sup>b</sup> 58,640	41,055	<sup>a</sup> 1,086	<sup>b</sup> 77,529	51,875
35413 00	Gear cutting machines, including gear hobbers, shapers, teeth finishing, bevel gear generators, and all other gear cutting machines	12	<sup>a</sup> 619	213,507	126,484	471	164,258	128,793
35414 00	Grinding, polishing, buffing, honing, and lapping machines <sup>1</sup>	84	112,443	595,014	227,050	65,737	541,277	281,000
35414 10	All grinding, polishing, buffing, honing, and lapping machines valued under \$3,025 each <sup>1</sup>	20	104,506	40,407	1,354	59,099	24,274	(D)
	All grinding, polishing, buffing, honing, and lapping machines valued at \$3,025 each or more:							
	External cylindrical grinding machines:							
35414 11	Plain, including angular wheel types <sup>7</sup>	2	(D)	(D)	(D)	(D)	(D)	(D)
35414 13	Universal <sup>7</sup>	4	<sup>a</sup> 106	27,308	12,726	106	29,848	17,452
35414 14	Roll, chucking, centerless, and other cylindrical grinding machines	13	<sup>c</sup> 985	<sup>a</sup> 218,674	95,353	<sup>b</sup> 715	<sup>a</sup> 165,098	142,867
35414 33	Surface grinding machines, rotary table type, horizontal and vertical <sup>8</sup>	5	(D)	(D)	(D)	<sup>c</sup> 381	<sup>b</sup> 12,564	(D)
35414 34	Surface grinding machines, reciprocating table type, including face grinders, horizontal and vertical <sup>9</sup>	6	(D)	(D)	(D)	(D)	(D)	(D)
35414 37	Surface grinding machines, reciprocating table type, including face grinders, hand surface type <sup>9</sup>	3	<sup>a</sup> 1,030	<sup>a</sup> 14,155	1,731	1,226	<sup>a</sup> 19,921	3,610
35414 42	All other disc grinders, including bench, floor, snag, double spindle grinders, and abrasive belt grinders <sup>8 10</sup>	4	1,090	<sup>a</sup> 33,429	<sup>b</sup> 17,893	(D)	(D)	17,560
35414 52	Tool and cutter grinding machines <sup>10</sup>	15	<sup>a</sup> 654	97,783	16,910	1,031	117,143	19,832
35414 53	Drill point grinders <sup>11</sup>	6	(D)	(D)	(D)	(D)	(D)	(D)
35414 55	All other grinding machines, n.e.c., including internal cylindrical type, planer type, and thread grinding machines <sup>11</sup>	18	<sup>b</sup> 2,399	<sup>a</sup> 75,546	38,203	<sup>b</sup> 1,423	<sup>a</sup> 67,574	34,805
35414 75	Honing and lapping machines, internal, including combination bore, hone, and external <sup>12</sup>	6	(D)	(D)	4,835	163	16,361	(D)
35414 79	Flat surface lapping machines (except gear lapping) <sup>12</sup>	4	1,051	46,770	813	956	<sup>b</sup> 46,241	<sup>b</sup> 14,540
35414 84	All other honing and lapping machines or polishing and buffing machines, including speed lathes and multistation type	16	<sup>b</sup> 622	<sup>a</sup> 40,942	37,232	<sup>a</sup> 637	42,253	28,966

See footnotes at end of table.

Table 18. **Total Shipments and Unfilled Orders: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Company count	1997			1996		
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)
			Quantity	Value		Quantity	Value	
	Metalworking machinery—Con.							
	Metal cutting type machine tools valued under \$3,025 and at \$3,025 each or more <sup>1</sup> <sup>2</sup> —Con.							
35415 00	Lathes .....	(X)	5,058	480,672	120,867	4,190	451,115	122,838
	Numerically controlled:							
	Horizontal .....	15	3,679	356,700	49,668	2,985	304,871	62,208
35415 15	Multiple spindle NC turning machine <sup>13</sup> .....	2	(D)	(D)	(D)	(D)	(D)	(D)
	Single spindle NC turning machines:							
35415 19	Chuck sizes up to and including 6" <sup>13</sup> <sup>14</sup> .....	3	(D)	(D)	(D)	(D)	(D)	(D)
35415 21	Chuck sizes over 6" but less than 10" <sup>13</sup> <sup>14</sup> .....	9	(D)	(D)	(D)	2,019	166,803	31,287
35415 11	Chuck sizes from 10" but less than 15" .....	9	816	94,603	12,311	917	115,247	18,270
35415 12	Chuck sizes 15" and over <sup>13</sup> .....	2	2,863	262,097	37,357	49	22,821	12,651
35415 22	Vertical NC turning machines .....	7	228	76,711	49,414	222	90,288	36,940
	Nonnumerically controlled turning machines <sup>2</sup> .....	10	1,151	47,261	21,785	983	55,956	23,690
35415 09	All lathes (turning machines) valued under \$3,025 each <sup>2</sup> .....	2	(D)	(D)	(D)	(D)	(D)	(D)
	All lathes (turning machines) valued at \$3,025 each or more:							
35415 23	Engine or toolroom lathes, all types <sup>15</sup> .....	4	(D)	(D)	(D)	(D)	(D)	3,241
	Automatic lathes:							
35415 83	Single spindle <sup>15</sup> .....	1	(D)	(D)	(X)	(D)	(D)	(D)
	Multiple spindle:							
35415 88	Bar (screw) machines <sup>15</sup> .....	2	(D)	(D)	(D)	(D)	(D)	(D)
35415 67	Chucking machines <sup>15</sup> .....	1	(D)	(D)	(D)	(D)	(D)	(X)
35415 57	All other horizontal turning machines, including turret lathes and automatic between center lathes <sup>15</sup> .....	4	(D)	(D)	(X)	(D)	(D)	(X)
35415 86	All vertical turning machines <sup>15</sup> .....	1	<sup>b</sup> 1,151	<sup>a</sup> 47,261	21,785	<sup>b</sup> 983	<sup>c</sup> 55,956	<sup>b</sup> 20,449
35416 00	Milling machines <sup>3</sup> .....	23	4,240	280,158	198,989	4,102	199,667	191,985
35416 09	All milling machines valued under \$3,025 each <sup>3</sup> .....	5	(D)	(D)	(D)	(D)	(D)	(D)
	All milling machines valued at \$3,025 or more:							
35416 23	General-purpose, knee milling machines all types <sup>16</sup> .....	7	(D)	(D)	(D)	(D)	(D)	(D)
	Automatic:							
35416 32	Single spindle, multiple spindle, and special-purpose machines <sup>16</sup> .....	5	(D)	(D)	3,996	(D)	(D)	(D)
35416 53	Profile machines and duplicators <sup>16</sup> .....	3	(D)	(D)	(D)	(D)	(D)	(D)
35416 62	All other milling machines, n.e.c., including planer type and thread milling machines <sup>16</sup> .....	11	4,240	280,158	194,993	4,102	199,667	191,985
3541A 00	Machining centers .....	25	9,809	931,566	234,849	8,442	779,433	147,229
	Drill, mill, and bore, vertical (automatic tool change):							
3541A 05	Y-axis travel less than 20 inches .....	11	<sup>b</sup> 3,882	<sup>b</sup> 234,871	16,905	3,447	205,277	17,013
3541A 07	Y-axis travel 20 inches through 26 inches .....	8	<sup>b</sup> 3,440	<sup>b</sup> 281,210	25,188	2,832	231,114	19,314
3541A 09	Y-axis travel over 26 inches .....	7	<sup>b</sup> 537	<sup>b</sup> 77,889	<sup>b</sup> 22,618	678	87,846	11,140
	Drill, mill, and bore, horizontal (automatic tool change):							
3541A 12	400mm pallet and smaller <sup>17</sup> <sup>18</sup> .....	4	310	65,477	(D)	(D)	(D)	12,688
3541A 14	401mm-500mm pallet <sup>18</sup> .....	5	<sup>c</sup> 352	<sup>b</sup> 82,626	25,393	363	80,886	20,376
3541A 16	501mm-630mm pallet <sup>17</sup> .....	2	(D)	(D)	(D)	(D)	(D)	(D)
3541A 17	631mm-800mm pallet <sup>17</sup> .....	4	176	90,835	62,300	169	80,187	21,484
3541A 18	801mm-1000mm pallet <sup>19</sup> .....	3	(D)	(D)	7,101	(D)	(D)	7,221
3541A 21	Over 1000mm pallet <sup>19</sup> .....	3	58	48,885	55,525	60	58,696	(D)
3541A 19	All other machining centers including special machining centers, special adapting of standard machining centers, and machining centers with indexing turret .....	7	<sup>a</sup> 1,054	49,773	19,819	893	35,427	37,993
3541B 00	Station type machines .....	21	435	551,870	293,901	413	498,592	521,008
3541B 31	Dial or rotary, trunnion, and center column .....	10	152	110,443	71,570	168	225,747	101,042
3541B 35	Transfer <sup>20</sup> .....	10	(D)	(D)	(D)	(D)	(D)	(D)
3541B 37	Other station type, n.e.c. <sup>20</sup> .....	4	<sup>b</sup> 283	<sup>c</sup> 441,427	222,331	<sup>a</sup> 245	272,845	419,966

See footnotes at end of table.

Table 18. **Total Shipments and Unfilled Orders: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Company count	1997			1996		
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)
			Quantity	Value		Quantity	Value	
	Metalworking machinery—Con.							
3541C 00	Metal cutting type machine tools valued under \$3,025 and at \$3,025 each or more <sup>1 2</sup> —Con.							
3541C 41	Other metal cutting machine tools <sup>4</sup> . . . . .	68	28,760	358,299	94,497	17,013	315,977	81,613
	Other metal cutting machine tools, n.e.c., valued under \$3,025 <sup>4</sup> . . . . .	15	<sup>a</sup> 18,400	<sup>c</sup> 12,539	(D)	<sup>b</sup> 8,544	<sup>b</sup> 12,796	597
3541C 51	Other metal cutting machine tools, n.e.c., valued at \$3,025 each or more:							
	Broaching machines . . . . .	6	<sup>b</sup> 72	<sup>a</sup> 9,479	<sup>b</sup> 9,163	<sup>c</sup> 97	<sup>c</sup> 10,656	<sup>c</sup> 4,158
	Sawing and cutoff machines:							
3541C 53	Power hack saws <sup>21</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)
3541C 55	Circular cutoff saws (cold) <sup>21</sup> . . . . .	3	(D)	(D)	(D)	148	<sup>a</sup> 6,833	(D)
3541C 59	Band saws <sup>21</sup> . . . . .	11	4,470	63,686	(D)	3,657	50,810	(D)
3541C 61	All other sawing and cutoff machines <sup>21</sup> . . . . .	10	1,078	<sup>a</sup> 46,551	18,309	765	33,481	24,436
3541C 64	Spark erosion, ultrasonic, and electrolytic machines, all types . . . . .	7	1,284	83,179	24,235	1,152	80,435	7,084
3541C 91	Miscellaneous metal cutting machine tools . . . . .	27	<sup>b</sup> 3,456	<sup>a</sup> 142,865	<sup>a</sup> 42,790	<sup>a</sup> 2,650	120,966	45,338
	Metal forming type machine tools valued over \$3,025 . . . . .	(X)	19,898	1,384,291	733,060	19,864	1,427,686	754,830
	Metal forming type machine tools valued at \$3,025 and under . . . . .	(X)	54,398	42,673	2,539	49,321	38,943	2,291
35421 00	Punching, shearing, bending, and forming machines . . . . .	77	15,559	577,687	167,196	15,540	614,402	221,514
35421 08	All punching and shearing machines valued under \$3,025 each . . . . .	12	<sup>c</sup> 775	<sup>b</sup> 1,433	<sup>c</sup> 163	<sup>c</sup> 711	<sup>b</sup> 1,264	<sup>c</sup> 132
	All punching and shearing machines valued at \$3,025 each or more:							
	Power operated only:							
35421 11	Punches, including combination punching and shearing machines . . . . .	16	<sup>b</sup> 3,628	<sup>a</sup> 53,936	4,383	<sup>a</sup> 3,200	<sup>a</sup> 45,774	12,977
35421 16	Punching machines fixed position and two axes positioning table . . . . .	6	533	115,197	15,275	566	130,015	14,399
	Plate shearing machines:							
35421 12	Mechanical <sup>22</sup> . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)
35421 14	Hydraulic <sup>22</sup> . . . . .	11	<sup>a</sup> 1,085	22,281	6,856	(D)	(D)	<sup>a</sup> 4,820
35421 19	Other power-operated punching and shearing machines <sup>22</sup> . . . . .	11	1,766	126,361	33,199	3,157	154,329	61,088
35421 33	All bending and forming machines, power operated, valued under \$3,025 each . . . . .	8	2,300	3,288	421	2,304	3,691	420
	All bending and forming machines, power operated, valued at \$3,025 each or more:							
35421 34	Press brakes, all types . . . . .	7	<sup>a</sup> 1,022	66,810	14,076	<sup>a</sup> 1,141	<sup>a</sup> 67,954	21,201
35421 37	Bending rolls, sheet, and plate <sup>23</sup> . . . . .	7	<sup>b</sup> 541	<sup>c</sup> 11,423	(D)	<sup>b</sup> 484	<sup>b</sup> 12,563	(D)
35421 35	Bending rolls, angles, bars, shapes, and tubes <sup>23</sup> . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)
35421 43	Rotary bending and forming machines, including rotary head <sup>23</sup> . . . . .	10	<sup>b</sup> 712	69,796	<sup>a</sup> 13,210	<sup>b</sup> 818	77,162	<sup>a</sup> 32,231
35421 47	Ram and press bending machines <sup>24</sup> . . . . .	4	(D)	(D)	(D)	(D)	(D)	(D)
35421 49	Other bending and forming machines, including folders <sup>24</sup> . . . . .	21	<sup>a</sup> 3,197	<sup>a</sup> 107,162	<sup>a</sup> 79,613	3,159	121,650	<sup>b</sup> 74,246
35422 00	Presses (except forgings) . . . . .	45	12,084	422,396	382,333	11,023	401,990	334,302
35422 01	All presses valued under \$3,025 each <sup>25</sup> . . . . .	7	8,916	6,531	155	<sup>a</sup> 8,072	5,004	(D)
	All presses valued at \$3,025 each or more:							
	Mechanical presses:							
	Open back inclinable, gap type:							
35422 12	50 tons and under . . . . .	7	356	6,346	2,893	367	6,647	964
35422 02	51 tons to 120 tons . . . . .	5	144	9,025	3,251	111	7,214	2,271
35422 03	121 tons and over <sup>25</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)
	Vertical straight sided and arch frame single action:							
35422 16	Single point <sup>26</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)
	Two point:							
35422 17	300 tons and under <sup>26</sup> . . . . .	5	108	20,235	10,808	127	31,472	8,485
35422 18	301 tons and over <sup>25</sup> . . . . .	3	(D)	(D)	(D)	(D)	(D)	13,341
35422 45	Automatic presses, strip or coil field <sup>25</sup> . . . . .	8	480	137,779	62,501	452	122,892	(D)
35422 53	All other mechanical presses <sup>25</sup> . . . . .	5	106	132,627	228,878	130	131,319	237,402

See footnotes at end of table.

