

# All Other Plastics Product Manufacturing: 2002

Issued December 2004

EC02-311-326199 (RV)

## 2002 Economic Census

*Manufacturing*

Industry Series



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U.S. Department of Commerce  
Economics and Statistics Administration  
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-- Not applicable for this report.

# Introduction to the Economic Census

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## **PURPOSES AND USES OF THE ECONOMIC CENSUS**

The economic census is the major source of facts about the structure and functioning of the nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in "2" and "7."

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the federal government use the data to monitor economic activity and to assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

## **INDUSTRY CLASSIFICATIONS**

Data from the 2002 Economic Census are published primarily according to the 2002 North American Industry Classification System (NAICS). NAICS was first adopted in the United States, Canada, and Mexico in 1997. The 2002 Economic Census covers the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information
52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Food Services
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), largely covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 100 subsectors (three-digit codes), 317 industry groups (four-digit codes), and, as implemented in the United States, 1,179 industries (six-digit codes).

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## **RELATIONSHIP TO HISTORICAL INDUSTRY CLASSIFICATIONS**

Prior to the 1997 Economic Census, data were published according to the Standard Industrial Classification (SIC) system. While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The 1997 Economic Census *Bridge Between NAICS and SIC* demonstrates the relationships between NAICS and SIC industries. Where changes are significant, it may not be possible to construct time series that include data for points both before and after 1997.

Most industry classifications remained unchanged between 1997 and 2002, but NAICS 2002 includes substantial revisions within the construction and wholesale trade sectors, and a number of revisions for the retail trade and information sectors. These changes are noted in industry definitions and will be demonstrated in the *Bridge Between NAICS 2002 and NAICS 1997*.

For 2002, data for enterprise support establishments (those functioning primarily to support the activities of their company's operating establishments, such as a warehouse or a research and development laboratory) are included in the industry that reflects their activities (such as warehousing). For 1997, such establishments were termed auxiliaries and were excluded from industry totals.

## **BASIS OF REPORTING**

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company. (For selected industries, only payroll, employment, and classification are collected for individual establishments, while other data are collected on a consolidated basis.)

## **GEOGRAPHIC AREA CODING**

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for states, metropolitan and micropolitan statistical areas, counties, and corporate municipalities (places) including cities, towns, townships, villages, and boroughs. Respondents were required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from administrative sources is used as a basis for coding.

## **AVAILABILITY OF ADDITIONAL DATA**

All results of the 2002 Economic Census are available on the Census Bureau Internet site ([www.census.gov](http://www.census.gov)) and on digital versatile discs (DVD-ROMs) for sale by the Census Bureau. The American FactFinder system at the Internet site allows selective retrieval and downloading of the data. For more information, including a description of reports being issued, see the Internet site, write to the U.S. Census Bureau, Washington, DC 20233-6100, or call Customer Services at 301-763-4100.

## **HISTORICAL INFORMATION**

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart

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from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some service trades in 1933. Censuses of construction, manufacturing, and the other business censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated, providing comparable census data across economic sectors and using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census report forms.

The range of industries covered in the economic census expanded between 1967 and 2002. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity. New for 2002 is coverage of four industries classified in the agriculture, forestry, and fishing sector under the SIC system: landscape architectural services, landscaping services, veterinary services, and pet care services.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. Reports for 1997 were published primarily on the Internet and copies of 1992 reports are also available there. CD-ROMs issued from the 1987, 1992, and 1997 Economic Censuses contain databases that include all or nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

#### **SOURCES FOR MORE INFORMATION**

More information about the scope, coverage, classification system, data items, and publications for the 2002 Economic Census and related surveys is published in the *Guide to the 2002 Economic Census* at [www.census.gov/econ/census02/guide](http://www.census.gov/econ/census02/guide). More information on the methodology, procedures, and history of the census will be published in the *History of the 2002 Economic Census* at [www.census.gov/econ/www/history.html](http://www.census.gov/econ/www/history.html).



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# Manufacturing

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## SCOPE

The Manufacturing sector (sector 31-33) comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The assembling of component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified in Sector 23, Construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector. Manufacturing establishments may process materials or may contract with other establishments to process their materials for them. Both types of establishments are included in manufacturing.

The materials, substances, or components transformed by manufacturing establishments are raw materials that are products of agriculture, forestry, fishing, mining, or quarrying, as well as products of other manufacturing establishments. The materials used may be purchased directly from producers, obtained through customary trade channels, or secured without recourse to the market by transferring the product from one establishment to another, under the same ownership. The new product of a manufacturing establishment may be finished in the sense that it is ready for utilization or consumption, or it may be semifinished to become an input for an establishment engaged in further manufacturing. For example, the product of the alumina refinery is the input used in the primary production of aluminum; primary aluminum is the input to an aluminum wire drawing plant; and aluminum wire is the input for a fabricated wire product manufacturing establishment.

The subsectors in the manufacturing sector generally reflect distinct production processes related to material inputs, production equipment, and employee skills. In the machinery area, where assembling is a key activity, parts and accessories for manufactured products are classified in the industry of the finished manufactured item when they are made for separate sale. For example, a replacement refrigerator door would be classified with refrigerators and an attachment for a piece of metal working machinery would be classified with metal working machinery. However, components, input from other manufacturing establishments, are classified based on the production function of the component manufacturer. For example, electronic components are classified in Subsector 334, Computer and Electronic Product Manufacturing; and stampings are classified in Subsector 332, Fabricated Metal Product Manufacturing.

Manufacturing establishments often perform one or more activities that are classified outside the manufacturing sector of NAICS. For instance, almost all manufacturing has some captive research and development or administrative operations, such as accounting, payroll, or management. These captive services are treated the same as captive manufacturing activities. When the services are provided by separate establishments, they are classified to the NAICS sector where such services are primary, not in manufacturing.

The boundaries of manufacturing and the other sectors of the classification system can be somewhat blurry. The establishments in the manufacturing sector are engaged in the transformation of materials into new products. Their output is a new product. However, the definition of what constitutes a new product can be somewhat subjective. As clarification, the following activities are

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considered manufacturing in NAICS: milk bottling and pasteurizing; water bottling and processing; fresh fish packaging (oyster shucking, fish filleting); apparel jobbing (assigning of materials to contract factories or shops for fabrication or other contract operations); as well as contracting on materials owned by others; printing and related activities; ready-mixed concrete production; leather converting; grinding of lenses to prescription; wood preserving; electroplating, plating, metal heat treating, and polishing for the trade; lapidary work for the trade; fabricating signs and advertising displays; rebuilding or remanufacturing machinery (i.e., automotive parts); ship repair and renovation; machine shops; and tire retreading.

**Exclusions.** There are activities that are sometimes considered manufacturing, but for NAICS are classified in another sector. These activities include logging, classified in Sector 11, Agriculture, Forestry, Fishing and Hunting is considered a harvesting operation; the beneficiating of ores and other minerals, classified in Sector 21, Mining, is considered part of the activity of mining; the construction of structures and fabricating operations performed at the site of construction by contractors, is classified in Sector 23, Construction; establishments engaged in breaking of bulk and redistribution in smaller lots, including packaging, repackaging, or bottling products, such as liquors or chemicals; the customized assembly of computers; sorting of scrap; mixing paints to customer order; and cutting metals to customer order, classified in Sector 42, Wholesale Trade or Sector 44-45, Retail Trade, produce a modified version of the same product, not a new product; and publishing and the combined activity of publishing and printing, classified in Sector 51, Information, perform the transformation of information into a product where as the value of the product to the consumer lies in the information content, not in the format in which it is distributed (i.e., the book or software diskette).

The tabulations for this sector do not include central administrative offices, warehouses, or other establishments that serve manufacturing establishments within the same organization. Data for such establishments are classified according to the nature of the service they provide. For example, separate headquarters establishments are reported in NAICS Sector 55, Management of Companies and Enterprises.

The reports described below exclude establishments of firms with no paid employees. These “nonemployers,” typically self-employed individuals or partnerships operating businesses that they have not chosen to incorporate, are reported separately in Nonemployer Statistics. The contribution of nonemployers, relatively small for this sector, may be examined at [www.census.gov/nonemployerimpact](http://www.census.gov/nonemployerimpact).

The reports described below cover all manufacturing establishments with one or more paid employees.

**Definitions.** Industry categories are defined in Appendix B, NAICS Codes, Titles, and Descriptions. Other terms are defined in Appendix A, Explanation of Terms.

## REPORTS

The following reports provide statistics on this sector:

**Industry Series.** There are 473 reports, each covering a single NAICS industry (six-digit code). These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. The industry reports also include data for states with 100 employees or more in the industry. The data in industry reports are preliminary and subject to change in the following reports.

**Geographic Area Series.** There are 51 separate reports, one for each state and the District of Columbia. Each state report presents similar statistics at the “all manufacturing” level for each state and its metropolitan and micropolitan areas with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

### Subject Series:

x Manufacturing

2002 Economic Census

- **Industry-Product Analysis Summary.** This report presents value of shipments, value of product shipments, percentage of product shipments of the total value of shipments, and percentage of distribution of value of product shipments on the NAICS six-digit industry level and by the six- and seven-digit product code levels. It also includes miscellaneous receipts at the six- and seven-digit product code levels by NAICS six-digit industry levels.
- **General Summary.** This report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.
- **Product Summary.** This report summarizes the products data published in the industry reports. This report also includes a table with data for products that are primary to more than one industry, which are not in the industry reports.
- **Materials Summary.** This report summarizes the materials data published in the industry reports.
- **Concentration Ratio Summary.** This report publishes data on the percentage of value of shipments and value added accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Herfindahl-Herschmann indexes for each industry.
- **Location of Manufacturing Plants Summary.** This report contains statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

**ZIP Code Statistics.** This report contains statistics on the number of establishments for the three- and six-digit NAICS industry by employment-size of the establishment by ZIP Code.

**Other reports.** Data for this sector are also included in reports with multisector coverage, including Nonemployer Statistics, Comparative Statistics, Bridge Between 2002 NAICS and 1997 NAICS, Business Expenses, and the Survey of Business Owners reports.

## **GEOGRAPHIC AREAS COVERED**

The level of geographic detail varies by report. Maps are available at [www.census.gov/econ2002maps](http://www.census.gov/econ2002maps). Notes specific to areas in the state are included in Appendix D, Geographic Notes.