**Table 18. Total Shipments and Unfilled Orders: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product code	Product description	Company count	1997			1996		
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)
			Quantity	Value		Quantity	Value	
35422 00	Metalworking machinery—Con. Metal forming type machine tools valued under \$3,025 and at \$3,025 each or more—Con. Presses (except forgings)—Con. All presses valued under \$3,025 and at \$3,025 each or more—Con. Hydraulic presses:							
35422 56	Vertical single action, all tonnages: Housing or straight side type <sup>27</sup> .....	6	<sup>a</sup> 62	25,726	(D)	(D)	(D)	(D)
35422 57	Column type (open rod) <sup>27</sup> .....	7	103	20,102	50,301	130	39,127	37,640
	Gap or C-frame:							
35422 58	15 tons and under .....	7	603	7,339	627	634	6,365	582
35422 59	16 tons to 35 tons.....	6	111	5,145	376	119	5,056	2,666
35422 60	Over 35 tons .....	8	147	12,639	3,978	90	7,967	<sup>a</sup> 5,876
35422 92	Other hydraulic and pneumatic presses, including horizontal.....	12	<sup>c</sup> 948	<sup>a</sup> 38,902	18,565	<sup>b</sup> 791	38,927	<sup>b</sup> 25,075
35423 20	Forging machines, including forging presses and die stamping presses <sup>28</sup> .....	5	(D)	(D)	(D)	(D)	(D)	(D)
35423 00	All other metal forming type machine tools.....	48	46,653	426,881	186,070	42,622	450,237	201,305
35423 97	All other metal forming type machine tools valued under \$3,025 each <sup>28</sup> .....	5	<sup>a</sup> 42,407	<sup>a</sup> 31,421	1,800	38,234	28,984	(D)
	All other metal forming type machine tools valued at \$3,025 each or more:							
35423 43	Thread rolling machinery.....	6	<sup>b</sup> 148	<sup>c</sup> 22,232	7,848	<sup>a</sup> 128	<sup>b</sup> 20,578	<sup>b</sup> 4,854
35423 30	Metal container-making machinery <sup>28</sup> .....	7	(D)	(D)	33,220	877	100,923	57,567
35423 55	Die casting machines, all types <sup>28</sup> .....	5	(D)	(D)	(D)	130	83,777	4,344
35423 49	Riveting machines.....	10	<sup>a</sup> 1,094	<sup>b</sup> 23,252	<sup>b</sup> 1,869	<sup>b</sup> 1,009	<sup>a</sup> 13,982	<sup>b</sup> 2,164
35423 93	All other metal forming type machine tools, n.e.c. <sup>28</sup> .....	25	<sup>a</sup> 3,004	349,976	141,333	<sup>b</sup> 2,244	201,993	132,376

- Represents zero. D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. X Not applicable.

<sup>1</sup>Product code 35414 10 is included in total for "Metal cutting type machines tools valued under \$3,025."  
<sup>2</sup>Product code 35415 09 is included in total for "Metal cutting type machine tools valued under \$3,025."  
<sup>3</sup>Product code 35416 09 is included in total for "Metal cutting type machine tools valued under \$3,025."  
<sup>4</sup>Unfilled orders for product code 3541C 41 is included in total for "Metal cutting type machine tools valued under \$3,025."  
<sup>5</sup>Product codes 3541D 16, 3541D 40, and 3541D 46 were combined to avoid disclosing data for individual companies.  
<sup>6</sup>Product codes 3541D 45, 3541D 55, and 3541D 65 were combined to avoid disclosing data for individual companies.  
<sup>7</sup>Product codes 35414 11 and 35414 13 were combined to avoid disclosing data for individual companies.  
<sup>8</sup>Product codes 35414 33 and 35414 42 were combined to avoid disclosing data for individual companies.  
<sup>9</sup>Product codes 35414 34 and 35414 37 were combined to avoid disclosing data for individual companies.  
<sup>10</sup>Product codes 35414 42 and 35414 52 were combined to avoid disclosing data for individual companies.  
<sup>11</sup>Product codes 35414 53 and 35414 55 were combined to avoid disclosing data for individual companies.  
<sup>12</sup>Product codes 35414 75 and 35414 79 were combined to avoid disclosing data for individual companies.  
<sup>13</sup>Product codes 35415 15, 35415 19, 35415 21 and 35415 12 were combined to avoid disclosing data for individual companies.  
<sup>14</sup>Product codes 35415 19 and 35415 21 for 1996 were combined to avoid disclosing data for individual companies.  
<sup>15</sup>Product codes 35415 23, 35415 83, 35415 88, 35415 67, 35415 57, and 35415 86 were combined to avoid disclosing data for individual companies.  
<sup>16</sup>Product codes 35416 23, 35416 32, 35416 53, and 3541 62 were combined to avoid disclosing data for individual companies.  
<sup>17</sup>Product codes 3541A 12, 3541A 16 and 3541A 17 were combined to avoid disclosing data for individual companies.  
<sup>18</sup>Product codes 3541A 12 and 3541A 14 for 1996 were combined to avoid disclosing data for individual companies.  
<sup>19</sup>Product codes 3541A 18 and 3541A 21 were combined to avoid disclosing data for individual companies.  
<sup>20</sup>Product codes 3541B 35 and 3541B 37 were combined to avoid disclosing data for individual companies.  
<sup>21</sup>Product codes 3541C 53, 3541C 55, 3541C 59, and 3541C 61 were combined to avoid disclosing data for individual companies.  
<sup>22</sup>Product codes 35421 12, 35421 14, and 35421 19 were combined to avoid disclosing data for individual companies.  
<sup>23</sup>Product codes 35421 37, 35421 35, and 35421 43 were combined to avoid disclosing data for individual companies.  
<sup>24</sup>Product codes 35421 47, and 35421 49 were combined to avoid disclosing data for individual companies.  
<sup>25</sup>Product codes 35422 01, 35422 03, 35422 18, 35422 45, and 35422 53 were combined to avoid disclosing data for individual companies.  
<sup>26</sup>Product codes 35422 16 and 35422 17 were combined to avoid disclosing data for individual companies.  
<sup>27</sup>Product codes 35422 56 and 35422 57 were combined to avoid disclosing data for individual companies.  
<sup>28</sup>Product codes 35423 20, 35423 97, 35423 30, 35423 55, and 35423 93 were combined to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: <sup>a</sup>16 to 25 percent of this item is estimated. <sup>b</sup>26 to 50 percent of this item is estimated. <sup>c</sup>Over 50 percent of this item is estimated.

**Table 19. Total Shipments of Numerically Controlled Machines and Exports: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product description	1997			1996		
	Shipments of numerically controlled machines		Export shipments (value) <sup>1</sup>	Shipments of numerically controlled machines		Export shipments (value) <sup>1</sup>
	Quantity	Value		Quantity	Value	
Metalworking machinery . . . . .	19,414	2,681,441	696,607	17,021	2,230,287	713,070
Metal cutting type machine tools <sup>2</sup> . . . . .	17,844	2,386,843	459,737	15,052	1,915,702	423,235
Boring and drilling machines <sup>2</sup> . . . . .	72	38,657	(D)	75	35,805	2,208
Gear cutting machines <sup>2</sup> . . . . .	420	184,320	(D)	308	134,165	84,659
Grinding, polishing, buffing, and lapping machines . . . . .	1,336	279,049	63,492	692	239,207	75,559
Valued under \$3,025 each, external cylindrical grinding machines (plain and universal) and surface grinding machines, all types . . . . .	1,203	265,201	48,957	557	225,977	54,280
Honing, lapping, polishing and buffing machines . . . . .	133	13,848	14,535	135	13,230	21,279
Horizontal NC turning machines, valued at \$3,025 or more . . . . .	3,679	356,700	52,945	2,985	304,871	31,578
Single spindle NC turning machines:						
Chuck sizes up to and including 6" <sup>3 4</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Chuck sizes over 6" but less than 10" <sup>3 4</sup> . . . . .	(D)	(D)	(D)	2,019	166,803	20,137
Chuck sizes from 10" but less than 15" . . . . .	816	94,603	10,048	917	115,247	8,329
Chuck sizes 15" and over, and multiple spindle <sup>3</sup> . . . . .	2,863	262,097	42,897	49	22,821	3,112
Vertical NC turning machines, valued at \$3,025 or more . . . . .	228	76,711	1,180	222	90,288	1,443
Nonnumerically controlled turning machines, valued at \$3,025 or more . . . . .	(X)	(X)	3,265	(X)	(X)	2,753
Milling machines . . . . .	1,461	240,695	29,319	1,649	160,867	22,332
Machining centers <sup>2</sup> . . . . .	9,809	931,566	154,061	8,442	779,433	149,179
Drill, mill, and bore, vertical (automatic tool change) . . . . .	7,859	593,970	83,819	6,957	524,237	108,165
Y-axis travel less than 20 inches . . . . .	3,882	234,871	44,082	3,447	205,277	(D)
Y-axis travel 20 inches through 26 inches . . . . .	3,440	281,210	34,863	2,832	231,114	43,242
Y-axis travel over 26 inches . . . . .	537	77,889	4,874	678	87,846	(D)
Drill, mill, and bore, horizontal (automatic tool change) <sup>5</sup> . . . . .	896	287,823	70,242	592	219,769	38,419
400mm pallet and smaller <sup>5 6</sup> . . . . .	310	65,477	(D)	(D)	(D)	(D)
401mm-500mm pallet <sup>5 6</sup> . . . . .	352	82,626	(D)	363	80,886	(D)
501mm-630mm pallet <sup>7</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
631mm-800mm pallet <sup>7</sup> . . . . .	176	90,835	(D)	169	80,187	(D)
801mm-1000mm pallet <sup>5 8</sup> . . . . .	(D)	(D)	(D)	(D)	(D)	(D)
Over 1000mm pallet <sup>5 8</sup> . . . . .	58	48,885	(D)	60	58,696	(D)
All other machining centers <sup>2</sup> . . . . .	1,054	49,773	(D)	893	35,427	(D)
Station type machines, and other metal cutting machine tools, n.e.c. . . . .	839	279,145	56,905	679	171,066	53,524
Metal forming type machine tools . . . . .	1,570	294,598	236,870	1,969	314,585	289,835
Punching, shearing, bending, and forming machines . . . . .	996	214,035	77,260	1,099	229,850	117,835
Punching and shearing machines . . . . .	640	163,360	29,772	710	180,729	47,727
All bending and forming machines, power operated . . . . .	356	50,675	47,488	389	49,121	70,108
Presses (except forging) . . . . .	205	57,744	26,422	171	57,874	48,694
Forging machines, all other metal forming type machine tools . . . . .	369	22,819	133,188	699	26,861	123,306

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. X Not applicable.

<sup>1</sup>Data includes value of all types of machines exported, as reported by MQ35W survey panel.

<sup>2</sup>Data included in total for "Machining centers."

<sup>3</sup>Data included in "Chuck sizes 15 inches and over, and multiple spindle."

<sup>4</sup>Data included in "Chuck sizes over 6 inches but less than 10 inches."

<sup>5</sup>Data for export shipments included in "Drill, mill and bore, horizontal (automatic tool change)."

<sup>6</sup>Data included in "401mm-500mm pallet."

<sup>7</sup>Data included in "631mm-800mm pallet."

<sup>8</sup>Data included in "Over 1000mm pallet."