1. The United States as a whole.
2. States and the District of Columbia.
3. Metropolitan and micropolitan statistical areas with 250 employees or more. A core based statistical areas (CBSA) contains a core area with a substantial population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. CBSAs are differentiated into metropolitan and micropolitan statistical areas based on size criteria. Both metropolitan and micropolitan areas are defined in terms of entire counties, and are listed in Appendix E, Metropolitan and Micropolitan Statistical Areas.
  - a. Metropolitan Statistical Areas (metro areas). Metro areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
  - b. Micropolitan Statistical Areas (micro areas). Micro areas have at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
  - c. Metropolitan Divisions (metro divisions). If specified criteria are met, a metro area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions.

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- d. Combined Statistical Areas (combined areas). If specified criteria are met, adjacent metro and micro areas, in various combinations, may become the components of a new set of areas called Combined Statistical Areas. The areas that combine retain their own designations as metro or micro areas within the larger combined area.
4. Counties and county equivalents defined as of January 1, 2002, with 500 employees or more. Counties are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs, census areas, and city and boroughs. Maryland, Missouri, Nevada, and Virginia have one place or more that is independent of any county organization and constitutes primary divisions of their states. These places are treated as counties and as places.
  5. Economic places with 500 employees or more.
    - a. Municipalities of 2,500 inhabitants or more defined as of January 1, 2002. These are areas of significant population incorporated as cities, boroughs, villages, or towns according to the 2000 Census of Population. For the economic census, boroughs and census areas in Alaska and boroughs in New York are not included in this category.
    - b. Consolidated cities defined as of January 1, 2002. Consolidated cities are consolidated governments that consist of separately incorporated municipalities.
    - c. Townships in Michigan, New Jersey, and Pennsylvania, and towns in New York, Wisconsin, and the six New England states with 10,000 inhabitants or more (according to the 2000 Census of Population).
    - d. Balance of county. Areas outside the entities listed above, including incorporated municipalities with populations of fewer than 2,500, town and townships not qualifying as noted above, and the remainders of counties outside places are categorized as "Balance of county."

## **DOLLAR VALUES**

All dollar values presented are expressed in current dollars; i.e., 2002 data are expressed in 2002 dollars, and 1997 data, in 1997 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

## **COMPARABILITY OF THE 1997 AND 2002 ECONOMIC CENSUSES**

Both the 2002 Economic Census and the 1997 Economic Census present data based on the North American Industry Classification System (NAICS). While there were revisions to selected industries for 2002, this sector is not affected by those revisions.

For 2002, there have been several additional data tables added, which did not exist in 1997. These tables for 2002 include products primary to more than one industry, industry-product analysis, e-commerce value of shipments, and leased and nonleased detail employment statistics by subsectors.

## **RELIABILITY OF DATA**

All data compiled for this sector are subject to nonsampling errors. Nonsampling errors can be attributed to many sources: inability to identify all cases in the actual universe; definition and classification difficulties; differences in the interpretation of questions; errors in recording or coding the data obtained; and other errors of collection, response, coverage, processing, and estimation for missing or misreported data. Selected data in tables titled "Detailed Statistics" are based on the Annual Survey of Manufactures and are subject to sampling errors as well as nonsampling errors.

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No direct measurement of these effects has been obtained except for estimation for missing or misreported data, as by the percentages shown in the tables. Precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize the effects of nonsampling errors. More information on the reliability of the data is included in Appendix C, Methodology.

## **DISCLOSURE**

In accordance with federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments in a specific industry or geographic area is not considered a disclosure; therefore, this information may be released even though other information is withheld. Techniques employed to limit disclosure are discussed at [www.census.gov/epcd/ec02/disclosure.htm](http://www.census.gov/epcd/ec02/disclosure.htm).

The disclosure analysis for "industry statistics" files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. Nonetheless, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures, which can be suppressed even though value of shipments data are published.

## **AVAILABILITY OF MORE FREQUENT ECONOMIC DATA**

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 55,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data. In addition to the ASM, the Census Bureau conducts the Current Industrial Reports (CIR) program. The CIR program publishes selected detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) Program, which publishes detailed statistics for manufacturing industries at the U.S. level.

In addition, the County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county, and Statistics of U.S. Businesses provides annual statistics classified by the employment size of the enterprise, further classified by industry for the United States, and by broader categories for states and metropolitan areas.

## **CONTACTS FOR DATA USERS**

Questions about these data may be directed to the U.S. Census Bureau, Manufacturing & Construction Division, Information Services Center, 301-763-4673 or [ask.census.gov](mailto:ask.census.gov).

## **ABBREVIATIONS AND SYMBOLS**

The following abbreviations and symbols are used with these data:

A	Standard error of 100 percent or more
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue
N	Not available or not comparable
S	Withheld because estimates did not meet publication standards
X	Not applicable
Z	Less than half the unit shown
a	0 to 19 employees
b	20 to 99 employees
c	100 to 249 employees

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e	250 to 499 employees
f	500 to 999 employees
g	1,000 to 2,499 employees
h	2,500 to 4,999 employees
i	5,000 to 9,999 employees
j	10,000 to 24,999 employees
k	25,000 to 49,999 employees
l	50,000 to 99,999 employees
m	100,000 employees or more
p	10 to 19 percent estimated
q	20 to 29 percent estimated
r	Revised
s	Sampling error exceeds 40 percent
nsk	Not specified by kind
-	Represents zero (page image/print only)
(CC)	Consolidated city
(IC)	Independent city

**Table 1. Historical Statistics for the Industry: 2002 and Earlier Years**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year <sup>1</sup>	Com- panies <sup>2</sup>	All estab- lish- ments <sup>3</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
			Number <sup>4</sup>	Payroll (\$1,000)	Number <sup>4</sup>	Hours (1,000)	Wages (\$1,000)				
326199, All other plastics product manufacturing .....	2002.. 6 701	7 847	488 278	15 035 083	378 110	746 815	9 680 220	40 852 050	32 073 072	72 893 593	'3 304 805
	2001.. N	N	528 573	15 555 417	416 438	813 038	9 972 983	38 604 624	33 845 959	72 691 961	3 381 756
	2000.. N	N	554 916	16 162 931	441 124	870 578	10 475 172	40 854 334	35 384 794	75 893 153	3 926 399
	1999.. N	N	550 910	15 657 681	437 520	863 783	10 072 547	40 484 192	32 526 071	72 820 618	3 750 321
	1998.. N	N	534 723	14 710 712	424 492	836 398	9 501 750	37 433 778	30 907 512	68 253 586	3 600 674
	1997.. 7 522	8 589	522 718	13 972 715	411 058	800 804	8 906 646	35 472 531	30 256 447	65 632 406	3 431 375

<sup>1</sup>Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during the year.

<sup>4</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.



**Table 2. Industry Statistics for Selected States: 2002**

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E <sup>1</sup>	All establishments <sup>2</sup>		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
<b>326199, All other plastics product manufacturing</b>												
United States .....	1	7 847	3 944	488 278	15 035 083	378 110	746 815	9 680 220	40 852 050	32 073 072	72 893 593	3 304 805
Alabama .....	1	73	38	5 691	164 615	4 686	8 575	119 951	366 451	421 412	787 856	46 400
Arizona .....	1	116	46	5 176	160 517	3 854	7 466	93 944	398 890	292 351	685 637	29 074
Arkansas .....	1	77	45	5 532	137 452	4 475	8 979	90 735	450 061	372 944	816 945	35 120
California .....	1	958	417	44 414	1 410 428	32 817	65 856	810 289	3 727 912	2 752 523	6 480 958	221 274
Colorado .....	3	107	37	3 187	102 755	2 359	4 735	60 330	250 541	161 926	415 310	13 805
Connecticut .....	2	121	51	5 282	171 254	4 256	8 423	112 967	408 988	322 050	731 429	35 609
Delaware .....	—	17	11	1 019	34 537	725	1 451	18 022	92 039	95 738	187 392	2 651
Florida .....	2	323	97	8 460	249 033	6 588	13 047	162 000	691 853	444 768	1 138 559	35 569
Georgia .....	1	174	99	10 627	306 608	8 222	16 592	204 949	846 010	760 866	1 966 592	73 926
Idaho .....	—	42	9	793	20 572	620	1 284	14 532	85 094	47 662	131 562	5 985
Illinois .....	1	484	278	36 900	1 195 294	28 222	56 832	747 867	3 407 826	2 683 953	6 126 262	228 963
Indiana .....	1	307	187	26 206	808 725	19 957	40 377	551 043	2 158 144	1 604 529	3 742 476	180 435
Iowa .....	1	82	50	5 840	155 563	5 054	9 937	118 631	427 161	370 619	797 750	30 886
Kansas .....	—	73	36	6 229	191 542	5 124	10 388	133 764	636 174	441 678	1 072 437	96 656
Kentucky .....	2	97	65	9 656	272 472	7 844	15 166	191 542	771 725	699 870	1 473 172	91 683
Louisiana .....	2	49	19	1 483	43 952	1 047	2 198	24 351	97 937	102 613	198 176	10 711
Maine .....	1	23	10	1 002	30 397	829	1 674	20 023	139 361	72 847	212 784	7 823
Maryland .....	2	68	38	5 374	179 343	3 981	6 869	105 962	626 430	332 619	954 082	101 178
Massachusetts .....	1	221	110	12 004	369 145	9 179	16 433	230 916	1 212 499	752 006	1 966 746	81 708
Michigan .....	1	544	327	47 852	1 512 041	37 294	74 292	969 305	4 139 078	3 417 495	7 568 035	253 662
Minnesota .....	2	214	105	12 714	413 828	9 717	19 405	263 549	1 060 337	661 428	1 704 648	82 754
Mississippi .....	1	55	29	3 228	88 866	2 635	4 814	59 711	257 038	245 629	500 953	26 954
Missouri .....	1	153	74	11 518	331 139	8 984	16 894	214 515	790 899	717 162	1 525 397	128 440
Nebraska .....	2	39	22	2 916	83 892	2 315	4 624	55 608	196 149	165 662	358 567	38 235
Nevada .....	1	51	19	1 334	37 195	1 087	2 220	26 613	108 992	86 302	193 445	14 326
New Hampshire .....	1	51	20	3 476	116 457	2 676	5 247	73 570	225 581	177 007	401 450	15 783
New Jersey .....	2	275	137	15 699	479 886	11 681	23 471	283 863	1 106 566	931 449	2 047 579	65 942
New York .....	3	366	158	16 043	509 127	12 439	24 625	312 257	1 240 383	851 795	2 083 415	68 633
North Carolina .....	2	200	116	13 331	394 177	10 598	20 405	261 858	1 233 995	893 643	2 116 080	112 144
Ohio .....	1	558	332	46 458	1 378 382	36 127	71 554	937 429	3 802 023	3 230 817	7 016 962	376 195
Oklahoma .....	2	62	20	2 822	84 314	1 875	3 659	47 849	287 905	205 628	494 424	20 333
Oregon .....	1	100	33	3 953	120 480	3 033	6 053	74 303	326 824	223 511	546 859	13 970
Pennsylvania .....	1	356	210	26 901	837 069	21 249	43 050	553 702	2 164 607	1 605 380	3 757 245	172 785
Rhode Island .....	2	53	27	2 518	81 879	1 947	3 994	50 969	173 776	108 188	284 123	15 536
South Carolina .....	1	101	57	7 588	244 275	6 022	12 073	159 581	774 202	603 494	1 376 227	73 266
South Dakota .....	1	22	9	643	15 949	529	1 096	12 192	36 446	21 312	57 296	1 668
Tennessee .....	1	164	103	12 777	376 788	10 170	20 196	250 208	1 052 699	967 169	2 018 410	149 730
Texas .....	2	414	185	20 499	585 673	16 607	30 958	399 929	1 483 531	1 535 039	3 029 012	117 965
Utah .....	3	71	28	2 117	61 108	1 683	3 300	41 485	150 311	100 436	247 156	7 565
Vermont .....	4	24	11	1 286	41 843	1 024	2 055	26 316	118 512	73 896	189 985	7 929
Virginia .....	2	80	51	11 409	401 659	8 148	17 287	253 403	1 194 230	794 662	1 991 282	47 297
Washington .....	2	126	59	6 060	192 410	4 610	9 273	123 469	583 751	435 073	1 014 182	34 450
West Virginia .....	—	23	10	2 156	64 310	1 554	3 075	34 440	160 900	135 161	304 459	10 005
Wisconsin .....	1	268	143	16 778	541 255	13 221	25 015	358 429	1 298 314	1 093 113	2 386 012	114 027

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 3. Detailed Statistics by Industry: 2002**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
<b>326199, All other plastics product manufacturing</b>	
Companies <sup>1</sup> .....	number.. 6 701
All establishments <sup>2</sup> .....	number.. 7 847
Establishments with 1 to 19 employees .....	number.. 3 903
Establishments with 20 to 99 employees .....	number.. 2 588
Establishments with 100 employees or more .....	number.. 1 356
All employees <sup>3</sup> .....	number.. 488 278
Total compensation .....	\$1,000.. 18 570 759
Annual payroll .....	\$1,000.. 15 035 083
Total fringe benefits .....	\$1,000.. 3 535 676
Production workers, average for year .....	number.. 378 110
Production workers on March 12 .....	number.. 374 294
Production workers on May 12 .....	number.. 380 946
Production workers on August 12 .....	number.. 381 112
Production workers on November 12 .....	number.. 375 289
Production worker hours .....	1,000.. 746 815
Production worker wages .....	\$1,000.. 9 680 220
Total cost of materials .....	\$1,000.. 32 073 072
Materials, parts, containers, packaging, etc., used .....	\$1,000.. 28 164 180
Resales .....	\$1,000.. 1 824 775
Purchased fuels .....	\$1,000.. 183 567
Purchased electricity .....	\$1,000.. 1 199 584
Contract work .....	\$1,000.. 700 966
Quantity of electricity purchased for heat and power .....	1,000 kWh.. 20 524 857
Quantity of electricity generated less sold for heat and power .....	1,000 kWh.. D
Total value of shipments .....	\$1,000.. 72 893 593
Primary products value of shipments .....	\$1,000.. 66 322 073
Secondary products value of shipments .....	\$1,000.. 3 718 639
Total miscellaneous receipts .....	\$1,000.. 2 852 881
Value of resales .....	\$1,000.. 2 556 728
Contract receipts .....	\$1,000.. 129 694
Other miscellaneous receipts .....	\$1,000.. 166 459
Primary products specialization ratio .....	percent.. 95
Value of primary products shipments made in all industries .....	\$1,000.. 69 538 725
Value of primary products shipments made in this industry .....	\$1,000.. 66 322 073
Value of primary products shipments made in other industries .....	\$1,000.. 3 216 652
Coverage ratio .....	percent.. 95
Value added .....	\$1,000.. 40 852 050
Total inventories, beginning of year .....	\$1,000.. 6 205 290
Finished goods inventories .....	\$1,000.. 2 903 468
Work-in-process inventories .....	\$1,000.. 857 461
Materials and supplies inventories .....	\$1,000.. 2 444 370
Total inventories, end of year .....	\$1,000.. 6 281 679
Finished goods inventories .....	\$1,000.. 3 022 936
Work-in-process inventories .....	\$1,000.. 769 522
Materials and supplies inventories .....	\$1,000.. 2 489 223
Gross value of depreciable assets (acquisition costs) at beginning of year .....	\$1,000.. '33 708 882
Total capital expenditures (new and used) .....	\$1,000.. '3 304 805
Buildings and other structures (new and used) .....	\$1,000.. '439 851
Machinery and equipment (new and used) .....	\$1,000.. '2 864 954
Automobiles, trucks, etc., for highway use .....	\$1,000.. '87 583
Computers and peripheral data processing equipment .....	\$1,000.. '171 443
All other expenditures for machinery and equipment .....	\$1,000.. '2 605 928
Total retirements .....	\$1,000.. '1 627 808
Gross value of depreciable assets at end of year .....	\$1,000.. '35 385 879
Depreciation charges during year .....	\$1,000.. '2 688 608
Total rental payments .....	\$1,000.. 1 080 859
Buildings and other structures .....	\$1,000.. 696 464
Machinery and equipment .....	\$1,000.. 384 395
Total other expenses <sup>4</sup> .....	\$1,000.. 6 003 729
Response coverage ratio <sup>5</sup> .....	percent.. 79
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	\$1,000.. 726 552
Communications services <sup>4</sup> .....	\$1,000.. 121 771
Legal services <sup>4</sup> .....	\$1,000.. 88 771
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	\$1,000.. 57 725
Advertising and promotional services <sup>4</sup> .....	\$1,000.. 206 964
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	\$1,000.. 84 721
Refuse removal (including hazardous waste) services <sup>4</sup> .....	\$1,000.. 93 371
Management consulting and administrative services <sup>4</sup> .....	\$1,000.. 141 969
Taxes and license fees <sup>4</sup> .....	\$1,000.. 224 765
All other expenses <sup>4</sup> .....	\$1,000.. 4 257 121

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Based on 2002 Annual Survey of Manufactures (ASM) sample data.

<sup>5</sup>A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 4. Industry Statistics by Employment Size: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E <sup>1</sup>	All establishments <sup>2</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
326199, All other plastics product manufacturing											
All establishments .....	1	7 847	488 278	15 035 083	378 110	746 815	9 680 220	40 852 050	32 073 072	72 893 593	'3 304 805
Establishments with—											
1 to 4 employees .....	8	1 683	3 480	103 170	2 943	5 434	71 426	254 167	203 830	460 231	'15 303
5 to 9 employees .....	7	944	6 507	202 685	5 196	10 356	137 010	500 968	407 500	911 085	'30 736
10 to 19 employees .....	5	1 276	17 643	559 152	13 686	27 114	355 790	1 409 673	1 152 023	2 569 333	'99 955
20 to 49 employees .....	2	1 555	50 818	1 557 305	38 786	76 835	968 557	3 981 892	2 926 433	6 913 077	'264 364
50 to 99 employees .....	1	1 033	74 342	2 273 922	57 142	112 864	1 426 792	6 183 104	4 717 817	10 912 995	'483 355
100 to 249 employees .....	1	951	147 736	4 499 937	115 963	229 981	2 890 719	12 522 829	9 882 857	22 376 345	'995 495
250 to 499 employees .....	1	302	103 310	3 278 665	82 031	164 903	2 182 984	9 226 386	7 446 455	16 634 276	'842 809
500 to 999 employees .....	—	81	53 882	1 695 788	41 265	82 257	1 113 535	4 363 307	3 355 506	7 717 305	'391 969
1,000 to 2,499 employees .....	—	22	30 560	864 459	21 098	37 071	533 407	2 409 724	1 980 651	4 398 946	'180 819
2,500 employees or more .....	—	—	—	—	—	—	—	—	—	—	—
Administrative records <sup>4</sup> .....	9	2 725	15 827	489 036	13 361	26 461	340 962	1 142 686	955 550	2 097 521	'70 589

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1—10 to 19 percent; 2—20 to 29 percent; 3—30 to 39 percent; 4—40 to 49 percent; 5—50 to 59 percent; 6—60 to 69 percent; 7—70 to 79 percent; 8—80 to 89 percent; 9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 5. Industry Statistics by Primary Product Class Specialization: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments <sup>1</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>2</sup>	Payroll (\$1,000)	Number <sup>2</sup>	Hours (1,000)	Wages (\$1,000)				
326199	All other plastics product manufacturing .....	7 847	488 278	15 035 083	378 110	746 815	9 680 220	40 852 050	32 073 072	72 893 593	'3 304 805
3261991	Transportation fabricated plastics products (excluding foam and reinforced plastics) .....	667	109 638	3 365 707	83 634	163 674	2 169 455	8 254 470	7 475 818	15 748 167	'704 370
3261992	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics) .....	337	36 365	1 077 062	28 306	54 161	697 101	2 688 035	2 206 871	4 889 618	'207 178
3261993	Industrial machinery plastics products, excluding foam (including gears, bearings, bushings, cams, and other components) .....	133	10 660	335 448	8 413	16 688	217 047	896 761	540 421	1 423 166	'78 137
3261994	Plastics packaging (excluding film and sheet, foam, and bottles) .....	454	53 337	1 824 595	42 426	87 110	1 194 175	5 430 496	3 884 315	9 281 780	'558 067
3261995	Plastics dinnerware, tableware, kitchenware, and oven-microwave ware (excluding foam and cups) ...	48	10 835	329 571	8 696	17 888	221 876	1 227 625	775 052	2 004 520	'117 767
3261998	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics) .....	547	57 454	1 761 569	42 674	86 582	1 088 970	4 870 762	4 351 193	9 209 610	'307 943
3261999	Plastics shoe products, including taps, soiling slabs, and quarterlinings .....	8	1 079	33 687	797	1 546	19 338	105 172	44 524	149 068	'3 110
326199A	All other reinforced and fiberglass plastics products .....	408	34 099	1 042 546	26 603	52 916	665 737	2 726 244	2 428 318	5 165 925	'134 596
326199B	Consumer, institutional, and commercial fabricated plastics products (excluding foam and wire coated) .....	905	108 939	3 298 453	83 557	162 385	2 099 254	10 292 460	7 023 775	17 323 933	'899 897

<sup>1</sup>Includes establishments with payroll at any time during the year.