**Table 20. Shipments, Exports, and Imports of Metalworking Machinery: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3</sup>	
	Quantity	Value	Quantity	Value at port	Quantity	Value <sup>4</sup>
<b>1997</b>						
Boring and drilling machines, excluding multifunction NC machines, machining centers:						
Boring machines:						
Valued under \$3,025 each.....	(X)	(X)	4,952	741	2,892	1,394
Valued at \$3,025 each or more .....	982	80,161	554	23,512	997	85,549
Drilling machines:						
Valued under \$3,025 each.....	4,524	7,350	12,769	4,529	178,245	20,275
Valued at \$3,025 each or more .....	728	81,869	838	25,314	1,463	72,541
Gear cutting machines .....	619	213,507	1,107	11,321	1,311	66,324
Grinding, polishing, buffing, honing, and lapping machinery (except gear tooth grinding, lapping, polishing, and buffing machines):						
Valued under \$3,025 each.....	104,506	40,407	39,230	9,843	937,554	35,811
Valued at \$3,025 each or more .....	7,937	554,607	1,152	78,808	9,229	387,340
Lathes (turning machines) under \$3,025 .....	(D)	(D)	693	635	14,274	12,058
Horizontal NC turning machines.....	3,679	356,700	603	58,178	7,656	751,327
Vertical NC turning machines .....	228	76,711	57	8,320	481	75,310
Nonnumerically controlled turning machines:						
Engine or toolroom lathes, all types <sup>5</sup> .....	(D)	(D)	74	1,315	4,954	47,162
Single spindle automatic lathes <sup>5</sup> .....	(D)	(D)	13	1,861	286	14,379
Multiple spindle automatic lathes <sup>5</sup> .....	(D)	(D)	35	2,300	80	12,750
All other horizontal turning machines <sup>5</sup> .....	(D)	(D)	555	8,756	410	12,060
All vertical lathes and vertical boring machines <sup>5</sup> .....	1,151	47,261	263	7,010	585	38,451
Milling machines:						
Valued under \$3,025 each.....	(D)	(D)	9,220	13,125	11,132	10,760
Valued at \$3,025 each or more .....	4,240	280,158	1,439	58,780	7,990	144,953
Machining centers (multifunction NC machines):						
Drill, mill, and bore, vertical (automatic tool change):						
Y-axis travel less than 20 inches and 20 inches through 26 inches.....	7,322	516,081	643	75,003	3,775	329,462
Y-axis travel 26 inches and over .....	537	77,889	34	6,259	657	82,960
Drill, mill, and bore, horizontal (automatic tool change).....	896	287,823	51	17,628	1,840	483,408
Other machining centers .....	1,054	49,773	600	46,123	97	37,210
Station type machines .....	435	551,870	135	58,629	855	332,704
Other metal cutting machine tools:						
Valued under \$3,025 each.....	18,400	12,539	(NA)	(NA)	(NA)	(NA)
Valued at \$3,025 each or more .....	10,360	345,760	5,806	143,484	6,773	306,388
Punching and shearing machines:						
Valued under \$3,025 each.....	775	1,433	2,150	1,481	9,473	3,109
Valued at \$3,025 each or more .....	7,012	317,775	2,048	92,401	2,282	164,421
Bending and forming machines:						
Valued under \$3,025 each.....	2,300	3,288	8,230	5,202	28,321	4,614
Valued at \$3,025 each or more .....	5,472	255,191	2,855	113,830	5,303	226,414
Presses (except forging presses).....	12,084	422,396	2,642	2,419	8,233	262,414
Forging machines, including presses <sup>6</sup> .....	(D)	(D)	464	99,549	2,051	139,455
All other metal forming type machine tools:						
Valued under \$3,025 each.....	42,407	31,421	(NA)	(NA)	(NA)	(NA)
Machines valued at \$3,025 each or more:						
Die casting machines <sup>6</sup> .....	(D)	(D)	1,056	18,215	1,043	58,029
Thread rolling machines.....	148	22,232	46	1,750	186	12,403
Other metal forming machines <sup>6</sup> .....	3,004	349,976	(NA)	(NA)	(NA)	(NA)

See footnotes at end of table.

Table 20. **Shipments, Exports, and Imports of Metalworking Machinery: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3</sup>	
	Quantity	Value	Quantity	Value at port	Quantity	Value <sup>4</sup>
<b>1996</b>						
Boring and drilling machines, excluding multifunction NC machines, machining centers:						
Boring machines:						
Valued under \$3,025 each.....	(X)	(X)	2,350	469	2,828	2,680
Valued at \$3,025 each or more .....	879	88,929	599	26,318	893	92,462
Drilling machines:						
Valued under \$3,025 each.....	5,595	7,736	5,477	3,368	165,823	19,427
Valued at \$3,025 each or more .....	1,453	91,717	715	21,331	1,491	55,605
Gear cutting machines .....	471	164,258	826	7,768	681	44,349
Grinding, polishing, buffing, honing, and lapping machinery (except gear tooth grinding, lapping, polishing, and buffing machines):						
Valued under \$3,025 each.....	59,099	24,274	25,474	7,185	805,906	32,290
Valued at \$3,025 each or more .....	6,638	517,003	1,214	95,705	8,352	362,110
Lathes (turning machines) under \$3,025 .....	(D)	(D)	412	567	14,593	12,384
NC turning machines (horizontal).....	2,985	304,871	437	40,667	8,067	696,777
Vertical NC turning machines .....	222	90,288	73	8,711	339	46,400
Nonnumerically controlled turning machines:						
Engine or toolroom lathes, all types <sup>5</sup> ....	(D)	(D)	54	706	5,365	58,213
Single spindle automatic lathes <sup>5</sup> .....	(D)	(D)	12	146	326	6,630
Multiple spindle automatic lathes <sup>5</sup> .....	(D)	(D)	67	4,815	74	13,723
All other horizontal turning machines <sup>5</sup> ....	(D)	(D)	241	3,731	212	5,209
All other vertical turning machines <sup>5</sup> .....	983	55,956	275	8,391	779	34,124
Milling machines:						
Valued under \$3,025 each.....	(D)	(D)	8,754	11,729	10,163	10,793
Valued at \$3,025 each or more .....	4,102	199,667	1,106	43,795	8,500	142,493
Machining centers (multifunction NC machines):						
Drill, mill, and bore, vertical (automatic tool change):						
Y-axis travel less than 20 inches and 20 inches through 26 inches.....	6,279	436,391	608	64,908	3,420	309,383
Y-axis travel 26 inches and over .....	678	87,846	40	8,401	351	71,376
Drill, mill, and bore, horizontal (automatic tool change).....	592	219,769	38	12,975	1,456	425,224
Other machining centers .....	893	35,427	586	48,245	153	59,088
Station type machines .....	413	498,592	146	62,364	520	215,155
Other metal cutting machine tools:						
Valued under \$3,025 each.....	8,544	12,796	(NA)	(NA)	(NA)	(NA)
Valued at \$3,025 each or more .....	8,469	303,181	5,909	159,491	6,188	288,487
Punching and shearing machines:						
Valued under \$3,025 each.....	711	1,264	1,260	760	9,087	3,156
Valued at \$3,025 each or more .....	6,923	330,118	1,545	63,558	2,073	163,757
Bending and forming machines:						
Valued under \$3,025 each.....	2,304	3,691	10,528	5,825	29,194	5,040
Valued at \$3,025 each or more .....	5,602	279,329	2,007	76,636	4,491	246,884
Presses (except forging presses).....	11,023	401,990	1,745	1,725	5,131	242,108
Forging machines, including presses <sup>6</sup> .....	(D)	(D)	482	101,681	1,268	109,394

See footnotes at end of table.



Table 20. **Shipments, Exports, and Imports of Metalworking Machinery: 1997 and 1996—Con.**

[Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3</sup>	
	Quantity	Value	Quantity	Value at port	Quantity	Value <sup>4</sup>
<b>1996—Con.</b>						
All other metal forming type machine tools:						
Valued under \$3,025 each. . . . .	38,234	28,984	(NA)	(NA)	(NA)	(NA)
Valued at \$3,025 each or more:						
Die casting machines . . . . .	130	83,777	1,976	16,301	1,267	66,674
Thread rolling machines. . . . .	128	20,578	52	2,023	122	9,890
Other metal forming machines <sup>6</sup> . . . . .	2,244	201,993	(NA)	(NA)	(NA)	(NA)

D Withheld to avoid disclosing data for individual companies.    NA Not available.    X Not applicable.

<sup>1</sup>For comparison of SIC-based product codes, schedule B export numbers, and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. General Imports for Consumption*.

<sup>4</sup>Dollar value represents c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus import duties.

<sup>5</sup>Data included with "All vertical lathes and vertical boring machines."

<sup>6</sup>Data included with "Other metal forming machines."

**HISTORICAL NOTE**

Data on metalworking machinery have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**FUNDING**

The survey is funded, in part, by the Association for Manufacturing Technologies.

**CONTACT FOR DATA USERS**

For additional information about these data, contact Larry Blumberg, 301-457-4744.

## TRUCK TRAILERS (M37L)

### INTRODUCTION

These data cover all companies engaged in the manufacture, in the United States, of truck trailers with a rating of 10,000 pounds or more per axle. Truck trailers with a rating of less than 10,000 pounds per axle are excluded.

The statistics were collected by mail on Census Bureau monthly Form M37L, Truck Trailers. The panel for this survey consists of all known manufacturers of truck trailers meeting the required specifications, approximately 156 companies.

Participation in the monthly survey is voluntary. However, annual reports are required from those companies that do not report monthly. The annual summary includes revisions of monthly data originally estimated for companies that only report annually.

### SUMMARY OF FINDINGS

The value of factory shipments of complete truck trailers was \$4,262.0 million in 1997, an increase of 11 percent from shipments of \$3,844.7 million in 1996. Quantity of complete truck trailer shipments for 1997 was 233,483 units, an increase of 15 percent from shipments of 202,912 in 1996.

Complete trailer vans shipped in 1997 increased 15 percent in quantity and 7 percent in value from the 1996 levels. The quantity of tank-type trailers shipped in 1997 decreased 11 percent and their value increased 10 percent from the 1996 levels.

### EXPLANATION OF TERMS

**Truck trailers.** A property-carrying vehicle, or chassis thereof, drawn by a truck or truck-tractor and having one or more axles. Only trailers with a rating of 10,000 pounds or more per axle are included in this survey. Trailers that are produced on a purchased or leased chassis are included. The value of these trailers includes the value of the purchased or leased chassis.

**Complete trailers.** A trailer in which the body is permanently attached on the chassis. New trailer chassis shipped with detachable trailers are not included.

**Detachable trailer bodies.** A detachable trailer generally is designed to be used with trailer chassis, except when transported on ships or rail cars (minimum size 8'x 8'x 10'). This includes all trailer bodies that are manufactured separately as trailer bodies without chassis or running gear.

**Detachable trailer chassis and running gear.** Includes all trailer chassis and running gear manufactured for use with detachable trailer bodies, whether shipped with such trailer bodies or not.

Table 21. **Quantity of Shipments of Truck Trailers: 1988 to 1997**

[Number of units]

Product code	Product description	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
37151	Complete trailers .....	233,483	202,912	279,144	234,287	185,741	165,268	122,361	149,117	181,478	186,483
	Vans .....	168,092	146,350	215,420	174,237	141,764	127,205	84,626	103,894	130,163	131,991
	Tank .....	4,788	5,386	5,492	4,758	3,877	3,750	4,113	4,444	4,789	5,075
	Platform .....	24,566	18,193	22,797	21,459	16,102	13,432	11,585	13,479	18,411	17,648
	All other complete trailers.....	36,037	32,983	35,435	33,833	23,998	20,881	22,037	27,300	28,115	31,769
	Detachable trailer bodies <sup>1</sup> .	6,525	6,789	7,757	2,598	12,207	(D)	(D)	(D)	(D)	5,223
	Detachable trailer chassis <sup>1</sup> .....	16,243	27,602	46,979	57,570	25,483	23,408	24,491	17,214	24,779	37,729
	Dollies and converter gear.....	1,765	2,739	4,601	2,986	2,486	3,899	3,097	2,272	2,668	2,917

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>Data for "detachable trailer bodies" and "detachable trailer chassis" were combined for 1989 through 1992 to avoid disclosing data for individual companies.