<sup>2</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 6a. Products Statistics: 2002 and 1997**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
326199	All other plastics product manufacturing .....	2002.. N 1997.. N	X X	X X	69 538 725 61 936 258
3261991	Transportation fabricated plastics products (excluding foam and reinforced plastics) .....	2002.. N 1997.. N	X X	X X	14 645 794 12 906 473
32619911	Transportation fabricated plastics products (excluding foam and reinforced plastics) .....	2002.. N 1997.. N	X X	X X	14 118 009 11 851 135
3261991111	Fabricated plastics components, housings, accessories, and parts for motor vehicles (excluding foam and reinforced plastics) .....	2002.. 524 1997.. 725	X X	X X	12 485 863 10 576 165
3261991121	Fabricated plastics components, housings, accessories, and parts for aircraft, space equipment and missiles (excluding foam and reinforced plastics) .....	2002.. 101 1997.. 123	X X	X X	702 191 546 500
3261991131	Other fabricated plastics components, housings, accessories, and parts for other transportation equipment (excluding foam and reinforced plastics) .....	2002.. 137 1997.. 225	X X	X X	929 955 728 470
3261991Y	Transportation fabricated plastics products (excluding foam and reinforced plastics), nsk .....	2002.. N 1997.. N	X X	X X	527 785 1 055 338
3261991YVV	Transportation fabricated plastics products (excluding foam and reinforced plastics), nsk .....	2002.. N 1997.. N	X X	X X	527 785 1 055 338
3261992	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics) .....	2002.. N 1997.. N	X X	X X	4 600 998 5 285 347
32619921	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics) .....	2002.. N 1997.. N	X X	X X	4 229 950 4 709 357
3261992111	Electrical and electronic fabricated plastics products for office, computing and accounting machines, cash registers, and data processing machines (excluding foam and reinforced plastics) .....	2002.. 156 1997.. 264	X X	X X	1 277 940 1 092 611
3261992121	Electrical and electronic fabricated plastics products for household and commercial appliances (excluding foam and reinforced plastics) .....	2002.. 190 1997.. 301	X X	X X	1 346 789 1 395 552
3261992131	Electrical and electronic fabricated plastics products for communications equipment (excluding foam and reinforced plastics) .....	2002.. 115 1997.. 190	X X	X X	485 773 641 629
3261992191	Other electrical and electronic fabricated plastics products, including wiring devices and parts (excluding foam and reinforced plastics) .....	2002.. 285 1997.. 437	X X	X X	1 119 448 1 579 565
3261992Y	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics), nsk .....	2002.. N 1997.. N	X X	X X	371 048 575 990
3261992YVV	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics), nsk .....	2002.. N 1997.. N	X X	X X	371 048 575 990
3261993	Industrial machinery plastics products, excluding foam (including gears, bearings, bushings, cams, and other components) .....	2002.. N 1997.. N	X X	X X	1 459 959 1 275 735
32619931	Industrial machinery plastics products, excluding foam (including gears, bearings, bushings, cams, and other components) .....	2002.. N 1997.. N	X X	X X	1 459 959 1 275 735
3261993100	Industrial machinery plastics products, excluding foam (including gears, bearings, bushings, cams, and other components) .....	2002.. 269 1997.. 498	X X	X X	1 459 959 1 275 735
3261994	Plastics packaging (excluding film and sheet, foam, and bottles) .....	2002.. N 1997.. N	X X	X X	8 979 905 8 369 157
32619941	Plastics packaging (excluding film and sheet, foam, and bottles) .....	2002.. N 1997.. N	X X	X X	8 403 067 7 654 134
3261994111	Plastics pails and drums, more than 3 gallons .....	2002.. 72 1997.. 56	X X	X X	1 566 945 1 146 746
3261994115	Plastics tubs (for food products) .....	2002.. 35 1997.. 37	X X	X X	948 056 575 217
3261994121	Plastics jars (for toilet goods, cosmetics, and food products) .....	2002.. 26 1997.. 43	X X	X X	302 732 228 957
3261994125	Plastics blister and bubble formed packaging .....	2002.. 41 1997.. 63	X X	X X	348 404 279 272
3261994131	Plastics shipping boxes and cases .....	2002.. 61 1997.. 75	X X	X X	428 242 460 293
3261994135	Plastics food trays (baskets, shipping boxes, and cases) (excluding foam) .....	2002.. 49 1997.. 62	X X	X X	551 705 582 454
3261994141	Plastics pallets .....	2002.. 32 1997.. 32	X X	X X	201 786 156 138
3261994145	Plastics closures, nonpressure, child-resistant, for prescription products .....	2002.. 10 1997.. 10	X X	X X	137 376 86 093
3261994151	All other plastics closures, nonpressure, including nonprescription .....	2002.. 25 1997.. 20	X X	X X	185 205 189 189
3261994155	Plastics closures, nonpressure and nonchild-resistant, including dispensing and nondispensing .....	2002.. 46 1997.. 60	X X	X X	751 885 914 478

See footnotes at end of table.

**Table 6a. Products Statistics: 2002 and 1997—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
326199	All other plastics product manufacturing—Con.				
3261994	Plastics packaging (excluding film and sheet, foam, and bottles)—Con.				
32619941	Plastics packaging (excluding film and sheet, foam, and bottles)—Con.				
3261994161	Plastics closures for glass, metal, or plastics pressure containers .....	2002.. 44	X	X	902 747
		1997.. 62	X	X	595 744
3261994191	Other plastics packaging .....	2002.. 151	X	X	2 077 984
		1997.. 226	X	X	2 439 553
3261994Y	Plastics packaging (excluding film and sheet, foam, and bottles), nsk .....	2002.. N	X	X	576 838
		1997.. N	X	X	715 023
3261994YVW	Plastics packaging (excluding film and sheet, foam, and bottles), nsk .....	2002.. N	X	X	576 838
		1997.. N	X	X	715 023
3261995	Plastics dinnerware, tableware, kitchenware, and oven-microwave ware (excluding foam and cups) .....	2002.. N	X	X	2 172 875
		1997.. N	X	X	1 676 248
32619951	Plastics dinnerware, tableware, kitchenware, and oven-microwave ware (excluding foam and cups) .....	2002.. N	X	X	2 136 736
		1997.. N	X	X	1 549 717
3261995111	Plastics dinnerware and tableware .....	2002.. 58	X	X	1 337 829
		1997.. 57	X	X	877 681
3261995121	Plastics kitchenware .....	2002.. 42	X	X	650 026
		1997.. 64	X	X	609 169
3261995131	Plastics oven/microwave ware (for use in conventional and microwave ovens) .....	2002.. 18	X	X	148 881
		1997.. 14	X	X	62 867
3261995Y	Plastics dinnerware, tableware, kitchenware, and oven-microwave ware (excluding foam and cups), nsk .....	2002.. N	X	X	36 139
		1997.. N	X	X	126 531
3261995YVW	Plastics dinnerware, tableware, kitchenware, and oven-microwave ware (excluding foam and cups), nsk .....	2002.. N	X	X	36 139
		1997.. N	X	X	126 531
326199B	Consumer, institutional, and commercial fabricated plastics products (excluding foam and wire coated) .....	2002.. N	X	X	16 135 142
		1997.. N	X	X	N
326199B1	Plastics furniture components and furnishings (excluding foam and reinforced plastics) .....	2002.. N	X	X	15 300 740
		1997.. N	X	X	N
326199B111	Plastics cups (vending machines, over-the-counter, carryout, etc.) (excluding foam) .....	2002.. 124	X	X	3 794 897
		1997.. N	X	X	N
326199B115	Plastics sinkware (flatware, dish drainers, drainer trays and mats, sink mats, sink strainers, dustpans, soapdishes, etc.) (excluding foam and wire coated) .....	2002.. 18	X	X	274 174
		1997.. N	X	X	N
326199B121	Plastics bathware (shower and bath caddies, shower and bathmats, tissue holders, toothbrush holders, toilet bowl brushes, etc.) (excluding foam and wire coated) .....	2002.. 32	X	X	202 229
		1997.. N	X	X	N
326199B125	Plastics utility containers (buckets, pails, laundry baskets, vegetable bins, dishpans, etc.) (excluding foam) .....	2002.. 64	X	X	710 050
		1997.. N	X	X	N
326199B131	Plastics organizers and holders for closets, drawers, and shelves (paper towel holders, dust mop and broom holders, etc.) (excluding foam and wire coated) .....	2002.. 55	X	X	691 605
		1997.. N	X	X	N
326199B135	Plastics wastebaskets (excluding foam) .....	2002.. 22	X	X	198 095
		1997.. N	X	X	N
326199B141	Plastics garbage and trash containers (excluding trash bags) (excluding foam) .....	2002.. 36	X	X	516 219
		1997.. N	X	X	N
326199B145	Plastics grower flowerpots and accessories (excluding foam and wire coated) .....	2002.. 30	X	X	224 611
		1997.. N	X	X	N
326199B151	Plastics decorative flowerpots, flower boxes, planters, and accessories (excluding foam and wire coated) .....	2002.. 42	X	X	148 671
		1997.. N	X	X	N
326199B155	Plastics picnic jugs, cooler chests, and ice buckets (excluding foam) .....	2002.. 18	X	X	411 524
		1997.. N	X	X	N
326199B161	Plastics hardware (clamps, handles, hinges, locks, casters, knobs, nails, etc.) (excluding foam and wire coated) .....	2002.. 93	X	X	371 621
		1997.. N	X	X	N
326199B165	Plastics hospitalware (pitchers, wash basins, trays, bedpans, etc.) (excluding foam and wire coated) .....	2002.. 66	X	X	307 602
		1997.. N	X	X	N
326199B171	Plastics laboratory ware (petri dishes, flasks, funnels, etc.) (excluding foam and wire coated) .....	2002.. 70	X	X	490 676
		1997.. N	X	X	N
326199B175	Plastics individual packing boxes and cases for consumer products (excluding foam) .....	2002.. 46	X	X	325 504
		1997.. N	X	X	N
326199B181	Plastics sponges and scrubbing pads (excluding foam) .....	2002.. 17	X	X	67 963
		1997.. N	X	X	N
326199B185	Other consumer, institutional, and commercial plastics products (excluding foam and wire coated) .....	2002.. 739	X	X	6 560 379
		1997.. N	X	X	N
326199B186	Plastics lamp shades .....	2002.. 6	X	X	4 920
		1997.. N	X	X	N
326199BY	Consumer, institutional, and commercial fabricated plastics products (excluding foam and wire coated), nsk .....	2002.. N	X	X	834 402
		1997.. N	X	X	N
326199BYVW	Consumer, institutional, and commercial fabricated plastics products (excluding foam and wire coated), nsk .....	2002.. N	X	X	834 402
		1997.. N	X	X	N

See footnotes at end of table.

**Table 6a. Products Statistics: 2002 and 1997—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
326199	All other plastics product manufacturing—Con.				
3261998	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics) .....	2002.. N	X	X	9 003 337
		1997.. N	X	X	6 995 294
32619981	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics) .....	2002.. N	X	X	8 701 162
		1997.. N	X	X	6 893 416
3261998111	Plastics corrugated and flat panels (excluding foam and reinforced plastics) .....	2002.. 33	X	X	450 636
		1997.. 31	X	X	176 354
3261998131	Plastics doors, partitions, moldings, windows and frames, and decorative trim (excluding foam, hardware, and reinforced plastics) .....	2002.. 283	X	X	4 613 663
		1997.. 381	X	X	3 348 619
3261998141	Plastics siding and accessories (including soffit, fascia, and skirts) (excluding foam and reinforced plastics) .....	2002.. 28	X	X	1 602 847
		1997.. 49	X	X	1 569 172
3261998152	Building and construction plastics fittings and unions, other than pipe (excluding foam, plumbing fixtures, hardware, and reinforced plastics) .....	2002.. 43	X	X	324 402
		1997.. 40	X	X	253 478
3261998171	Plastics wall and counter coverings, including wall and ceiling tile (excluding foam and reinforced plastics) .....	2002.. 265	X	X	501 332
		1997.. 93	X	X	249 717
3261998181	Plastics swimming pool liners and covers (excluding foam and reinforced plastics) .....	2002.. 29	X	X	137 473
		1997.. 24	X	X	81 975
3261998191	Other building and construction plastics products (excluding foam and reinforced plastics) .....	2002.. 176	X	X	1 070 809
		1997.. 285	X	X	1 214 101
3261998Y	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics), nsk .....	2002.. N	X	X	302 175
		1997.. N	X	X	101 878
3261998YVV	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics), nsk .....	2002.. N	X	X	302 175
		1997.. N	X	X	101 878
3261999	Plastics shoe products, including taps, soling slabs, and quarterlinings .....	2002.. N	X	X	155 175
		1997.. N	X	X	189 826
32619991	Plastics shoe products, including taps, soling slabs, and quarterlinings .....	2002.. N	X	X	155 175
		1997.. N	X	X	189 826
3261999100	Plastics shoe products, including taps, soling slabs, and quarterlinings .....	2002.. 16	X	X	155 175
		1997.. 21	X	X	189 826
326199A	All other reinforced and fiberglass plastics products .....	2002.. N	X	X	5 305 609
		1997.. N	X	X	4 960 629
326199A1	Reinforced and fiberglass plastics products .....	2002.. N	X	X	5 053 988
		1997.. N	X	X	4 272 117
326199A111	Transportation reinforced and fiberglass plastics products .....	2002.. 140	X	X	1 251 645
		1997.. 126	X	X	1 302 893
326199A121	Electrical and electronic reinforced and fiberglass plastics products .....	2002.. 83	X	X	573 874
		1997.. 109	X	X	722 374
326199A131	Building and construction reinforced and fiberglass plastics products .....	2002.. 116	X	X	911 622
		1997.. 122	X	X	874 164
326199A141	Other fabricated fiberglass and reinforced products (excluding furniture) .....	2002.. 261	X	X	2 316 847
		1997.. 327	X	X	1 372 686
326199AY	All other reinforced and fiberglass plastics products, nsk .....	2002.. N	X	X	251 621
		1997.. N	X	X	688 512
326199AYVV	All other reinforced and fiberglass plastics products, nsk .....	2002.. N	X	X	251 621
		1997.. N	X	X	688 512
326199W	All other plastics product manufacturing, nsk, total .....	2002.. N	X	X	7 079 931
		1997.. N	X	X	6 407 900
326199WY	All other plastics product manufacturing, nsk, total .....	2002.. N	X	X	7 079 931
		1997.. N	X	X	6 407 900
326199WYVV	All other plastics product manufacturing, nsk, for nonadministrative-record establishments .....	2002.. N	X	X	5 063 049
		1997.. N	X	X	5 520 234
326199WYVY	All other plastics product manufacturing, nsk, for administrative-record establishments .....	2002.. N	X	X	2 016 882
		1997.. N	X	X	887 666

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p–10 to 19 percent estimated; q–20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 6b. Product Class Shipments for Selected States: 2002 and 1997**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
3261991	Transportation fabricated plastics products (excluding foam and reinforced plastics)	
	United States .....	2002.. 14 645 794
	.....	1997.. 12 906 473
	Alabama .....	2002.. 144 446
	.....	1997.. 35 595
	Arizona .....	2002.. 29 825
	.....	1997.. N
	Arkansas .....	2002.. 23 687
	.....	1997.. 71 686
	California .....	2002.. 686 916
	.....	1997.. 529 013
	Colorado .....	2002.. 7 445
	.....	1997.. 9 451
	Connecticut .....	2002.. 29 816
	.....	1997.. 53 072
	Florida .....	2002.. 124 368
	.....	1997.. 140 217
	Georgia .....	2002.. 133 476
	.....	1997.. 163 282
	Idaho .....	2002.. 2 610
	.....	1997.. 5 972
	Illinois .....	2002.. 617 006
	.....	1997.. 699 680
	Indiana .....	2002.. 1 106 000
	.....	1997.. 1 074 674
	Iowa .....	2002.. 67 387
	.....	1997.. 131 980
	Kansas .....	2002.. 23 110
	.....	1997.. 39 170
	Kentucky .....	2002.. 427 937
	.....	1997.. 374 183
	Maryland .....	2002.. 59 167
	.....	1997.. 36 085
	Massachusetts .....	2002.. 84 542
	.....	1997.. 150 060
	Michigan .....	2002.. 4 698 469
	.....	1997.. 4 224 059
	Minnesota .....	2002.. 195 343
	.....	1997.. 102 415
	Missouri .....	2002.. 357 993
	.....	1997.. 264 605
	Nebraska .....	2002.. 47 813
	.....	1997.. 45 394
	New Jersey .....	2002.. 71 751
	.....	1997.. 14 502
	New York .....	2002.. 198 595
	.....	1997.. 212 731
North Carolina .....	2002.. 428 742	
.....	1997.. 198 462	
Ohio .....	2002.. 2 095 207	
.....	1997.. 1 929 303	
Oregon .....	2002.. 11 930	
.....	1997.. 18 382	
Pennsylvania .....	2002.. 288 608	
.....	1997.. 331 560	
South Carolina .....	2002.. 488 336	
.....	1997.. 136 715	
Tennessee .....	2002.. 507 080	
.....	1997.. 603 848	
Texas .....	2002.. 389 410	
.....	1997.. 255 664	
Washington .....	2002.. 65 714	
.....	1997.. 71 121	
Wisconsin .....	2002.. 508 377	
.....	1997.. 246 454	
3261992	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics)	
	United States .....	2002.. 4 600 998
	.....	1997.. 5 285 347
	Arizona .....	2002.. 91 530
	.....	1997.. 127 065
	Arkansas .....	2002.. 123 622
	.....	1997.. 102 368
	California .....	2002.. 439 309
	.....	1997.. 747 810
	Colorado .....	2002.. 29 755
	.....	1997.. 161 131
	Connecticut .....	2002.. 57 972
	.....	1997.. 94 167
	Florida .....	2002.. 15 465
	.....	1997.. 146 080
	Georgia .....	2002.. 55 843
	.....	1997.. 103 350
	Idaho .....	2002.. 10 568
	.....	1997.. N
	Illinois .....	2002.. 428 525
	.....	1997.. 430 097
	Indiana .....	2002.. 302 769
	.....	1997.. 356 317
Iowa .....	2002.. 64 283	
.....	1997.. 66 381	
Kansas .....	2002.. 23 171	
.....	1997.. 10 872	
Kentucky .....	2002.. 198 849	
.....	1997.. 165 792	
Maryland .....	2002.. 14 195	
.....	1997.. 24 219	
Massachusetts .....	2002.. 149 996	
.....	1997.. 144 214	
Michigan .....	2002.. 210 075	
.....	1997.. 193 515	

See footnotes at end of table.