**Table 22. Quantity of Shipments of Truck Trailers by Month and Type of Trailer: 1997**

[Number of units]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailers and chassis (except detachables) . . . . .	168	233,483	17,346	17,894	19,062	19,309	19,702	19,547	18,467	20,235	20,739	20,764	19,425	20,993
	Vans . . . . .	(NA)	168,092	12,297	12,676	13,438	13,549	13,790	13,840	13,271	14,871	15,379	15,178	14,280	15,523
	Closed top:														
	Insulated (refrigerated) . . . . .	(NA)	32,979	2,298	2,354	2,659	2,824	2,731	2,752	2,579	2,742	2,911	3,154	2,930	3,045
37151 02	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 14	Aluminum <sup>1</sup> . . . . .	7	32,979	'2,298	'2,354	'2,659	'2,824	'2,731	'2,752	'2,579	'2,742	'2,911	'3,154	'2,930	'3,045
37151 60	FRP . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Semi-insulated (nonrefrigerated) . . . . .	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 04	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 16	Aluminum <sup>2</sup> . . . . .	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 62	FRP <sup>3</sup> . . . . .	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Drop frame type (12 inches or more drop) . . . . .	(NA)	2,527	187	233	230	299	181	186	120	156	237	287	258	153
37151 05	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 15	Aluminum <sup>2</sup> . . . . .	5	2,527	'187	'233	'230	'299	'181	'186	'120	'156	'237	'287	'258	'153
37151 64	FRP <sup>3</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Livestock . . . . .	(NA)	7,291	606	595	606	603	590	629	617	624	614	605	599	603
37151 07	Steel <sup>4</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 17	Aluminum <sup>4</sup> . . . . .	7	7,291	'606	'595	'606	'603	'590	'629	'617	'624	'614	'605	'599	'603
	All other closed-top dry freight vans, including curtain . . . . .	(NA)	112,259	8,180	8,483	8,945	8,861	9,301	9,167	8,846	10,114	10,320	9,986	9,465	10,591
	Steel . . . . .	(NA)	838	55	53	61	66	73	95	54	54	62	65	80	120
37151 10	Less than 30 feet long <sup>5</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 11	30 feet or greater <sup>5</sup> . . . . .	7	838	'55	'53	'61	'66	'73	'95	'54	'54	'62	'65	'80	'120
	Aluminum . . . . .	(NA)	100,824	7,303	7,477	8,032	7,975	8,422	8,233	7,906	9,190	9,136	9,052	8,549	9,549
37151 23	Less than 30 feet long . . . . .	15	5,624	'374	'353	'366	'477	'406	'682	'481	'682	'633	'461	'328	'381
37151 25	30 feet or greater . . . . .	20	95,200	'6,929	'7,124	'7,666	'7,498	'8,016	'7,551	'7,425	'8,508	'8,503	'8,591	'8,221	'9,168
	FRP . . . . .	(NA)	10,597	822	953	852	820	806	839	886	870	1,122	869	836	922
37151 67	Less than 30 feet long <sup>3</sup> . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 69	30 feet or greater <sup>3</sup> . . . . .	11	10,597	'822	'953	'852	'820	'806	'839	'886	'870	'1,122	'869	'836	'922
	Open tops, including lowside grain and fruit . . . . .	(NA)	13,036	1,026	1,011	998	962	987	1,106	1,109	1,235	1,297	1,146	1,028	1,131
37151 12	Steel <sup>6</sup> . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 26	Aluminum <sup>6</sup> . . . . .	17	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 70	FRP <sup>6</sup> . . . . .	2	13,036	'1,026	'1,011	'998	'962	'987	'1,106	'1,109	'1,235	'1,297	'1,146	'1,028	'1,131
	Tanks . . . . .	(NA)	4,788	356	349	382	378	398	391	397	427	411	423	417	459
37151 27	For flammable liquids (except casing head transport, including aircraft refuelers), all material . . . . .	7	1,523	'119	'118	'117	'127	'128	'126	'129	135	132	130	131	131
37151 30	Coated for chemicals and acids, all materials . . . . .	7	1,903	152	124	133	116	125	153	171	'185	178	188	194	184
37151 28	For asphalt, all materials . . . . .	6	283	'13	'14	46	'37	'40	'30	'18	20	16	10	10	29
37151 32	All other, including noncoated for chemicals and acids, high pressure, food and milk, sanitary, and cryogenics, all materials . . . . .	12	1,079	'72	'93	'86	'98	'105	'82	'79	'87	'85	95	82	115
37151 33	Bulk commodity and dry materials, including pneumatic and mechanical discharge, both tank and hopper types (except van) . . . . .	13	2,535	'207	'211	'214	'212	'209	'208	'211	'210	'210	'218	'212	'213
37151 35	Pole, logging, and pipe . . . . .	15	1,743	'150	'148	'139	'149	'144	'147	'139	'145	'143	'146	'149	'144
37151 37	Platform . . . . .	24	24,566	'1,948	'1,972	'2,076	'2,021	'2,237	2,247	'1,843	2,042	'2,084	2,152	'1,953	'1,991
	Low-bed heavy haulers, over 10-ton capacity, excluding tilt-bed trailers . . . . .	(NA)	12,694	905	987	1,058	1,164	1,115	1,116	1,072	997	1,063	1,136	1,021	1,060
37151 38	Under 40-ton capacity . . . . .	36	9,098	'648	'711	'756	856	806	'812	'785	'704	'720	'814	'714	'772
37151 39	40-ton capacity and over . . . . .	31	3,596	'257	'276	'302	'308	'309	'304	'287	'293	'343	'322	'307	'288
	Dump trailers and dump chassis, highway type (rear, side, and bottom dump, including nonpneumatic hoppers) . . . . .	(NA)	12,638	967	1,027	1,099	1,208	1,202	1,085	1,013	1,061	964	1,053	917	1,042
37151 40	For materials . . . . .	38	9,544	'753	798	'870	'932	'914	'827	'737	'779	'694	'792	'683	'765
37151 42	For other, including demolition and excavation . . . . .	17	3,094	'214	'229	'229	276	'288	'258	'276	'282	'270	'261	'234	'277

See footnotes at end of table.

**Table 22. Quantity of Shipments of Truck Trailers by Month and Type of Trailer: 1997—Con.**

[Number of units]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
37151 44	Complete trailers and chassis (except detachables)—Con.														
	Automobile transport trailers . . . . .	12	1,163	'104	'98	'98	'101	'97	'95	'96	'93	'93	'94	'97	'97
37151 49	All other trailers and chassis (except detachable trailers and detachable trailer chassis). . . . .	37	5,264	'412	'426	'558	'527	'510	'418	'425	'389	'392	364	379	'464
37151 53	Detachable trailer bodies (containers), sold separately . . . . .	9	6,525	'539	'560	'545	'551	'568	'554	'557	'524	'552	'511	'544	'520
37151 54	Detachable trailer chassis and running gear, sold separately. . . . .	19	16,243	'1,343	'1,386	'1,380	'1,416	'1,050	'1,049	'1,320	'1,430	'1,320	'1,555	'1,490	'1,504
37151 45	Dollies and converter gear . . . . .	21	1,765	'137	'122	'136	'130	'166	'215	'147	'166	'128	'146	'134	'138

- Represents zero. D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plastics/plywood. NA Not available. ' Revised by 5 percent or more from previously published data.

<sup>1</sup>Product codes 37151 02, 37151 04, and 37151 05 are combined with product code 37151 14 to avoid disclosing data for individual companies.

<sup>2</sup>Product code 37151 16 is combined with product code 37151 15 to avoid disclosing data for individual companies.

<sup>3</sup>Product codes 37151 62, 37151 64, and 37151 67 are combined with product code 37151 69 to avoid disclosing data for individual companies.

<sup>4</sup>Product code 37151 07 is combined with product code 37151 17 to avoid disclosing data for individual companies.

<sup>5</sup>Product code 37151 10 is combined with product code 37151 11 to avoid disclosing data for individual companies.

<sup>6</sup>Product codes 37151 12, 37151 26, and 37151 70 are combined to avoid disclosing data for individual companies.

**Table 23. Value of Shipments of Truck Trailers by Month and Type of Trailer: 1997**

[Thousands of dollars]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailers and chassis (except detachables) . . . . .	168	4,262,025	313,722	322,784	346,153	350,373	357,280	352,161	336,326	368,310	379,584	380,218	363,726	391,388
	Vans . . . . .	(NA)	2,831,334	205,006	210,262	228,389	229,015	232,649	231,488	220,556	247,346	257,701	256,272	245,858	266,792
	Closed top:														
	Insulated (refrigerated) . . . . .	(NA)	735,648	50,540	51,002	59,199	64,034	60,004	61,446	55,844	60,972	66,562	69,605	66,707	69,733
37151 02	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 14	Aluminum <sup>1</sup> . . . . .	7	735,648	'50,540	'51,002	'59,199	'64,034	'60,004	'61,446	'55,844	'60,972	'66,562	'69,605	'66,707	'69,733
37151 60	FRP . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Semi-insulated (nonrefrigerated) . . . . .	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 04	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 16	Aluminum <sup>2</sup> . . . . .	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 62	FRP <sup>3</sup> . . . . .	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Drop frame type (12 inches or more drop) . . . . .	(NA)	53,896	4,075	4,926	5,149	5,644	3,978	4,024	2,716	3,470	5,097	6,032	5,516	3,269
37151 05	Steel . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 15	Aluminum <sup>2</sup> . . . . .	5	53,896	'4,075	'4,926	'5,149	'5,644	'3,978	'4,024	'2,716	'3,470	'5,097	'6,032	'5,516	'3,269
37151 64	FRP <sup>3</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Livestock . . . . .	(NA)	108,148	8,985	8,503	8,923	8,752	8,296	9,779	9,370	9,667	9,256	8,965	8,744	8,908
37151 07	Steel <sup>4</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 17	Aluminum <sup>4</sup> . . . . .	7	108,148	'8,985	'8,503	'8,923	'8,752	'8,296	'9,779	'9,370	'9,667	'9,256	'8,965	'8,744	'8,908
	All other closed-top dry freight vans, including curtain . . . . .	(NA)	1,721,344	124,784	129,392	139,527	135,532	145,216	137,775	134,413	152,796	155,037	152,910	147,668	166,294
	Steel . . . . .	(NA)	16,303	915	871	1,011	1,122	1,313	2,032	1,132	1,136	1,312	1,333	1,679	2,447
37151 10	Less than 30 feet long <sup>5</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 11	30 feet or greater <sup>5</sup> . . . . .	7	16,303	'915	'871	'1,011	'1,122	'1,313	'2,032	'1,132	'1,136	'1,312	'1,333	'1,679	'2,447
	Aluminum . . . . .	(NA)	1,586,315	114,819	117,889	128,887	125,283	135,023	126,314	123,499	141,739	141,260	141,991	136,723	152,888
37151 23	Less than 30 feet long . . . . .	15	76,788	'4,911	'4,819	'5,063	'6,397	'5,787	'8,132	'6,789	'8,505	'8,511	'7,039	'4,978	'5,857
37151 25	30 feet or greater . . . . .	20	1,509,527	'109,908	'113,070	'123,824	'118,886	'129,236	'118,182	'116,710	'133,234	'132,749	'134,952	'131,745	'147,031
	FRP . . . . .	(NA)	118,726	9,050	10,632	9,629	9,127	8,880	9,429	9,782	9,921	12,465	9,586	9,266	10,959
37151 67	Less than 30 feet long <sup>3</sup> . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 69	30 feet or greater <sup>3</sup> . . . . .	11	118,726	'9,050	'10,632	'9,629	'9,127	'8,880	'9,429	'9,782	'9,921	'12,465	'9,586	9,266	'10,959
	Open tops, including low-side grain and fruit . . . . .	(NA)	212,298	16,622	16,439	15,591	15,053	15,155	18,464	18,213	20,441	21,749	18,760	17,223	18,588
37151 12	Steel <sup>6</sup> . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 26	Aluminum <sup>6</sup> . . . . .	17	212,298	'16,622	'16,439	'15,591	'15,053	'15,155	'18,464	'18,213	'20,441	'21,749	'18,760	'17,223	'18,588
37151 70	FRP <sup>6</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Tanks . . . . .	(NA)	216,120	16,397	15,863	17,260	16,342	18,153	17,593	17,815	19,108	18,935	19,399	18,994	20,261
37151 27	For flammable liquids (except casing head transport, including aircraft refuelers), all materials . . . . .	7	76,338	6,058	6,082	6,223	6,167	6,901	6,248	6,190	'6,650	'6,557	6,326	'6,459	'6,477
37151 30	Coated for chemicals and acids, all materials . . . . .	7	84,764	6,871	5,774	6,186	5,061	'5,508	6,842	7,687	'8,068	7,966	8,469	8,397	7,935
37151 28	For asphalt, all materials . . . . .	6	10,175	'513	'575	1,502	1,273	1,468	1,118	695	677	621	'446	319	968
37151 32	All other, including noncoated for chemicals and acids, high pressure, food and milk, sanitary, and cryogenics, all materials . . . . .	12	44,843	'2,955	'3,432	'3,349	'3,841	'4,276	'3,385	'3,243	'3,713	'3,791	'4,158	'3,819	'4,881
37151 33	Bulk commodity and dry materials, including pneumatic and mechanical discharge, both tank and hopper types (except van) . . . . .	13	86,026	'6,954	'7,159	'7,235	'7,122	'7,020	'7,040	'7,221	'7,195	'7,123	'7,464	'7,239	'7,254
37151 35	Pole, logging, and pipe . . . . .	15	16,663	'1,445	'1,428	'1,312	'1,419	'1,373	'1,398	'1,306	'1,374	'1,374	'1,416	'1,439	'1,379
37151 37	Platform . . . . .	24	384,361	'30,601	'30,802	'31,913	'31,910	'33,935	'33,001	'28,853	32,726	32,144	34,328	'31,683	32,465

See footnotes at end of table.

Table 23. Value of Shipments of Truck Trailers by Month and Type of Trailer: 1997—Con.

[Thousands of dollars]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailers and chassis (except detachables)—Con.														
	Low-bed heavy haulers, over 10-ton capacity, excluding tilt-bed trailers . . . . .	(NA)	297,709	21,128	22,802	23,527	24,637	24,832	25,569	24,704	25,484	29,220	26,721	25,363	23,722
37151 38	Under 40-ton capacity . . . . .	36	164,125	'12,252	'13,120	'13,264	'14,105	'14,014	'14,875	'14,511	'13,569	'14,005	'13,578	'13,396	'13,436
37151 39	40-ton capacity and over . . . . .	31	133,584	'8,876	'9,682	'10,263	'10,532	'10,818	'10,694	'10,193	'11,915	'15,215	'13,143	'11,967	'10,286
	Dump trailers and dump chassis, highway type (rear, side, and bottom dump, including non-pneumatic hoppers) . . . . .	(NA)	324,733	24,150	26,499	27,517	29,543	29,613	27,982	27,135	27,251	25,119	26,890	24,264	28,770
37151 40	For materials . . . . .	38	231,742	'18,121	'20,021	'20,553	'21,729	'21,287	'19,954	'18,034	'18,907	'17,259	'19,194	'17,197	'19,486
37151 42	For other, including demolition and excavation . . . . .	17	92,991	'6,029	'6,478	'6,964	'7,814	'8,326	'8,028	'9,101	'8,344	'7,860	'7,696	'7,067	'9,284
37151 44	Automobile transport trailers . . . . .	12	36,413	'3,310	'3,164	'3,090	'3,335	'3,077	'2,915	'2,979	'2,812	2,806	2,807	'3,110	'3,008
37151 49	All other trailers and chassis (except detachable trailers and detachable trailer chassis) . . . . .	37	68,666	4,731	4,805	'5,910	7,050	6,628	'5,175	5,757	5,014	'5,162	'4,921	'5,776	'7,737
37151 53	Detachable trailer bodies (containers), sold separately . . . . .	9	89,531	'7,269	'7,863	'7,307	'7,821	'8,248	'7,733	'7,760	'6,722	'7,694	'6,045	'8,190	'6,879
37151 54	Detachable trailer chassis and running gear, sold separately . . . . .	19	114,656	'10,405	'11,096	'9,380	'9,855	'7,352	'7,346	'8,900	'10,078	'9,260	'10,833	'10,400	'9,751
37151 45	Dollies and converter gear . . . . .	21	14,645	'939	'847	'961	'929	'1,104	'1,293	'1,019	'1,101	'920	'1,923	'1,803	'1,806

- Represents zero. D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plastics/plywood. NA Not available. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>Product codes 37151 02, 37151 04, and 37151 05 are combined with product code 37151 14 to avoid disclosing data for individual companies.  
<sup>2</sup>Product code 37151 16 is combined with product code 37151 15 to avoid disclosing data for individual companies.  
<sup>3</sup>Product codes 37151 62, 37151 64 and 37151 67 are combined with product code 37151 69 to avoid disclosing data for individual companies.  
<sup>4</sup>Product code 37151 07 is combined with product code 37151 17 to avoid disclosing data for individual companies.  
<sup>5</sup>Product code 37151 10 is combined with product code 37151 11 to avoid disclosing data for individual companies.  
<sup>6</sup>Product codes 37151 12 and 37151 26 are combined with product code 37151 70 to avoid disclosing data for individual companies.