Table 6b. **Product Class Shipments for Selected States: 2002 and 1997—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
3261992	Electrical and electronic fabricated plastics (excluding foam and reinforced plastics)—Con.	
	United States—Con.	
	Minnesota .....	2002 .. 112 829
	Mississippi .....	1997 .. 153 198
	Missouri .....	2002 .. 14 010
	Nebraska .....	1997 .. 6 284
	New Jersey .....	2002 .. 38 913
	New York .....	1997 .. 38 021
	North Carolina .....	2002 .. 16 473
	Ohio .....	1997 .. N
	Oklahoma .....	2002 .. 204 544
	Oregon .....	1997 .. 142 880
	Pennsylvania .....	2002 .. 212 900
	Rhode Island .....	1997 .. 155 012
	South Carolina .....	2002 .. 84 221
	Tennessee .....	1997 .. 203 218
	Texas .....	2002 .. 511 013
	Utah .....	1997 .. 351 733
	Virginia .....	2002 .. 12 137
	Washington .....	1997 .. 32 779
	Wisconsin .....	2002 .. 54 152
	Wisconsin .....	1997 .. 83 942
	Wisconsin .....	2002 .. 163 539
	Wisconsin .....	1997 .. 239 523
	Wisconsin .....	2002 .. 16 062
	Wisconsin .....	1997 .. 51 758
	Wisconsin .....	2002 .. 75 419
	Wisconsin .....	1997 .. 119 213
	Wisconsin .....	2002 .. 118 487
Wisconsin .....	1997 .. 132 001	
Wisconsin .....	2002 .. 259 836	
Wisconsin .....	1997 .. 243 015	
Wisconsin .....	2002 .. 20 116	
Wisconsin .....	1997 .. N	
Wisconsin .....	2002 .. 31 754	
Wisconsin .....	1997 .. 37 952	
Wisconsin .....	2002 .. 27 772	
Wisconsin .....	1997 .. 74 723	
Wisconsin .....	2002 .. 331 168	
Wisconsin .....	1997 .. 231 465	
3261993	Industrial machinery plastics products, excluding foam (including gears, bearings, bushings, cams, and other components)	
	United States .....	2002 .. 1 459 959
	Arkansas .....	1997 .. 1 275 735
	California .....	2002 .. 35 674
	Colorado .....	1997 .. N
	Connecticut .....	2002 .. 67 747
	Georgia .....	1997 .. 113 539
	Illinois .....	2002 .. 11 278
	Indiana .....	1997 .. 25 544
	Iowa .....	2002 .. 28 408
	Maryland .....	1997 .. 34 894
	Massachusetts .....	2002 .. 15 479
	Michigan .....	1997 .. 2 613
	Minnesota .....	2002 .. 230 386
	Mississippi .....	1997 .. 103 023
	Missouri .....	2002 .. 94 785
	Nebraska .....	1997 .. 32 292
	New Jersey .....	2002 .. 55 504
	New York .....	1997 .. 47 627
	North Carolina .....	2002 .. 3 343
	Ohio .....	1997 .. 4 434
	Oregon .....	2002 .. 28 178
	Pennsylvania .....	1997 .. 36 369
	Tennessee .....	2002 .. 89 388
	Texas .....	1997 .. 70 245
	Wisconsin .....	2002 .. 28 633
	Wisconsin .....	1997 .. 80 326
	Wisconsin .....	2002 .. 59 603
	Wisconsin .....	1997 .. 27 082
Wisconsin .....	2002 .. 42 248	
Wisconsin .....	1997 .. 48 082	
Wisconsin .....	2002 .. 52 331	
Wisconsin .....	1997 .. 80 881	
Wisconsin .....	2002 .. 18 711	
Wisconsin .....	1997 .. 7 939	
Wisconsin .....	2002 .. 63 654	
Wisconsin .....	1997 .. 85 294	
Wisconsin .....	2002 .. 3 587	
Wisconsin .....	1997 .. 2 941	
Wisconsin .....	2002 .. 61 675	
Wisconsin .....	1997 .. 32 698	
Wisconsin .....	2002 .. 82 261	
Wisconsin .....	1997 .. 89 501	
3261994	Plastics packaging (excluding film and sheet, foam, and bottles)	
	United States .....	2002 .. 8 979 905
	Alabama .....	1997 .. 8 369 157
	Arizona .....	2002 .. 72 304
	Arkansas .....	1997 .. 87 934
	California .....	2002 .. 83 507
	Colorado .....	1997 .. 58 825
	Connecticut .....	2002 .. 150 627
	Florida .....	1997 .. 69 404
	Georgia .....	2002 .. 612 032
	Illinois .....	1997 .. 780 122
	Indiana .....	2002 .. 55 318
	Iowa .....	1997 .. 86 743
Kansas .....	2002 .. 224 520	

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 2002 and 1997—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
3261994	Plastics packaging (excluding film and sheet, foam, and bottles)—Con.		
	United States—Con.		
	1997..	130 202	
	2002..	104 042	
Florida	1997..	100 789	
	2002..	422 656	
Georgia	1997..	235 230	
	2002..	1 001 479	
Illinois	1997..	930 274	
	2002..	715 131	
Indiana	1997..	513 932	
	2002..	91 309	
Iowa	1997..	120 427	
	2002..	63 575	
Kansas	1997..	22 068	
	2002..	321 248	
Kentucky	1997..	243 251	
	2002..	16 506	
Louisiana	1997..	33 099	
	2002..	105 947	
Maryland	1997..	126 792	
	2002..	165 715	
Massachusetts	1997..	223 064	
	2002..	453 603	
Michigan	1997..	358 000	
	2002..	154 739	
Minnesota	1997..	317 954	
	2002..	230 647	
Missouri	1997..	251 437	
	2002..	58 649	
Nevada	1997..	71 630	
	2002..	70 462	
New Hampshire	1997..	N	
	2002..	438 627	
New Jersey	1997..	473 303	
	2002..	277 089	
New York	1997..	280 299	
	2002..	288 327	
North Carolina	1997..	272 339	
	2002..	621 318	
Ohio	1997..	506 508	
	2002..	76 115	
Oklahoma	1997..	55 382	
	2002..	76 769	
Oregon	1997..	36 676	
	2002..	754 281	
Pennsylvania	1997..	579 269	
	2002..	121 923	
Rhode Island	1997..	125 964	
	2002..	125 807	
South Carolina	1997..	111 505	
	2002..	74 822	
Tennessee	1997..	58 622	
	2002..	203 802	
Texas	1997..	282 659	
	2002..	10 154	
Utah	1997..	N	
	2002..	165 327	
Virginia	1997..	274 572	
	2002..	35 297	
Washington	1997..	22 320	
	2002..	355 808	
Wisconsin	1997..	292 676	
3261995	Plastics dinnerware, tableware, kitchenware, and oven-microwave ware (excluding foam and cups)		
	United States.....	2002..	2 172 875
		1997..	1 676 248
California	2002..	419 227	
	1997..	187 314	
Georgia	2002..	106 539	
	1997..	N	
Illinois	2002..	206 767	
	1997..	227 449	
Kentucky	2002..	2 997	
	1997..	N	
Massachusetts	2002..	195 463	
	1997..	150 266	
Minnesota	2002..	21 193	
	1997..	N	
Mississippi	2002..	7 658	
	1997..	20 117	
New York	2002..	47 670	
	1997..	53 095	
Pennsylvania	2002..	193 574	
	1997..	77 101	
Texas	2002..	60 634	
	1997..	105 790	
Wisconsin	2002..	36 980	
	1997..	54 319	
3261998	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics)		
	United States.....	2002..	9 003 337
		1997..	6 995 294
Alabama	2002..	191 016	
	1997..	49 829	
Arizona	2002..	134 876	
	1997..	43 455	
Arkansas	2002..	43 552	
	1997..	32 888	

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 2002 and 1997—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
3261998	Building and construction fabricated plastics products (excluding foam, plumbing fixtures, hardware, or reinforced plastics)—Con.	
	United States—Con.	
	California .....	2002.. 621 213
	Colorado .....	1997.. 335 804
	Connecticut .....	2002.. 56 568
	Delaware .....	1997.. 32 359
	Florida .....	2002.. 41 792
	Georgia .....	1997.. 71 042
	Idaho .....	2002.. 34 781
	Illinois .....	1997.. 17 705
	Indiana .....	2002.. 106 943
	Iowa .....	1997.. 125 768
	Kansas .....	2002.. 327 171
	Kentucky .....	1997.. 164 853
	Louisiana .....	2002.. 74 022
	Maryland .....	1997.. N
	Massachusetts .....	2002.. 304 559
	Michigan .....	1997.. 235 065
	Minnesota .....	2002.. 133 072
	Mississippi .....	1997.. 177 557
	Missouri .....	2002.. 174 342
	Nebraska .....	1997.. 163 782
	Nevada .....	2002.. 247 541
	New Hampshire .....	1997.. N
	New Jersey .....	2002.. 105 420
	New York .....	1997.. 76 158
	North Carolina .....	2002.. 8 949
	Ohio .....	1997.. 8 409
	Oklahoma .....	2002.. 270 368
	Oregon .....	1997.. 177 482
	Pennsylvania .....	2002.. 147 601
	Rhode Island .....	1997.. 82 704
	South Carolina .....	2002.. 428 066
	South Dakota .....	1997.. 451 210
	Tennessee .....	2002.. 162 793
	Texas .....	1997.. 96 495
	Utah .....	2002.. 185 488
	Vermont .....	1997.. 168 307
	Virginia .....	2002.. 96 206
	Washington .....	1997.. 134 496
	Wisconsin .....	2002.. 66 825
	Wisconsin .....	1997.. 27 606
	Wisconsin .....	2002.. 59 843
	Wisconsin .....	1997.. 13 869
	Wisconsin .....	2002.. 71 705
	Wisconsin .....	1997.. 65 430
	Wisconsin .....	2002.. 537 105
	Wisconsin .....	1997.. 400 869
	Wisconsin .....	2002.. 181 374
	Wisconsin .....	1997.. 183 472
	Wisconsin .....	2002.. 385 496
	Wisconsin .....	1997.. 295 583
	Wisconsin .....	2002.. 762 476
	Wisconsin .....	1997.. 509 957
	Wisconsin .....	2002.. 25 809
	Wisconsin .....	1997.. 24 866
	Wisconsin .....	2002.. 160 396
	Wisconsin .....	1997.. 118 651
	Wisconsin .....	2002.. 782 129
	Wisconsin .....	1997.. 791 974
	Wisconsin .....	2002.. 24 535
	Wisconsin .....	1997.. 16 020
	Wisconsin .....	2002.. 39 901
	Wisconsin .....	1997.. 52 358
	Wisconsin .....	2002.. 13 311
	Wisconsin .....	1997.. N
	Wisconsin .....	2002.. 208 822
	Wisconsin .....	1997.. 243 387
	Wisconsin .....	2002.. 480 322
	Wisconsin .....	1997.. 478 697
	Wisconsin .....	2002.. 89 210
	Wisconsin .....	1997.. 68 352
	Wisconsin .....	2002.. 24 491
	Wisconsin .....	1997.. N
	Wisconsin .....	2002.. 448 335
	Wisconsin .....	1997.. 229 536
	Wisconsin .....	2002.. 286 614
	Wisconsin .....	1997.. 189 911
	Wisconsin .....	2002.. 192 176
	Wisconsin .....	1997.. 199 559
3261999	Plastics shoe products, including taps, soling slabs, and quarterlinings	
	United States .....	2002.. 155 175
	United States .....	1997.. 189 826
326199A	All other reinforced and fiberglass plastics products	
	United States .....	2002.. 5 305 609
	United States .....	1997.. 4 960 629
	Alabama .....	2002.. 181 846
	Arizona .....	1997.. 159 231
	Arkansas .....	2002.. 48 889
	California .....	1997.. 57 882
	Colorado .....	2002.. 232 872
	Florida .....	1997.. 179 558
	Florida .....	2002.. 627 212
	Florida .....	1997.. 584 860
	Florida .....	2002.. 48 545
	Florida .....	1997.. 16 056
	Florida .....	2002.. 177 348