**Table 24. Quantity of Shipments of Truck Trailers by Month and Type of Trailer: 1996**

[Number of units]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailers and chassis (except detachables) . . . . .	168	202,912	18,118	18,104	16,936	16,980	16,942	16,635	15,764	17,073	17,100	17,055	15,814	16,391
	Vans . . . . .	(NA)	146,350	13,426	13,110	12,106	11,910	11,859	11,775	11,093	12,396	12,584	12,326	11,653	12,112
	Closed top:														
	Insulated (refrigerated) . . . . .	(NA)	25,499	2,201	2,170	2,075	2,166	2,047	1,930	1,905	2,209	2,336	2,396	2,001	2,063
37151 02	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 14	Aluminum <sup>1</sup> . . . . .	7	25,499	2,201	2,170	2,075	2,166	2,047	1,930	1,905	2,209	2,336	2,396	2,001	2,063
37151 60	FRP . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Semi-insulated (non-refrigerated) . . . . .	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 04	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 16	Aluminum <sup>2</sup> . . . . .	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 62	FRP <sup>3</sup> . . . . .	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Drop frame type (12 inches or more drop) . . . . .	(NA)	2,889	270	121	269	287	258	264	227	469	273	172	127	152
37151 05	Steel . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37151 15	Aluminum <sup>2</sup> . . . . .	5	2,889	270	121	269	287	258	264	227	469	273	172	127	152
37151 64	FRP <sup>3</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Livestock . . . . .	(NA)	1,673	137	138	130	132	119	167	134	142	154	135	142	143
37151 07	Steel <sup>4</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 17	Aluminum <sup>4</sup> . . . . .	7	1,673	137	138	130	132	119	167	134	142	154	135	142	143
	All other closed-top dry freight vans, including curtain . . . . .	(NA)	109,152	10,291	10,146	9,152	8,820	8,998	8,769	8,255	8,855	9,013	8,913	8,735	9,205
	Steel . . . . .	(NA)	3,604	323	314	314	319	331	339	306	330	366	292	125	245
37151 10	Less than 30 feet long <sup>5</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 11	30 feet or greater <sup>5</sup> . . . . .	7	3,604	323	314	314	319	331	339	306	330	366	292	125	245
	Aluminum . . . . .	(NA)	96,409	9,266	9,007	8,128	7,743	7,873	7,742	7,279	7,818	7,864	7,755	7,700	8,234
37151 23	Less than 30 feet long . . . . .	15	10,763	1,285	1,020	763	842	920	835	857	803	810	853	856	919
37151 25	30 feet or greater . . . . .	20	85,646	7,981	7,987	7,365	6,901	6,953	6,907	6,422	7,015	7,054	6,902	6,844	7,315
	FRP . . . . .	(NA)	9,139	702	825	710	758	794	688	670	707	783	866	910	726
37151 67	Less than 30 feet long <sup>3</sup> . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 69	30 feet or greater <sup>3</sup> . . . . .	11	9,139	702	825	710	758	794	688	670	707	783	866	910	726
	Open tops including low-side grain and fruit . . . . .	(NA)	7,137	527	535	480	505	437	645	572	721	808	710	648	549
37151 12	Steel <sup>6</sup> . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 26	Aluminum <sup>6</sup> . . . . .	17	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 70	FRP <sup>6</sup> . . . . .	2	7,137	527	535	480	505	437	645	572	721	808	710	648	549
37151 27	Tanks . . . . .	(NA)	5,386	454	502	491	473	462	445	463	428	440	438	390	400
	For flammable liquids (except casing head transport, including aircraft refuelers), all materials . . . . .	7	1,416	125	124	119	119	125	124	113	111	115	110	117	114
37151 30	Coated for chemicals and acids, all materials . . . . .	7	1,779	172	200	177	175	139	118	158	142	114	153	107	124
37151 28	For asphalt, all materials . . . . .	6	378	19	41	45	49	64	44	32	22	24	15	12	11
37151 32	All other, including non-coated for chemicals and acids, high pressure, food and milk, sanitary, and cryogenics, all materials . . . . .	12	1,813	138	137	150	130	134	159	160	153	187	160	154	151
37151 33	Bulk commodity and dry materials, including pneumatic and mechanical discharge, both tank and hopper types (except van) . . . . .	13	1,969	170	170	165	165	165	166	163	162	159	160	162	162
37151 35	Pole, logging, and pipe . . . . .	15	952	92	77	78	83	87	78	73	70	80	82	83	69
37151 37	Platform . . . . .	24	18,193	1,601	1,535	1,443	1,515	1,558	1,488	1,473	1,551	1,544	1,658	1,428	1,399
	Low-bed heavy haulers, over 10-ton capacity, excluding tilt-bed trailers . . . . .	(NA)	11,969	879	977	1,028	1,135	1,117	1,007	1,016	1,050	939	1,045	883	893
37151 38	Under 40-ton capacity . . . . .	36	8,942	656	706	765	858	854	750	765	816	723	782	633	634
37151 39	40-ton capacity and over . . . . .	31	3,027	223	271	263	277	263	257	251	234	216	263	250	259

See footnotes at end of table.

Table 24. **Quantity of Shipments of Truck Trailers by Month and Type of Trailer: 1996—Con.**

[Number of units]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailers and chassis (except detachables)—Con.														
	Dump trailers and dump chassis, highway type (rear, side, and bottom dump, including nonpneumatic hoppers) . . . . .	(NA)	10,359	747	869	876	1,016	983	936	931	884	775	820	730	792
37151 40	For materials . . . . .	38	7,968	617	676	684	778	720	705	694	638	609	640	575	632
37151 42	For other, including demolition and excavation . . . . .	17	2,391	130	193	192	238	263	231	237	246	166	180	155	160
37151 44	Automobile transport trailers . . . . .	12	865	72	75	74	75	78	84	59	73	62	69	72	72
37151 49	All other trailers and chassis (except detachable trailers and detachable trailer chassis) . . . . .	37	6,869	677	789	675	608	633	656	493	459	517	457	413	492
37151 53	Detachables trailer bodies (containers), sold separately . . . . .	9	6,789	507	628	655	648	679	616	534	547	544	507	459	465
37151 54	Detachables trailer chassis and running gear, sold separately . . . . .	19	27,602	2,421	2,718	2,819	2,362	2,742	2,607	2,226	2,010	1,935	1,840	2,129	1,793
37151 45	Dollies and converter gear . . . . .	21	2,739	212	215	228	241	219	203	215	210	179	310	237	270

- Represents zero. D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plastics/plywood. NA Not available. †Revised by 5 percent of more form previously published data.

<sup>1</sup>Product codes 37151 02 and 37151 04 are combined with product code 37151 14 to avoid disclosing data for individual companies.  
<sup>2</sup>Product code 37151 16 is combined with product code 37151 15 to avoid disclosing data for individual companies.  
<sup>3</sup>Product codes 37151 62, 37151 64 and 37151 67 are combined with product code 37151 69 to avoid disclosing data for individual companies.  
<sup>4</sup>Product code 37151 07 is combined with product code 37151 17 to avoid disclosing data for individual companies.  
<sup>5</sup>Product code 37151 10 is combined with product code 37151 11 to avoid disclosing data for individual companies.  
<sup>6</sup>Product codes 37151 12 and 37151 26 are combined with product code 37151 70 to avoid disclosing data for individual companies.



**Table 25. Value of Shipments of Truck Trailers by Month and Type of Trailer: 1996**

[Thousands of dollars]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailers and chassis (except detachables) . . . . .	168	3,844,670	338,944	334,847	318,835	326,884	320,922	313,296	299,139	325,437	322,435	327,842	302,503	313,586
	Vans . . . . .	(NA)	2,652,252	242,531	232,597	217,427	217,747	216,480	211,839	196,707	224,817	228,908	227,686	213,521	221,992
	Closed top:														
	Insulated (refrigerated) . . . . .	(NA)	632,657	54,954	51,915	50,381	53,175	51,536	47,742	45,393	54,329	56,559	60,898	52,135	53,640
37151 02	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 14	Aluminum <sup>1</sup> . . . . .	7	632,657	54,954	51,915	50,381	53,175	51,536	47,742	45,393	54,329	56,559	60,898	52,135	53,640
37151 60	FRP . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Semi-insulated (non-refrigerated) . . . . .	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 04	Steel <sup>1</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 16	Aluminum <sup>2</sup> . . . . .	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 62	FRP <sup>3</sup> . . . . .	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Drop frame type (12 inches or more drop) . . . . .	(NA)	66,111	7,020	2,367	6,874	7,559	6,814	6,812	5,082	9,329	5,320	3,465	2,599	2,870
37151 05	Steel . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37151 15	Aluminum <sup>2</sup> . . . . .	5	66,111	7,020	2,367	6,874	7,559	6,814	6,812	5,082	9,329	5,320	3,465	2,599	2,870
37151 64	FRP <sup>3</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Livestock . . . . .	(NA)	49,372	3,901	4,000	3,732	3,799	3,375	5,153	3,879	4,300	4,729	4,032	4,216	4,256
37151 07	Steel <sup>4</sup> . . . . .	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 17	Aluminum <sup>4</sup> . . . . .	7	49,372	3,901	4,000	3,732	3,799	3,375	5,153	3,879	4,300	4,729	4,032	4,216	4,256
	All other closed-top dry freight vans, including curtain . . . . .	(NA)	1,727,571	163,042	160,619	144,243	140,665	143,195	136,258	128,624	139,780	142,738	142,353	139,021	147,033
	Steel . . . . .	(NA)	58,061	5,274	5,083	5,138	5,260	5,480	5,728	4,918	5,427	6,196	4,284	1,846	3,427
37151 10	Less than 30 feet long <sup>5</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 11	30 feet or greater <sup>5</sup> . . . . .	7	58,061	5,274	5,083	5,138	5,260	5,480	5,728	4,918	5,427	6,196	4,284	1,846	3,427
	Aluminum . . . . .	(NA)	1,570,024	150,420	146,413	131,545	127,017	128,990	123,459	117,001	127,014	127,871	128,020	126,323	135,951
37151 23	Less than 30 feet long . . . . .	15	119,506	14,445	10,440	8,956	9,881	10,084	8,916	9,116	8,767	9,468	10,316	9,157	9,960
37151 25	30 feet or greater . . . . .	20	1,450,518	135,975	135,973	122,589	117,136	118,906	114,543	107,885	118,247	118,403	117,704	117,166	125,991
	FRP . . . . .	(NA)	99,486	7,348	9,123	7,560	8,388	8,725	7,071	6,705	7,339	8,671	10,049	10,852	7,655
37151 67	Less than 30 feet long <sup>3</sup> . . . . .	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 69	30 feet or greater <sup>3</sup> . . . . .	11	99,486	7,348	9,123	7,560	8,388	8,725	7,071	6,705	7,339	8,671	10,049	10,852	7,655
	Open tops, including low-side grain and fruit . . . . .	(NA)	176,541	13,614	13,696	12,197	12,549	11,560	15,874	13,729	17,079	19,562	16,938	15,550	14,193
37151 12	Steel <sup>6</sup> . . . . .	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37151 26	Aluminum <sup>6</sup> . . . . .	17	176,541	13,614	13,696	12,197	12,549	11,560	15,874	13,729	17,079	19,562	16,938	15,550	14,193
37151 70	FRP <sup>6</sup> . . . . .	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Tanks . . . . .	(NA)	196,028	17,216	18,551	17,887	17,872	16,827	15,742	16,731	15,609	15,516	15,872	13,842	14,363
37151 27	For flammable liquids (except casing head transport, including aircraft refuelers), all materials . . . . .	7	67,288	5,852	5,775	5,639	5,756	5,986	5,857	5,461	5,325	5,412	5,319	5,560	5,346
37151 30	Coated for chemicals and acids, all materials . . . . .	7	79,578	7,852	8,731	7,730	8,088	5,934	5,037	6,986	6,429	5,005	7,100	4,917	5,769
37151 28	For asphalt, all materials . . . . .	6	13,737	911	1,481	1,581	1,713	2,277	1,709	1,241	760	810	452	434	368
37151 32	All other, including non-coated for chemicals and acids, high pressure, food and milk, sanitary, and cryogenics, all materials . . . . .	12	35,425	2,601	2,564	2,937	2,315	2,630	3,139	3,043	3,095	4,289	3,001	2,931	2,880
37151 33	Bulk commodity and dry materials, including pneumatic and mechanical discharge, both tank and hopper types (except van) . . . . .	13	66,592	5,823	5,801	5,609	5,554	5,531	5,599	5,558	5,528	5,372	5,383	5,431	5,403
37151 35	Pole, logging, and pipe . . . . .	15	11,845	1,295	921	1,024	1,004	1,102	990	869	823	1,011	1,004	981	821
37151 37	Platform . . . . .	24	292,282	24,854	24,147	23,962	24,668	23,460	23,636	24,431	25,318	24,635	27,088	23,353	22,730
	Low-bed heavy haulers, over 10-ton capacity, excluding tilt-bed trailers . . . . .	(NA)	268,927	21,626	21,661	23,029	25,160	24,029	22,851	23,089	23,148	20,652	23,023	19,910	20,749
37151 38	Under 40-ton capacity . . . . .	36	149,137	11,548	11,727	13,179	14,387	13,486	12,408	12,733	13,636	12,292	12,639	10,328	10,774
37151 39	40-ton capacity and over . . . . .	31	119,790	10,078	9,934	9,850	10,773	10,543	10,443	10,356	9,512	8,360	10,384	9,582	9,975

See footnotes at end of table.

**Table 25. Value of Shipments of Truck Trailers by Month and Type of Trailer: 1996—Con.**

[Thousands of dollars]

Product code	Product description	Number of companies	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Complete trailer and chassis (except detachables)—Con.														
	Dump trailers and dump chassis, highway type (rear, side, and bottom dump), including nonpneumatic hoppers . . . . .	(NA)	263,337	18,147	22,585	22,131	26,487	24,558	23,917	24,587	22,964	18,904	20,709	18,325	20,023
37151 40	For materials . . . . .	38	192,563	14,278	16,178	16,660	19,410	17,541	17,115	17,072	15,606	14,333	15,484	13,794	15,092
37151 42	For other, including demolition and excavation . . . . .	17	70,774	3,869	6,407	5,471	7,077	7,017	6,802	7,515	7,358	4,571	5,225	4,531	4,931
37151 44	Automobile transport trailers . . . . .	12	30,792	2,484	2,663	2,584	2,726	2,616	2,854	2,049	2,587	2,060	2,406	2,911	2,852
37151 49	All other trailers and chassis (except detachable trailers and detachable trailer chassis). . . . .	37	62,615	4,968	5,921	5,182	5,666	6,319	5,868	5,118	4,643	5,377	4,671	4,229	4,653
37151 53	Detachable trailer bodies (containers), sold separately . . . . .	9	86,207	6,164	7,814	8,143	8,066	8,466	7,659	7,121	7,165	7,099	6,353	5,958	6,199
37151 54	Detachable trailer chassis and running gear, sold separately . . . . .	19	193,068	16,431	24,877	22,778	19,165	16,783	16,635	13,637	12,782	12,223	11,878	13,694	12,185
37151 45	Dollies and converter gear . . . . .	21	16,024	1,268	1,098	1,276	1,636	1,418	1,131	1,194	1,222	1,033	1,758	1,184	1,806

- Represents zero. D Withheld to avoid disclosing data for individual companies. FRP Fiberglass reinforced plastics/plywood NA Not available. <sup>f</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>Product codes 37151 02 and 37151 04 are combined with product code 37151 14 to avoid disclosing data for individual companies.  
<sup>2</sup>Product code 37151 16 is combined with product code 37151 15 to avoid disclosing data for individual companies.  
<sup>3</sup>Product codes 37151 62, 37151 64 and 37151 67 are combined with product code 37151 69 to avoid disclosing data for individual companies.  
<sup>4</sup>Product code 37151 07 is combined with product code 37151 17 to avoid disclosing data for individual companies.  
<sup>5</sup>Product code 37151 10 is combined with product code 37151 11 to avoid disclosing data for individual companies.  
<sup>6</sup>Product codes 37151 12 and 37151 26 are combined with product code 37151 70 to avoid disclosing data for individual companies.

Table 26. **Quantity and Value of Shipments of Truck Trailers and Vans by Type of Material: 1997 and 1996**

[Quantity in units. Value in thousands of dollars]

Month	Total		FRP		Steel		Aluminum	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>								
<b>Total .....</b>	<b>168,092</b>	<b>2,831,334</b>	<b>10,732</b>	<b>124,508</b>	<b>10,666</b>	<b>186,971</b>	<b>146,694</b>	<b>2,519,855</b>
January .....	12,297	205,006	833	9,532	864	14,905	10,600	180,569
February .....	12,676	210,262	964	11,114	856	14,535	10,856	184,613
March .....	13,438	228,389	863	10,111	883	15,230	11,692	203,048
April .....	13,549	229,015	831	9,609	891	15,649	11,827	203,757
May .....	13,790	232,649	817	9,362	893	15,570	12,080	207,717
June .....	13,840	231,488	850	9,911	908	16,103	12,082	205,474
July .....	13,271	220,556	897	10,264	884	15,586	11,490	194,706
August .....	14,871	247,346	881	10,403	917	16,641	13,073	220,302
September .....	15,379	257,701	1,133	12,947	871	15,234	13,375	229,520
October .....	15,178	256,272	881	10,068	873	15,229	13,424	230,975
November .....	14,280	245,858	848	9,747	888	15,626	12,544	220,485
December .....	15,523	266,792	934	11,440	938	16,663	13,651	238,689
<b>1996</b>								
<b>Total .....</b>	<b>146,350</b>	<b>2,652,252</b>	<b>9,261</b>	<b>104,519</b>	<b>4,986</b>	<b>93,210</b>	<b>132,103</b>	<b>2,454,523</b>
January .....	13,426	242,531	713	7,779	458	8,807	12,255	225,945
February .....	13,110	232,597	836	9,555	423	7,839	11,851	215,203
March .....	12,106	217,427	720	7,977	414	7,628	10,972	201,822
April .....	11,910	217,747	768	8,805	416	7,642	10,726	201,300
May .....	11,859	216,480	804	9,142	433	8,031	10,622	199,307
June .....	11,775	211,839	698	7,488	466	8,889	10,611	195,462
July .....	11,093	196,707	680	7,122	465	9,053	9,948	180,532
August .....	12,396	224,817	717	7,756	448	8,558	11,231	208,503
September .....	12,584	228,908	793	9,088	485	9,325	11,306	210,495
October .....	12,326	227,686	876	10,466	401	6,998	11,049	210,222
November .....	11,653	213,521	920	11,269	232	4,550	10,501	197,702
December .....	12,112	221,992	736	8,072	345	5,890	11,031	208,030

**HISTORICAL NOTE**

Data on truck trailers have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository

Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact J. Christian Savage, 301-457-1307.

# Chapter 11.

## Aerospace Industry

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### AEROSPACE INDUSTRY (ORDERS, SALES, AND BACKLOG) (M37G AND FORMERLY MA37D)

#### INTRODUCTION

The data in Tables 1 through 4 cover the manufacture of complete civilian aircraft and aircraft engines in the United States. Parts sold separately are excluded.

The data in Tables 5 through 8 cover establishments primarily engaged in the development and/or manufacture of aerospace products, including aircraft, aircraft engines, aircraft parts and accessories, missiles and space vehicle systems, missile and space vehicle engines or propulsion units, and parts and subassemblies for missiles and space vehicles. An establishment is "primarily engaged" in aerospace if the value of aerospace products and services produced by that establishment exceeds the value of the establishment's production of other goods and services. Company plants or divisions in which the primary activity is other than the development and/or manufacture of aerospace products and services are not included in this survey.

#### SUMMARY OF FINDINGS

In 1997, the value of complete civil aircraft shipments increased by 40 percent to \$30.1 billion, from the 1996 level of \$21.4 billion. Shipments of complete civil aircraft engines increased by 69 percent to \$8.3 billion, from the 1996 level of \$4.9 billion.

The backlog of orders for aircraft, missiles, space vehicles, and engines, as of December 31, 1997, was \$234.5 billion. This was a 2-percent increase from the 1996 backlog of \$229.9 billion.

Net new orders received during 1997 were \$119.9 billion, a 5-percent decrease from the \$126.3 billion received in 1996. Net sales, receipts, and/or billings in 1997 totaled \$114.2 billion, an 11-percent increase from the \$103.1 billion reported in 1996.

#### EXPLANATION OF TERMS

**Shipments (or net sales).** Represents consolidated company sales, receipts, or billings, net after discounts and allowances. For firms reporting only for specific aerospace divisions or plants, it includes the value of the division or plant sales only. It includes all sales from aerospace production and receipts for research and

development performed for others. Transfers to other reporting units (for example, separate aerospace divisions of the same company) are included. For commercial aircraft and aircraft engines, shipments represents physical shipments from domestic establishments. All products sold, transferred to other plants of the same company, or shipped on consignment are included whether for domestic use or export. Products bought and resold without further manufacture are excluded.

Work performed under a fixed price contract is reported as a shipment if the product is delivered during the year. Work done on a cost-plus contract reflects cost incurred plus a portion of the profits for the contract (value of work done) during the year. Value of work done may be based on (a) multiplying the estimated percentage of work completed during the year by the contract price, or (b) net billings for work done during the year.

**Aircraft.** Includes lighter-than-air aircraft (balloons and airships), as well as heavier-than-air aircraft, however propelled, but does not include spacecraft.

**Civil.** This term refers to all aircraft and aircraft engines not built for military applications. All civil (including general aviation and commercial type) aircraft, regardless of end use, are included.

**Fixed-wing (powered) aircraft.** Aircraft having wings fixed to the airplane fuselage, which are outspread in flight and powered by engines.

**Rotary lift aircraft.** Any heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors (helicopters, auto-giros, etc.).

**Turbofan.** A turbojet engine whose thrust has been increased by the addition of a low pressure compressor (fan). The turbofan engine can have an oversized low-pressure compressor at the front with part of the flow bypassing the rest of the engine (front fan or forwardfan) or it can have a separate fan driven by a turbine stage (aft-fan).

**Turbojet.** Jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion (or the heated air) being used both to rotate the turbine and to create a thrust-producing jet.

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**Turboprop.** Engines in which the main propulsive force is supplied by a gas turbine-driven conventional propeller. Additional propulsive force may be supplied from the discharge turbine exhaust gas.

**Net new orders.** Includes (a) the sales value of orders received during the current reporting period for products and services to be delivered at some future date; (b) the sales value of orders for immediate delivery that have resulted in sales or shipments during the current reporting period; and (c) the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. The sales value of cancellations of existing orders is deducted. Only those orders that are supported by binding legal documents, such as signed contracts or letter contracts, are included as orders. In the case of letter contracts, the full amount of sales value is included if the parties concerned are in substantial agreement on this amount; otherwise, only the funds specifically authorized to be expended are included.

**Backlog, end of year (unfilled orders).** Includes all orders as defined above that have not yet been reflected as shipments. Generally, unfilled orders at the end of the reporting period are equal to unfilled orders at the end of the prior period, plus net new orders received, less net shipments.

**Prime contracts and subcontracts.** Separate dollar values are reported for prime contracts and those received under subcontracts. All subcontracts, including those where it is known that the prime contract was let by a government, are reported as subcontracts received from "other customers."

**Military and nonmilitary.** The term "military" refers to complete aircraft, aircraft engines, missile systems, space vehicle systems, engines and/or propulsion units for missile systems or space vehicles, and other aerospace related activities for military applications, whether for tactical, strategic, or support functions. The term "nonmilitary" refers to the same products not built to military specifications.

#### **TYPE OF CUSTOMER**

**U.S. Government (military).** Includes contracts with the Department of Defense (DOD) and other U.S. Government agencies for products built to military specifications. Contracts for which the ultimate customer is a foreign customer such as contracts made under the Foreign Military Assistance Program, are excluded.

**Other governments (military).** Includes contracts for products built to military specifications for governments other than the United States. It includes contracts through DOD or other U.S. Government agencies for which the ultimate customer is a foreign government. Contracts for foreign governments not to military specifications are classified as "nonmilitary" to other customers.

**U.S. Government (nonmilitary).** Includes contracts with any U.S. Government agency for products not built to military specifications.

**Other customers (nonmilitary).** Includes contracts for products not built to military specifications for all customers other than U.S. Government agencies. It includes both domestic and foreign commercial customers, as well as foreign governments.

**Table 1. Quantity and Value of Shipments of Complete Civil Aircraft: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Number of companies	1997		1996	
			Quantity	Value	Quantity	Value
37215 —	Complete civil aircraft.....	35	6,557	30,087,152	5,633	21,363,323
	Civil aircraft (fixed wing, powered).....	15	2,358	29,834,473	1,649	21,158,854
37215 04	Unladen weight not exceeding 2,000 kg (4,409 lb) ..	13	1,447	1,068,607	1,005	848,888
37215 05	Unladen weight exceeding 2,000 kg (4,409 lb) but not exceeding 15,000 kg (33,069 lb) <sup>1</sup> .....	6	(D)	(D)	(D)	(D)
37215 07	Unladen weight exceeding 15,000 kg (33,069 lb) <sup>1</sup> ..	3	911	28,765,866	644	20,309,966
	Helicopters (rotary wing) .....	6	409	217,486	334	179,290
37215 32	Unladen weight not exceeding 2,000 kg (4,409 lb) <sup>2</sup> .....	5	(D)	(D)	(D)	(D)
37215 34	Unladen weight exceeding 2,000 kg (4,409 lb) <sup>2</sup> ....	2	409	217,486	334	179,290
37215 30	Other civil aircraft (nonpowered) and kits.....	10	3,790	35,193	3,650	25,179
37242 —	Complete civil aircraft engines .....	15	15,025	8,331,526	14,332	4,931,596
37242 01	Spark-ignition reciprocating or rotary internal combustion <sup>3</sup> .....	8	(D)	(D)	(D)	(D)
	Turbojet and turbofan:					
37242 03	Of a thrust not exceeding 25 kN (5,620 lb) <sup>3</sup> .....	2	(D)	(D)	(D)	(D)
37242 05	Of a thrust exceeding 25 kN (5,620 lb) <sup>3</sup> .....	6	(D)	(D)	(D)	(D)
	Turboshaft (turbo propeller):					
37242 07	Of a power not exceeding 1,100 kW (820 hp) <sup>3</sup> ..	4	(D)	(D)	(D)	(D)
37242 09	Of a power exceeding 1,100 kW (820 hp) <sup>3</sup> .....	4	(D)	(D)	(D)	(D)
37242 14	Other, including auxiliary power units excluding missiles and space engines <sup>3</sup> .....	1	15,025	8,331,526	14,332	4,931,596

D Withheld to avoid disclosing data for individual companies. kN Kilonewtons. kW Kilowatts.