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 2002 and 1997—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
326199A	All other reinforced and fiberglass plastics products—Con.	
	United States—Con.	
		1997.. 71 126
	Georgia .....	2002.. 85 789
		1997.. 89 353
	Illinois .....	2002.. 305 969
		1997.. 309 191
	Indiana .....	2002.. 478 526
		1997.. 531 053
	Iowa .....	2002.. 9 450
		1997.. 13 714
	Kansas .....	2002.. 20 444
		1997.. 32 960
	Louisiana .....	2002.. 59 657
		1997.. 12 723
	Massachusetts .....	2002.. 17 576
		1997.. 54 902
	Michigan .....	2002.. 335 772
		1997.. 205 820
	Minnesota .....	2002.. 99 752
		1997.. 181 408
	Missouri .....	2002.. 23 214
		1997.. 64 314
	New Hampshire .....	2002.. 11 331
		1997.. N
	New Jersey .....	2002.. 16 210
		1997.. 28 356
	New York .....	2002.. 120 772
		1997.. 175 943
	North Carolina .....	2002.. 142 980
		1997.. 61 397
	Ohio .....	2002.. 463 148
		1997.. 525 405
Oklahoma .....	2002.. 14 140	
	1997.. 26 921	
Oregon .....	2002.. 15 579	
	1997.. 30 112	
Pennsylvania .....	2002.. 421 519	
	1997.. 300 017	
South Carolina .....	2002.. 158 177	
	1997.. 71 879	
Tennessee .....	2002.. 152 892	
	1997.. 85 309	
Texas .....	2002.. 329 212	
	1997.. 316 985	
Utah .....	2002.. 4 121	
	1997.. 4 027	
Virginia .....	2002.. 199 871	
	1997.. 164 432	
Washington .....	2002.. 116 786	
	1997.. 71 801	
Wisconsin .....	2002.. 126 026	
	1997.. 164 600	
326199B	Consumer, institutional, and commercial fabricated plastics products (excluding foam and wire coated)	
	United States.....	2002.. 16 135 142
		1997.. N
	Alabama .....	2002.. 177 674
		1997.. N
	Arizona .....	2002.. 166 658
		1997.. N
	Arkansas .....	2002.. 65 982
		1997.. N
	California .....	2002.. 1 804 233
		1997.. N
	Colorado .....	2002.. 90 396
		1997.. N
	Connecticut .....	2002.. 150 360
		1997.. N
	Florida .....	2002.. 289 772
		1997.. N
	Georgia .....	2002.. 267 045
		1997.. N
	Idaho .....	2002.. 4 393
		1997.. N
	Illinois .....	2002.. 1 898 907
		1997.. N
	Indiana .....	2002.. 483 717
		1997.. N
	Iowa .....	2002.. 274 695
		1997.. N
Kansas .....	2002.. 325 371	
	1997.. N	
Kentucky .....	2002.. 224 652	
	1997.. N	
Louisiana .....	2002.. 6 686	
	1997.. N	
Maryland .....	2002.. 366 831	
	1997.. N	
Massachusetts .....	2002.. 835 303	
	1997.. N	
Michigan .....	2002.. 599 847	
	1997.. N	
Minnesota .....	2002.. 453 249	
	1997.. N	
Mississippi .....	2002.. 115 151	
	1997.. N	
Missouri .....	2002.. 349 491	
	1997.. N	
Nebraska .....	2002.. 86 406	
	1997.. N	

See footnotes at end of table.

**Table 6b. Product Class Shipments for Selected States: 2002 and 1997—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
326199B	Consumer, institutional, and commercial fabricated plastics products (excluding foam and wire coated)—Con.	
	United States—Con.	
	Nevada .....	2002.. 13 769
		1997.. N
	New Hampshire .....	2002.. 26 705
		1997.. N
	New Jersey .....	2002.. 342 969
		1997.. N
	New York .....	2002.. 641 505
		1997.. N
	North Carolina .....	2002.. 605 766
		1997.. N
	Ohio .....	2002.. 1 308 999
		1997.. N
	Oklahoma .....	2002.. 138 442
		1997.. N
	Oregon .....	2002.. 42 017
		1997.. N
	Pennsylvania .....	2002.. 619 363
		1997.. N
	Rhode Island .....	2002.. 19 105
		1997.. N
	South Carolina .....	2002.. 222 805
		1997.. N
	Tennessee .....	2002.. 609 214
		1997.. N
	Texas .....	2002.. 884 971
		1997.. N
	Utah .....	2002.. 18 217
		1997.. N
	Vermont .....	2002.. 35 964
		1997.. N
	Virginia .....	2002.. 492 831
		1997.. N
	Washington .....	2002.. 291 264
		1997.. N
	Wisconsin .....	2002.. 465 437
		1997.. N

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 7. Materials Consumed by Kind: 2002 and 1997**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
326199	All other plastics product manufacturing		
00900001	Total materials .....	X	28 164 180
	.....2002..	X	26 338 643
	.....1997..	X	88 983
32121909	Hardboard .....	X	63 635
	.....2002..	X	
	.....1997..	X	
325000A4	Industrial inorganic chemicals (excluding inorganic pigments, plastics resins, industrial and synthetic organic chemicals, synthetic dyes, pigments, and all other chemicals and allied products) .....	X	238 377
	.....2002..	X	N
	.....1997..	X	
32513106	Inorganic pigments .....	X	107 984
	.....2002..	X	N
	.....1997..	X	
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. ....	X	8 770 156
	.....2002..	X	9 402 922
	.....1997..	X	
325100A1	Industrial organic and synthetic organic chemicals, including plasticizers (excluding synthetic dyes, pigments, and toners) .....	X	193 464
	.....2002..	X	332 522
	.....1997..	X	
32513200	Synthetic dyes, pigments, lakes, and toners .....	X	185 240
	.....2002..	X	246 293
	.....1997..	X	
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes .....	X	2 105 342
	.....2002..	X	2 473 860
	.....1997..	X	
32599100	Custom compounded plastics resins (purchased) .....	X	423 310
	.....2002..	X	469 302
	.....1997..	X	
32721209	Textile-type glass fiber .....	X	445 901
	.....2002..	X	443 864
	.....1997..	X	
31321017	Broadwoven fabrics .....	X	158 022
	.....2002..	X	116 155
	.....1997..	X	
32210015	Paper and paperboard products (excluding paperboard boxes, containers, and corrugated paperboard) .....	X	199 137
	.....2002..	X	204 477
	.....1997..	X	
32221001	Paperboard containers, boxes, and corrugated paperboard .....	X	864 975
	.....2002..	X	764 200
	.....1997..	X	
33322000	Parts and attachments specially designed for plastics working machinery .....	X	359 559
	.....2002..	X	295 697
	.....1997..	X	
00999803	Spent or post-consumer plastics (purchased) .....	X	147 995
	.....2002..	X	142 698
	.....1997..	X	
00970099	All other materials and components, parts, containers, and supplies .....	X	7 972 126
	.....2002..	X	5 736 474
	.....1997..	X	
00971000	Materials, ingredients, containers, and supplies, nsk .....	X	5 903 609
	.....2002..	X	5 646 544
	.....1997..	X	

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

# Appendix A.

## Explanation of Terms

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### **BEGINNING- AND END-OF-YEAR INVENTORIES**

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and, then, to report the LIFO reserve and the LIFO value after adjustment for the reserve.

### **Inventory data by stage of fabrication**

Total inventories and three detailed components (1)finished goods, (2)work-in-process, and (3)materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

### **COST OF MATERIALS**

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc. Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.
3. Cost of fuels consumed for heat and power. Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity. The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work. This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

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## **Specific materials consumed**

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials that were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the "Cost of all other materials" Census material code 00970099.

Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the "Materials not specified by kind" Census materials code 00971000.

## **Duplication in cost of materials and value of shipment**

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries.

Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

## **SELECTED PURCHASED SERVICES**

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of selected purchased services for the repair and maintenance services of buildings and/or machinery; communication services; legal services; accounting, auditing, and bookkeeping services; advertising and promotional services; expensed computer hardware and supplies and purchased computer services; refuse removal services; management consulting and administrative services; taxes and license fees; and all other expenses not previously stated. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services. These expenses are normally considered as nonproduction related costs purchased from other companies.

Included in the cost of selected purchased services for the repair and maintenance services of buildings and/or machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Excluded from this item are extensive repairs or reconstruction that was capitalized, which is considered capital expenditures; costs incurred directly by the establishment in using its own work force to perform repairs and maintenance work; and repairs and maintenance provided by the building or machinery owner as part of the rental contract.



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Included in the cost of selected purchased services for communication is the actual expense incurred or payable during the year for any type of communication. Such types of communication include telephone, data transmission, telegraph, Internet, connectivity, FAX, telex, photo transmission, paging, cellular telephone, on-line access and related services, etc.

Included in the cost of selected purchased services for legal services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of the establishment for these services.

Included in the cost of selected accounting, auditing, and bookkeeping services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected advertising and promotional services are payments made to other companies for these services that were paid directly by the establishment. These include payments for printing, media coverage, and other services and materials. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected expensed computer hardware and supplies and purchased computer services are actual expenses incurred or payable during the year for this item. Purchases for computer hardware and supplies, computer services (software, data transmission, processing services, Web design, etc.) are all included. Excluded are services provided by other establishments of the same company (such as a separate central data processing unit).

Included in the cost of selected purchased refuse removal services are payments made to other companies for these services that were paid directly by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures and the salaries paid to employees of the establishment for these services.

Included in the cost of selected purchased management consulting and administrative services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected purchased taxes and license fees are payments made to other companies for these services that were paid directly by the establishment, excluding income, sales, payroll, and excise taxes. Excluded are also the salaries paid to employees of this establishment for these services.

### **Response coverage ratio**

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and nonreporters).

### **DEPRECIATION CHARGES FOR FIXED ASSETS**

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

### **NUMBER OF EMPLOYEES**

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period that included the 12th of the months specified on the report form. Included are employees on paid sick leave, paid holidays, and paid vacations; not included are proprietors and partners of unincorporated businesses.

These individuals comprise of all full-time and part-time employees who are on the payrolls of establishments who worked or received pay for any part of the pay period including the 12th of March, May, August, and November.

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The “all employees” number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November

### **Production Workers**

The “production workers” number includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant’s own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

### **All Other Employees**

The “other employees” covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

### **TOTAL FRINGE BENEFITS**

This item is the employer’s costs for social security tax, unemployment tax, workmen’s compensation insurance, state disability insurance pension plans, stock purchase plans, union-negotiated benefits, life insurance premiums, and insurance premiums on hospital and medical plans for employees.