<sup>1</sup>Product code 37215 05 is combined with 37215 07 to avoid disclosing data for individual companies.

<sup>2</sup>Product code 37215 32 is combined with 37215 34 to avoid disclosing data for individual companies.

<sup>3</sup>Product codes 37242 01, 37242 03, 37242 05, 37242 07, and 37242 09 are combined with product code 37242 14 to avoid disclosing data for individual companies.

**Table 2. Quantity and Value of Shipments of Complete Civil Aircraft by Month: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Year and month	Civil aircraft						Helicopters (rotary wing)		Other civil aircraft (nonpowered)	
	Unladen weight less than 2,000 kg <sup>1</sup>		Unladen weight between 2,000 and 15,000 kg <sup>1 2</sup>		Unladen weight greater than 15,000 kg <sup>1</sup>					
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>1997</b>										
January .....	(D)	(D)	(D)	(D)	'102	1,255,900	'26	'16,382	'455	2,564
February .....	(D)	(D)	(D)	(D)	'118	1,679,094	'27	'16,233	'483	2,566
March .....	(D)	(D)	(D)	(D)	'184	'3,069,956	'33	'17,799	'590	2,610
April .....	(D)	(D)	(D)	(D)	'158	2,830,675	'42	'19,030	'587	2,721
May .....	(D)	(D)	(D)	(D)	'182	2,844,553	'35	'18,372	'489	2,564
June .....	(D)	(D)	(D)	(D)	'257	'3,010,088	'37	'18,274	'498	2,564
July .....	(D)	(D)	(D)	(D)	'161	'2,370,689	'38	'21,279	'484	2,564
August .....	(D)	(D)	(D)	(D)	'167	'1,980,353	'24	'16,295	'486	2,568
September .....	(D)	(D)	(D)	(D)	'250	2,786,125	'33	'17,819	'483	2,568
October .....	(D)	(D)	(D)	(D)	'174	1,468,265	'34	'17,628	'485	2,568
November .....	(D)	(D)	(D)	(D)	'228	'1,771,195	'39	'19,432	'491	2,777
December .....	(D)	(D)	(D)	(D)	'377	'4,767,580	'40	'18,943	'504	2,769
<b>1996</b>										
January .....	(D)	(D)	(D)	(D)	90	534,448	24	14,075	226	2,072
February .....	(D)	(D)	(D)	(D)	91	958,042	36	16,565	234	2,072
March .....	(D)	(D)	(D)	(D)	132	2,004,498	29	15,022	287	2,072
April .....	(D)	(D)	(D)	(D)	128	1,633,022	24	13,891	286	2,055
May .....	(D)	(D)	(D)	(D)	110	2,060,750	30	15,406	241	2,072
June .....	(D)	(D)	(D)	(D)	146	1,748,247	34	16,877	329	2,099
July .....	(D)	(D)	(D)	(D)	92	1,045,837	29	15,312	241	2,072
August .....	(D)	(D)	(D)	(D)	127	1,907,730	23	13,600	262	2,055
September .....	(D)	(D)	(D)	(D)	161	2,090,765	25	14,646	320	2,072
October .....	(D)	(D)	(D)	(D)	177	1,684,088	34	16,219	445	2,147
November .....	(D)	(D)	(D)	(D)	141	1,991,197	20	13,155	330	2,071
December .....	(D)	(D)	(D)	(D)	254	3,500,230	26	14,522	449	2,320

D Withheld to avoid disclosing data for individual companies. 'Revised by 5 percent or more from previously published data.

<sup>1</sup>For 1997, "Unladen weight less than 2,000 kg" and "Unladen weight between 2,000 and 15,000" are combined with "Unladen weight greater than 15,000 kg" to avoid disclosing data for individual companies.

<sup>2</sup>For 1996, "Unladen weight less than 2,000" and "Unladen weight between 2,000 and 15,000 kg" are combined to avoid disclosing data for individual companies.

**Table 3. Quantity and Value of Shipments of Complete Civil Aircraft Engines: 1997 and 1996**

[Quantity in number of units. Value in thousands of dollars]

Year and month	Complete civil aircraft engines <sup>1</sup>	
	Quantity	Value
<b>1997</b>		
January . . . . .	'1,048	'436,710
February . . . . .	'1,163	'537,943
March . . . . .	'1,219	'761,679
April . . . . .	'1,227	'677,379
May . . . . .	'1,205	'647,845
June . . . . .	'1,152	'812,944
July . . . . .	'1,265	'644,349
August . . . . .	'1,193	'625,761
September . . . . .	'1,321	'846,745
October . . . . .	'1,402	'750,440
November . . . . .	'1,394	'599,705
December . . . . .	'1,436	'1,022,294
<b>1996</b>		
January . . . . .	1,030	190,680
February . . . . .	1,075	368,834
March . . . . .	1,179	377,565
April . . . . .	1,041	275,379
May . . . . .	1,164	421,551
June . . . . .	1,169	455,646
July . . . . .	1,205	368,688
August . . . . .	1,302	447,834
September . . . . .	1,268	569,259
October . . . . .	1,286	396,561
November . . . . .	1,315	427,137
December . . . . .	1,298	632,462

<sup>1</sup>Revised by 5 percent or more from previously published data.

<sup>1</sup>"Spark-ignition reciprocating or rotary internal combustion," "Turbojet and turbofan," and "Turbo propellers" are combined to avoid disclosing data for individual companies.



**Table 4. Shipments, Exports, and Imports of Complete Civil Aircraft and Aircraft Engines: 1997**

[Quantity in number of units. Value in thousands of dollars]

Product code <sup>1</sup>	Product description	Manufacturers' shipments		Exports of domestic merchandise <sup>1 2</sup>		Imports for consumption <sup>1 3</sup>	
		Quantity	Value (f.o.b. plant)	Quantity	Value at port	Quantity	Value
37215 02	Civil aircraft (fixed wing, powered): Unladen weight not exceeding 2,000 kg (4,409 lb) .....	1,447	1,068,607	250	55,546	138	10,866
37215 05	Unladen weight exceeding 2,000 kg (4,409 lb), but not exceeding 15,000 kg (33,069 lb) <sup>4</sup> .....						
37215 07	Unladen weight exceeding 15,000 kg (33,069 lb) <sup>4</sup> .....	(D)	(D)	(D)	(D)	(D)	(D)
37215 31	Helicopters (rotary wing) .....	409	217,486	259	195,574	240	461,450
37242 00	Complete civil aircraft engines .....	15,025	8,331,526	4,204	1,756,835	3,347	2,953,324

D Withheld to avoid disclosing data for individual companies.

<sup>1</sup>For comparison of SIC-based codes with Schedule B export numbers and HTSUSA import numbers, see "Contact for Data Users" at end of this subsection.

<sup>2</sup>Source: Census Bureau report EM 545, *U.S. Exports*.

<sup>3</sup>Source: Census Bureau report IM 145, *U.S. Imports for Consumption*.

<sup>4</sup>Product codes 37215 05 and 37215 07 are combined to avoid disclosing data for individual companies.

**Table 5. Value of Backlog of Orders, and Net Sales Reported by Manufacturers of Complete Aircraft, Space Vehicles, Missiles, and Selected Parts: 1988 to 1997**

[Millions of dollars]

Year	Net new orders during year <sup>1</sup>	Net sales during year	Backlog, end of year
1997 .....	119,851	114,167	234,488
1996 .....	126,267	103,115	229,871
1995 .....	109,109	102,797	202,638
1994 .....	88,706	104,296	192,561
1993 .....	79,770	109,926	211,814
1992 .....	100,306	118,736	236,076
1991 .....	122,485	123,862	245,241
1990 .....	145,965	136,646	250,079
1989 <sup>2</sup> .....	173,635	122,148	252,401
1988 .....	147,128	113,548	191,518

<sup>1</sup>These totals represent new orders received during the year, less terminations during the year.

<sup>2</sup>Data for 1989 are not comparable with earlier years and were previously unavailable. The extent of this noncomparability is unknown.

**Table 6. Value of Net New Orders, Net Sales, and Backlog of Orders of Complete Aircraft, Space Vehicles, Missiles, and Selected Parts by United States Government and Other Customers: 1993 to 1997**

[Millions of dollars]

Year	Net new orders <sup>1</sup> (prime contracts and subcontracts)			Net sales, receipts, or billings			Backlog, end of year		
	Total	United States Government <sup>2</sup>	Other customers	Total	United States Government <sup>2</sup>	Other customers	Total	United States Government <sup>2</sup>	Other customers
1997 .....	119,851	45,633	74,218	114,167	49,230	64,937	234,488	74,143	153,178
1996 .....	126,267	57,245	69,022	103,115	51,390	51,725	229,871	81,399	148,472
1995 .....	109,109	46,546	62,562	106,829	51,909	50,888	202,638	67,936	134,702
1994 .....	88,706	50,444	38,262	104,296	57,141	47,155	192,561	68,660	123,901
1993 .....	79,770	45,169	34,601	109,926	54,808	55,118	211,814	77,329	134,485

<sup>1</sup>These data represent new orders received during the year, less terminations during the year.

<sup>2</sup>These data represent prime contracts only. All subcontracts, including those where it is known that the prime contract was let by the U.S. Government, are reported as subcontracts from "Other customers."

Note: Detail items may not add to total because of independent rounding.

**Table 7. Value of Net New Orders, Net Sales, and Backlog of Orders of Complete Aircraft, Space Vehicles, Missiles, and Selected Parts by Military and Nonmilitary: 1993 to 1997**

[Millions of dollars]

Year	Net new orders <sup>1</sup> (prime contracts and subcontracts)			Net sales, receipts, or billings			Backlog, end of year		
	Total	Military	Nonmilitary	Total	Military	Nonmilitary	Total	Military	Nonmilitary
1997 .....	119,851	47,803	72,048	114,167	51,408	62,759	234,488	85,599	148,889
1996 .....	126,267	62,127	64,140	103,115	53,153	49,962	229,871	89,500	140,371
1995 .....	109,109	49,350	59,759	106,829	49,350	50,321	202,638	82,309	120,329
1994 .....	88,706	53,268	35,438	104,296	58,012	46,284	192,561	84,445	108,116
1993 .....	79,770	49,541	30,229	109,926	56,102	53,824	211,814	91,751	120,063

<sup>1</sup>These data represent new orders received during the year, less terminations during the year.

Note: Detail items may not add to total because of independent rounding.

**Table 8. Value of Net New Orders, Net Sales, and Backlog of Orders of Complete Aircraft, Space Vehicles, Missiles, and Selected Parts: 1997 and 1996**

[Millions of dollars]

Product description	Number of companies	Net new orders			Shipments (or net sales)	Backlog, end of year
		Total	Prime contract <sup>1</sup>	Subcontract <sup>1</sup>		
<b>1997</b>						
<b>Total</b> .....	<b>57</b>	<b>119,851</b>	<b>119,657</b>	<b>194</b>	<b>114,167</b>	<b>234,488</b>
Military .....	(NA)	47,803	47,803	(NA)	51,408	85,599
U.S. Government .....	34	39,168	39,168	(NA)	40,741	64,206
Other governments .....	21	8,635	8,635	(NA)	10,667	21,393
Nonmilitary .....	(NA)	72,048	71,854	194	62,759	148,889
U.S. Government .....	18	6,465	6,465	(NA)	8,489	9,937
Other customers .....	39	65,583	65,389	194	54,270	131,785
Complete aircraft and parts .....	(NA)	60,510	60,411	99	54,490	140,748
Military .....	(NA)	19,102	19,102	(NA)	21,297	40,593
Nonmilitary .....	(NA)	41,408	41,309	99	33,193	100,155
Aircraft engines and parts .....	(NA)	12,171	12,171	(NA)	12,403	17,889
Military .....	(NA)	2,053	2,053	(NA)	3,283	3,334
Nonmilitary .....	(NA)	10,118	10,118	(D)	9,120	14,555
Missile systems and parts, excluding propulsion units .....	(NA)	4,297	4,297	(D)	4,001	6,902
Military .....	(NA)	4,297	4,297	(NA)	4,001	6,902
U.S. Government .....	10	2,607	2,607	(NA)	3,105	4,580
Other governments .....	5	1,690	1,690	(NA)	896	2,322
Space vehicle systems and parts, excluding propulsion units .....	(NA)	13,760	13,760	(D)	13,410	23,357
Military .....	(NA)	4,580	4,580	(NA)	4,916	8,790
Nonmilitary .....	(NA)	9,180	9,180	(D)	8,494	14,567
U.S. Government .....	11	2,286	2,286	(NA)	3,707	10,867
Other customers .....	10	6,894	6,894	(D)	4,787	3,700
Engines and/or propulsion units for missile systems and space vehicles, including parts <sup>2</sup> .....	(NA)	2,361	2,361	(D)	2,688	5,546
Military .....	(NA)	475	475	(NA)	560	1,023
Nonmilitary .....	(NA)	1,886	1,886	(D)	2,128	4,523
Other aircraft, space vehicle, and missile activities <sup>3</sup> .....	(NA)	10,207	10,144	63	9,459	19,535
Military .....	(NA)	7,121	7,121	(NA)	6,591	11,461
U.S. Government .....	(NA)	5,570	5,570	(NA)	5,209	9,102
Other governments .....	(NA)	1,551	1,551	(NA)	1,382	2,359
Nonmilitary .....	(NA)	3,086	3,023	63	2,868	8,074
Research and development (under contract) .....	(NA)	6,562	6,530	32	6,917	6,282
Military .....	(NA)	5,558	5,558	(NA)	5,871	4,951
U.S. Government .....	25	5,390	5,390	(NA)	5,764	4,594
Other governments .....	11	168	168	(NA)	107	357
Nonmilitary .....	(NA)	1,004	972	32	1,046	1,331
All other products and services .....	(NA)	9,983	9,983	(NA)	10,799	14,229
Military .....	(NA)	4,617	4,617	(NA)	4,889	8,545
U.S. Government .....	20	4,529	4,529	(NA)	4,544	7,850
Other governments .....	11	88	88	(NA)	345	695
Nonmilitary .....	(NA)	5,366	5,366	(D)	5,910	5,684
U.S. Government .....	14	2,301	2,301	(NA)	2,525	3,463
Other customers .....	28	3,065	3,065	(D)	3,385	2,221

See footnotes at end of table.

**Table 8. Value of Net New Orders, Net Sales, and Backlog of Orders of Complete Aircraft, Space Vehicles, Missiles, and Selected Parts: 1997 and 1996—Con.**

[Millions of dollars]

Product description	Number of companies	Net new orders			Shipments (or net sales)	Backlog, end of year
		Total	Prime contract <sup>1</sup>	Subcontract <sup>1</sup>		
<b>1996<sup>r</sup></b>						
<b>Total</b> .....	<b>59</b>	<b>126,267</b>	<b>125,468</b>	<b>799</b>	<b>103,115</b>	<b>229,871</b>
Military .....	(NA)	62,127	62,127	(NA)	53,153	89,500
U.S. Government .....	36	51,527	51,527	(NA)	44,538	65,588
Other governments .....	25	10,600	10,600	(NA)	8,615	23,912
Nonmilitary .....	(NA)	64,140	63,341	799	49,962	140,371
U.S. Government .....	20	5,718	5,718	(NA)	6,852	15,811
Other customers .....	42	58,422	57,623	799	43,110	124,560
Complete aircraft and parts .....	(NA)	55,557	55,441	116	41,815	134,639
Military .....	(NA)	21,755	21,755	(NA)	20,822	42,788
Nonmilitary .....	(NA)	33,802	33,686	116	20,993	91,851
Aircraft engines and parts .....	(NA)	15,067	15,067	(NA)	15,711	19,337
Military .....	(NA)	3,588	3,588	(NA)	3,982	4,847
Nonmilitary .....	(NA)	11,479	11,749	(D)	11,729	14,490
Missile systems and parts, excluding propulsion units .....	(NA)	8,672	8,672	(D)	4,792	6,563
Military .....	(NA)	8,672	8,672	(NA)	4,792	6,563
U.S. Government .....	14	7,201	7,201	(NA)	4,090	5,035
Other governments .....	7	1,471	1,471	(NA)	702	1,528
Space vehicle systems and parts, excluding propulsion units .....	(NA)	16,527	16,527	(D)	11,698	23,004
Military .....	(NA)	8,888	8,888	(NA)	5,613	9,125
Nonmilitary .....	(NA)	7,639	7,639	(D)	6,085	13,879
U.S. Government .....	11	2,268	2,268	(NA)	2,618	9,653
Other customers .....	9	5,371	5,371	(D)	3,467	4,226
Engines and/or propulsion units for missile systems and space vehicles, including parts <sup>2</sup> .....	(NA)	1,868	1,828	(D)	2,016	5,873
Military .....	(NA)	745	745	(NA)	635	1,108
Nonmilitary .....	(NA)	1,123	1,083	(D)	1,381	4,765
Other aircraft, space vehicle, and missile activities <sup>3</sup> .....	(NA)	12,108	11,431	677	10,435	18,808
Military .....	(NA)	8,055	8,055	(NA)	6,709	10,913
U.S. Government .....	(NA)	5,572	5,572	(NA)	5,528	8,733
Other governments .....	(NA)	2,483	2,483	(NA)	1,181	2,180
Nonmilitary .....	(NA)	4,053	3,376	677	3,726	7,895
Research and development (under contract) .....	(NA)	5,098	5,092	6	6,360	6,707
Military .....	(NA)	4,081	4,081	(NA)	5,462	5,263
U.S. Government .....	26	3,859	3,859	(NA)	5,237	4,968
Other governments .....	9	222	222	(NA)	225	295
Nonmilitary .....	(NA)	1,017	1,011	6	898	1,444
All other products and services .....	(NA)	11,370	11,370	(NA)	10,287	14,940
Military .....	(NA)	6,343	6,343	(NA)	5,137	8,893
U.S. Government .....	22	5,814	5,814	(NA)	4,512	7,906
Other governments .....	15	529	529	(NA)	625	987
Nonmilitary .....	(NA)	5,027	5,027	(D)	5,150	6,047
U.S. Government .....	14	1,933	1,933	(NA)	2,142	3,520
Other customers .....	25	3,094	3,094	(D)	3,008	2,527

D Withheld to avoid disclosing data for individual companies. NA Not available. <sup>r</sup>Revised.

<sup>1</sup>"Net new orders under subcontract" are included with "Prime contract net new orders" to avoid disclosing data for individual companies.

<sup>2</sup>Data for "Engines and/or propulsion units for space vehicles, including parts," are included with data for "Engines and/or units for missile systems, including parts."

<sup>3</sup>Data for "Other missile activities" are included with data for "Other aircraft and space vehicles."

Note: Net new orders represent new orders received during the year, less terminations during the year. In some cases current backlog will not equal backlog for previous period, plus current net new orders, minus current shipments. This is primarily due to respondents changing their accounting procedures from one year to the next. Data for these respondents were not changed to force a balance. Significant imbalances due to reporting errors were investigated and corrected. Detail items may not add to total because of independent rounding.

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**HISTORICAL NOTE**

Data on civilian aircraft and aircraft engines have been collected by the Census Bureau since 1946. Data on the development and production of aerospace products have been collected by the Census Bureau since 1948. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your

local Federal Depository Library. Historical data are also available on microfiche; contact Customer Services, 301-457-4100.

**CONTACT FOR DATA USERS**

For additional information about these data, contact J. Christian Savage, 301-457-1307.

# Appendix A. Survey Scope and Methodology

Survey	Publica- tion period <sup>1</sup>	Reporting require- ment (V/M) <sup>2</sup>	Title	Survey panel (number)	Received coverage rate <sup>3</sup> / range <sup>4</sup>	Active response rate <sup>5</sup> / range <sup>4</sup>	Data collected and/or published <sup>6</sup>
MQ20A	Q	V	Flour Milling Products . . . . .	251	5	8	P, I
MA20D	A	V	Confectionery . . . . .	420	7	4	S
M20J	M	M	Fats and Oils: Oilseed Crushings . . . . .	169	9	9	P, SQ
M20K	M	M	Fats and Oils: Production, Consumption, and Stocks . . . . .	1089	8	8	P, I, C
MQ22D	Q	V	Consumption on the Woolen System and Worsted Combing . . . . .	120	5	9	C, P
MA22F	A	M	Yarn Production . . . . .	528	7	6	P
MA22K	A	M	Knit Fabrics Production . . . . .	515	7	3	P, M
M22P	M	M	Consumption on the Cotton System and Stocks . . . . .	678	8	9	C, I, M, SH
MA22Q	A	M	Carpet and Rugs . . . . .	165	8	6	S
MQ22T	Q	M	Broadwoven Fabrics (Gray) . . . . .	370	8	7	P, M, LH
MQ23A	Q	M	Apparel . . . . .	820	7	8	P, SV
MA23D	A	M	Gloves and Mittens . . . . .	220	7	5	S
MQ23X	Q	M	Bed and Bath Furnishings . . . . .	190	5	9	S, P, I, UO
MA31A	A	M	Footwear . . . . .	341	7	5	S, P
MQ31A	Q	V	Footwear . . . . .	364	4	5	S, P
MA24T	A	M	Lumber Production and Mill Stocks . . . . .	2000	6	0	P, I
MA32C	A	M	Refractories . . . . .	248	8	5	S
MQ32D	Q	V	Clay Construction Products . . . . .	228	7	6	S, P
MQ34E	Q	V	Plumbing Fixtures . . . . .	72	1	6	S, I
MA28A	A	M	Inorganic Chemicals . . . . .	852	8	7	S, P, PC
MQ28A	Q	V	Inorganic Chemicals . . . . .	372	5	7	P, I
MA28B	A	M	Inorganic Fertilizer Materials and Related Products . . . . .	256	9	9	S, P, PC, I
MQ28B	Q	V	Fertilizer Materials . . . . .	312	5	8	P, QS, I
MA28C	A	M	Industrial Gases . . . . .	1105	7	7	S, P
MQ28C	Q	V	Industrial Gases . . . . .	554	2	0	P
MA28F	A	M	Paint, Varnish, and Lacquer . . . . .	818	9	7	S
MQ28F	Q	V	Paint, Varnish, and Lacquer . . . . .	244	9	5	S
MA28G	A	M	Pharmaceutical Preparations, Except Biologicals . . . . .	591	8	6	SV
MA32A	A	M	Flat Glass . . . . .	6	9	9	PC, I, S, P
MA32E	A	M	Consumer, Scientific, Technical, and Industrial Glassware . . . . .	282	8	6	S
M32G	M	V	Glass Containers . . . . .	14	8	0	SQ, P, I
MA33A	A	M	Iron and Steel Castings . . . . .	521	7	9	S
MA33B	A	M	Steel Mill Products . . . . .	592	8	7	C, S, R
M33D	M	V	Aluminum Ingot and Mill Products . . . . .	140	0	1	SQ, R, I
MA33E	A	M	Nonferrous Castings . . . . .	729	9	6	S
M33J	M	V	Inventories of Steel Producing Mills . . . . .	11	2	9	SQ, I
MA33L	A	M	Insulated Wire and Cable . . . . .	235	7	6	S
MA35R	A	M	Computers and Office and Accounting Machines . . . . .	975	9	6	S
MA36A	A	M	Switchgear, Switchboard Apparatus, Relays, and Industrial Control . . . . .	916	8	6	S
MQ36C	Q	V	Fluorescent Lamp Ballasts . . . . .	12	9	7	S
MA36K	A	M	Wiring Devices and Supplies . . . . .	533	8	6	S
MA36L	A	V	Electric Lighting Fixtures . . . . .	448	6	2	S
MA36P	A	M	Communication Equipment . . . . .	1550	9	6	S
MA36Q	A	M	Semiconductors, Printed Circuit Boards, and Related Equipment . . . . .	3470	9	6	S
MA38B	A	M	Selected Instruments and Related Products . . . . .	2764	7	4	S
MA38R	A	M	Electromedical and Irradiation Equipment (Including X-Ray) . . . . .	332	8	6	S
MA36E	A	M	Electric Housewares and Fans . . . . .	90	9	7	S
MA36F	A	M	Major Household Appliances . . . . .	160	8	7	S
MA36M	A	M	Consumer Electronics . . . . .	218	9	5	S
MA34K	A	V	Steel Shipping Drums and Pails . . . . .	58	9	8	S

See footnotes at end of table.

Survey	Publication period <sup>1</sup>	Reporting requirement (V/M) <sup>2</sup>	Title	Survey panel (number)	Received coverage rate <sup>3</sup> /range <sup>4</sup>	Active response rate <sup>5</sup> /range <sup>4</sup>	Data collected and/or published <sup>6</sup>
MA35J	A	M	Selected Industrial Air Pollution Control Equipment . . . . .	131	8	5	NOQ, NOV, S, UO, UOQ
MA35M	A	M	Air-Conditioning and Refrigeration Equipment . . . . .	335	8	6	S
MA35N	A	V	Fluid Power Products, Including Aerospace . . . . .	511	8	6	S
MA35P	A	M	Pumps and Compressors . . . . .	483	8	5	S
MA35Q	A	M	Antifriction Bearings . . . . .	152	9	8	S
MA36H	A	M	Motors and Generators . . . . .	385	9	6	S
MA35A	A	M	Farm Machinery and Lawn and Garden Equipment . . . . .	819	8	6	S
MA35D	A	M	Construction Machinery . . . . .	263	8	6	S
MA35F	A	M	Mining Machinery and Mineral Processing Equipment . . . . .	151	8	7	S
MA35L	A	M	Internal Combustion Engines . . . . .	65	9	7	PC, IPT, S, CC, P
MQ35W	Q	M	Metalworking Machinery . . . . .	472	5	3	S, UO
M37L	M	V	Truck Trailers . . . . .	109	9	7	S
MA37D	A	M	Aerospace Orders . . . . .	101	9	7	NOV, R, UO
M37G	M	V	Civil Aircraft and Engines . . . . .	39	9	7	S

<sup>1</sup>Publication period: A = Annual; M = Monthly (data reflects twelfth month); Q = Quarterly (data reflects fourth quarter)

<sup>2</sup>Reporting requirement will be either voluntary or mandatory, V or M, respectively.

<sup>3</sup>Received coverage rate is ratio of value of shipments of establishments responding to survey to total value of shipments of that survey. For example, 85 to 89 percent response in M37G survey accounts for between 95 and 98 percent of total value of shipments of products collected in that survey.

<sup>4</sup>Coverage and response rate ranges:

Response rate	Range (percent)
9	99+
8	95 to 98
7	90 to 94
6	85 to 89
5	80 to 84
4	75 to 79
3	70 to 74
2	65 to 69
1	60 to 64
0	59 or less

<sup>5</sup>Active response rate is ratio of number of establishments responding to survey to total active establishments of that survey. For monthly and quarterly surveys this is calculated on monthly or quarterly portion rather than mandatory annual counterpart. Both response rate and coverage rate would be higher if the annual portion were included.

<sup>6</sup>Data collected and/or published:

Code	Description	Code	Description
C	Consumption	SV	Shipments (value)
I	Inventory (stock)	UO	Unfilled (backlog) orders (value)
NOQ	New orders (quantity)	UOQ	Unfilled (backlog) orders (quantity)
NOV	New orders (value)	M	Machinery in place
P	Production (quantity)	EX	Exports
PC	Produced and consumed (quantity)	IPT	Interplant transfers
PV	Production (value)	T	Total (shipments and exports)
R	Receipts (value)	CC	Total (commercial shipments)
S	Shipments (quantity and value)	LH	Loom hours
SQ	Shipments (quantity)	SH	Spindle hours