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of federal old age and survivors’ insurance, unemployment compensation, and workers’ compensation. Payments for voluntary programs include all programs not specifically required by legislation, whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

### **GROSS VALUE OF DEPRECIABLE ASSETS (ACQUISITION COSTS) AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)**

Total value of depreciable assets is collected on all census forms.

It shows the value of depreciable assets for the beginning of year (BOY) and end of year (EOY). The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year.

Accordingly, the value of assets at the end of the year includes the value of construction in progress.

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In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

## **ESTABLISHMENT**

An establishment is a single physical location where business is conducted or where services or industrial operations are performed. Data in this sector includes those establishments where manufacturing is performed. A separate report was required for each manufacturing establishment (plant) with one employee or more that were in operation at any time during the year.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

## **Company**

A company or ("enterprise") is comprised of all the establishments that operate under the ownership or control of a single organization. A company may be a business, service, or membership organization; consist of one or several establishments; and operate at one or several locations. It includes all subsidiary organizations, all establishments that are majority-owned by the company or any subsidiary, and all the establishments that can be directed or managed by the company or any subsidiary.

A company may have one or many establishments. Examples include product and service sales offices (retail and wholesale), industrial production plants, processing or assembly operations, mines or well sites, and support operations (such as an administrative office, warehouse, customer service center, or regional headquarters). Each establishment should receive, complete, and return a separate census form.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

## **PAYROLL**

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

## **PRODUCT CODES AND CLASSES OF PRODUCTS**

NAICS United States industries are identified by a six-digit code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits.

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As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. Since the 1997 census programs, information is collected on the output of almost 10,000 individual product items.

In the manufacturing sector for 2002, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are 1,450 product classes (seven-digit codes), 5,674 census products, and an additional 3,746 ten-digit product codes. The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives.

Comparability with previous figures was given considerable weight in the selection of product categories, so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

### **PRODUCTION-WORKER HOURS**

This item covers all hours worked or paid for at the manufacturing plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the establishment.

### **QUANTITY OF ELECTRICITY PURCHASED FOR HEAT AND POWER**

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

### **RENTAL PAYMENTS**

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained, if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments.

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However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

### **RETIREMENTS OF DEPRECIABLE ASSETS**

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

### **CAPITAL EXPENDITURES FOR NEW AND USED PLANT AND EQUIPMENT**

Represents the total new and used capital expenditures reported by establishments in operation and any known plants under construction.

These data include expenditures for:

1. Permanent additions and major alterations to manufacturing and mining establishments.
2. New and used machinery and equipment used for replacement and additions to plant capacity, if they are of the type for which depreciation, depletion, or (for mining establishments) Office of Minerals Exploration accounts are ordinarily maintained. In addition, for mining establishments, these data include expenditures made during the year for development and exploration of mineral properties. For manufacturing establishments, these data are broken down into three types.
  - a. Automobiles, trucks, etc. for highway use. These include vehicles acquired under a lease-purchase agreement and excludes vehicles leased or normally designed to transport materials, property, or equipment on mining, construction, petroleum development, and similar projects. These vehicles are of such size or weight as to be normally restricted by state laws or regulations from operating on public highways. It also excludes purchases of vehicles that are purchased by a company for highway use.
  - b. Computers and peripheral data processing equipment. This item include all purchases of computers and related equipment.
  - c. All other expenditures for machinery and equipment excluding automobiles and computer equipment.

Capital expenditures include work done by contract, as well as by the establishment's own workforce.

These data exclude expenditures for land and mineral rights and cost of maintenance and repairs charged as current operating expenses.

### **VALUE ADDED**

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

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For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

### **VALUE OF SHIPMENTS**

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments: Reported contract work — receipts for work or services that a plant performed for others on their materials. Value of resales — sales of products brought and sold without further manufacture, processing, or assembly. Other miscellaneous receipts — such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are: Primary products value of shipments. Secondary product value of shipments. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

### **Duplication in cost of materials and value of shipment**

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since, the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries.

Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

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Before 1962, cost of materials and value of shipments were not published for some industries that included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

### **Specialization and coverage ratio**

These items are not collected on the report forms, but are derived from the data shown in Table 3. An establishment is classified in a particular industry, if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.).

Specialization and coverage ratio have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1 through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

## Appendix B.

# NAICS Codes, Titles, and Descriptions

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### **326199 ALL OTHER PLASTICS PRODUCT MANUFACTURING**

This U.S. industry comprises establishments primarily engaged in manufacturing plastics products (except film, sheet, bags, profile shapes, pipes, pipe fittings, laminates, foam products, bottles, plumbing fixtures, and resilient floor coverings).



# Appendix C.

## Methodology

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### SOURCES OF THE DATA

The manufacturing sector includes approximately 350,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing. The amount of information requested from manufacturing establishments was dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the Annual Survey of Manufactures (ASM).

Establishments in the 2002 Economic Census are divided into those sent report forms and those not sent report forms. The coverage of and the method of obtaining census information from each are described below:

1. Establishments sent a report form:

- a. ASM sample establishments. This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments, as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-10000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A. Explanation of Terms, for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 473 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in certain cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided

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for the respondent to describe significant materials not listed on the form.

A wide variety of special inquiries were included to measure activities peculiar to a given industry, such as operations performed and equipment used.

- b. Large and medium establishments (non-ASM). Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census — manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.
- c. Small single-establishment companies (non-ASM). This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated “short form” was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics, because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the “not specified by kind” (nsk) categories.

## 2. Establishments not sent a report form:

- a. Small single-establishment companies not sent a report form. Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and the Census Bureau’s ability to assign the correct six-digit NAICS industry classification to the establishment. For each six-digit NAICS industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report that requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments, but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit NAICS group classification codes available in the files. For manufacturing, these establishments were sent a

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separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics, other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

- b. All nonemployers, i.e., all firms subject to federal income tax, with no paid employees, during 2002 are excluded as in previous censuses. Data for nonemployers are not included in this report, but are released in the annual *Nonemployer Statistics* series.

The report forms used to collect information for establishments in this sector are available at [help.econ.census.gov/econhelp/resources/](http://help.econ.census.gov/econhelp/resources/).

A more detailed examination of census methodology is presented in the *History of the Economic Census* at [www.census.gov/econ/www/history.html](http://www.census.gov/econ/www/history.html).

## **INDUSTRY CLASSIFICATION OF ESTABLISHMENTS**

The classifications for all establishments covered in the 2002 Economic Census — Manufacturing are classified in 1 of 473 industries in accordance with the industry definitions in the *North American Industry Classification System (NAICS), United States, 2002* manual. There were no changes between the 2002 edition and the 1997 edition affecting this sector. When applicable, Appendix F of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 2002, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are 1,450 product classes (seven-digit codes), 5,674 census products, and an additional 3,746 ten-digit product codes. The ten-digit products are considered the primary products of the industry with the same first six digits.

For the 2002 Economic Census — Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 2002, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

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The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments that may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry's output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

#### **ESTABLISHMENT BASIS OF REPORTING**

The 2002 Economic Census — Manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports, if the plant records permit such a separation and if the activities are substantial in size.

In 2002, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures, except for data on number of establishments for a few industries.

The 2002 Economic Census — Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

#### **DESCRIPTION OF THE ASM SURVEY SAMPLE**

The ASM sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1999 survey year based on the 1997 Economic Census — Manufacturing. This sample will be in place through the 2003 ASM.

In 1997, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the establishments in the 1997 manufacturing population were partitioned into two components for developing estimates within the ASM. The details of each are described below:

1. Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies

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that operate at more than one physical location). Approximately 200,000 of the 370,000 establishments in the 1997 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1999 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1997 census. Supplemental samples representing both 1998 and 1999 births (newly active establishments that were not included in the 1997 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 2003.

The 1999-2003 ASM sample design is similar to the one used since 1984. Companies in the 1997 Economic Census — Manufacturing with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1999-2003 sample, there are approximately 500 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. Across these arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1997 Economic Census — Manufacturing.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1997 industry classification and its 1997 product class data. For each product class (1,755) and six-digit industry (473), a desired reliability constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints, while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by the Census Bureau's primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) that permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

2. Nonmail stratum. The initial nonmail component of the survey was comprised of approximately 170,000 small, single-establishment companies that were tabulated as administrative records in the 1997 Economic Census — Manufacturing. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

## **RELIABILITY OF DATA**

All data compiled in the economic census are subject to nonsampling errors. Nonsampling errors can be attributed to many sources during the development or execution of the census. The following are two ways that further explain this method: ASM Estimating Procedure. Most of the ASM

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estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1997 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the “difference” between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1998-2002 ASM estimates, the 1997 Economic Census — Manufacturing values serve as the base year. For the 2003 ASM, the base will be updated to be the 2002 Economic Census — Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contained approximately 170,000 individual establishments in 1999, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication. ASM Data Qualifications. The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists, but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

- From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
- From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
- From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

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For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

#### **DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS**

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

#### **VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS**

The 2002 Economic Census — Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

#### **DISCLOSURE**

In accordance with federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments in a specific industry or geographic area is not considered a disclosure; therefore, this information may be released even though other information is withheld. Techniques employed to limit disclosure are discussed at [www.census.gov/epcd/ec02/disclosure.htm](http://www.census.gov/epcd/ec02/disclosure.htm).

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. Nonetheless, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures, which can be suppressed even though value of shipments data are published.

# Appendix D. Geographic Notes

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Not applicable for this report.



# Appendix E. Metropolitan Areas and Micropolitan Statistical Areas

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Not applicable for this report.



2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published
326199BYWV pt....	3351213YWV pt ...	3351213YWV pt	3262202 .....	3262202 .....	3262202 .....	3262991 .....	3262991 .....	3262991 .....
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326199WYWV pt...	326199WYWV pt ..	326199WYWV pt	3262202245 .....	3262202245 .....	3262202245 .....	3262991121 .....	3262991121 .....	3262991121 .....
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326211H239 .....	326211H239 .....	326211H239	3262912 .....	3262912 .....	3262912 .....	3262997YWV .....	3262997YWV .....	3262997YWV .....
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3262201151 .....	3262201151 .....	3262201151	326291W .....	326291W .....	326291W .....	326299B141 .....	3262999141 .....	3262999141 .....
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						326299WYWV .....	326299WYWV pt ..	326299WYWV pt ..
						326299WYWY .....	326299WYWY pt ..	326299WYWY pt ..

