Adhesive Manufacturing

1997

ssued July 1999

EC97M-3255B

1997 Economic Census Manufacturing **Industry Series**



Helping You Make Informed Decisions

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



ACKNOWLEDGMENTS

The staff of the Manufacturing and Construction Division prepared this report. Judy M. Dodds, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination. Kenneth Hansen, Chief, Manufactured Durables Branch, assisted by Mike Brown, Renee Coley, Raphael Corrado, and Milbren Thomas, Section Chiefs, Michael Zampogna, Former Chief, Manufactured Nondurables Branch, assisted by Allen Foreman, Robert Miller, Robert Reinard, and Nat Shelton, Section Chiefs, and Tom Lee, Robert Rosati, and Tom Flood, Special Assistants, performed the planning and implementation. Stephanie Angel, Brian Appert, Stanis Batton, Carol Beasley, Chris Blackburn, Larry Blumberg, Vera Harris-Bourne, Brenda Campbell, Suzanne Conard, Vance Davis, Mary Ellickson, Matt Gaines, Merry Glascoe, Kay Hanks, Karen Harshbarger, Nancy Higgins, James Hinckley, Walter Hunter, Jim Jamski, Evelyn Jordan, Robert Lee, John Linehan, Paul Marck, Keith McKenzie, Philippe Morris, Joanna Nguyen, Betty Pannell, Joyce Pomeroy, Venita Powell, Cynthia Ramsey, Chris Savage, Aronda Stovall, Sue Sundermann, Thanos Theodoropoulos, Dora Thomas, Ann Truffa, Ronanne Vinson, Denneth Wallace, Tempie Whittington, Lissene Witt, and Mike Yamaner provided primary staff assistance.

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by Stacey Cole, Chief, Manufacturing Programs Methodology Branch, and Robert Struble, Section Chief, provided the mathematical and statistical techniques as well as the coverage operations. Jeffrey Dalzell and Cathy Ritenour provided primary staff assistance.

Mendel D. Gayle, Chief, Forms, Publications, and Customer Services Branch, assisted by **Julius Smith Jr.** and **Baruti Taylor,** Section Chiefs, performed overall coordination of the publication process.

Kim Credito, Patrick Duck, Chip Murph, Wanda Sledd, and Veronica White provided primary staff assistance.

The Economic Planning and Coordination Division, Lawrence A. Blum, Assistant Chief for Collection Activities and Shirin A. Ahmed, Assistant Chief for Post-Collection Processing, assisted by Dennis Shoemaker, Chief, Post-Collection Census Processing Branch, Brandy Yarbrough, Section Chief, Sheila Proudfoot, Richard Williamson, Andrew W. Hait, and Jennifer E. Lins, was responsible for developing the systems and procedures for data collection, editing, review, correction and dissemination

The staff of the National Processing Center, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, Charles P. Pautler Jr., Chief, developed and coordinated the computer processing systems. Martin S. Harahush, Assistant Chief for Quinquennial Programs, assisted by Barbara Lambert and Christina Arledge were responsible for design and implementation of the computer systems. Gary T. Sheridan, Chief, Manufacturing and Construction Branch, Lori A. Guido and Roy A. Smith, Section Chiefs, supervised the preparation of the computer programs.

Computer Services Division, **Debra Williams**, Chief, performed the computer processing.

The staff of the Administrative and Customer Services Division, **Walter C. Odom,** Chief, performed planning, design, composition, editorial review, and printing planning and procurement for publications, Internet products, and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Adhesive Manufacturing

EC97M-3255B

1997 Economic Census

Manufacturing **Industry Series**





U.S. Department of Commerce William M. Daley, Secretary Robert L. Mallett, **Deputy Secretary**

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

U.S. CENSUS BUREAU Kenneth Prewitt,

Director



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



U.S. CENSUS BUREAU
Kenneth Prewitt,
Director
William G. Barron,
Deputy Director
William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

CONTENTS

	duction to the Economic Census	1 5
TABL	LES .	
1. 2. 3. 4. 5. 6a. 6b. 7.	Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997 Industry Statistics for Selected States: 1997 Detailed Statistics by Industry: 1997 Industry Statistics by Employment Size: 1997 Industry Statistics by Industry and Primary Product Class Specialization: 1997 Products Statistics: 1997 and 1992 Product Class Shipments for Selected States: 1997 and 1992 Materials Consumed by Kind: 1997 and 1992	7 7 8 9 10 11 12
APPI	ENDIXES	
A. B. C. D. E. F.	Explanation of Terms NAICS Codes, Titles, and Descriptions Coverage and Methodology Geographic Notes Metropolitan Areas Footnotes for Products Statistics and Materials Consumed by Kind Comparability of Product Classes and Product Codes: 1997 to 1992	A-1 B-1 C-1 G-1

-- Not applicable for this report.

Introduction to the Economic Census

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 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.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of 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**

Health Care and Social Assistance 62

Arts. Entertainment, and Recreation 71

72 Accommodation and Foodservices

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), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

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 industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, 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 Internal Revenue Service tax forms is used as a basis for coding.

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.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 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.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division Service Sector Statistics Division

301-457-4673 301-457-2668

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

The range of industries covered in the economic censuses expanded between 1967 and 1992. 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.

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. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including 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 each of the economic censuses and related surveys is published in the Guide to the 1997 Economic Census and Related Statistics at www.census.gov/econquide. More information on the methodology, procedures, and history of the censuses will be published in the History of the 1997 Economic Census at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

- Α 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 rev-
- Ν Not available or not comparable.
- Revenue not collected at this level of detail for Q multiestablishment firms.
- S Withheld because estimates did not meet publication standards.

- V Represents less than 50 vehicles or .05 percent.
- Χ Not applicable.
- Υ Disclosure withheld because of insufficient
 - coverage of merchandise lines.
- Ζ Less than half the unit shown. 0 to 19 employees.
- a b
- 20 to 99 employees.
- 100 to 249 employees. C
- 250 to 499 employees. e
- f 500 to 999 employees.
- 1,000 to 2,499 employees. g
- h 2,500 to 4,999 employees.
- 5,000 to 9,999 employees.
- 10,000 to 24,999 employees.
- k 25,000 to 49,999 employees.
- 50,000 to 99,999 employees.
- 100,000 employees or more. m
- 10 to 19 percent estimated.
- р q 20 to 29 percent estimated.
- Revised. r
- Sampling error exceeds 40 percent.
- Not elsewhere classified. nec
- Not specified by kind. nsk
- Represents zero (page image/print only).
- (CC) Consolidated city.
- Independent city. (IC)

1997 ECONOMIC CENSUS INTRODUCTION 3 This page is intentionally blank.

Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. 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. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the "all manufacturing" level for each state and its metropolitan areas (MAs) 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.

The General Summary 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.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain 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.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the "all manufacturing" level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semiindependent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

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 classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

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. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that 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 58,000 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 a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census - Manufacturing, the annual CIR data are included in the Product Summary report.

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.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS		Com- lish panies ¹ ments ²		All employees		Production workers						Total capital
NAICS or SIC code	Industry			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	expendi- tures (\$1,000)
325520 289100	Adhesive mfg		692 692	21 737 21 737	827 188 827 188	12 740 12 740	26 497 26 497	385 228 385 228	3 388 170 3 388 170	3 951 522 3 951 522	7 330 970 7 330 970	240 682 240 682

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control. ²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning or abbreviations and symbols, see introductory text												
	All establishments			All emp	oloyees	Pr	oduction work	ers				
Industry and geographic area	E ¹	Total	With 20 em- ploy- ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
325520, ADHESIVE MFG												
United States	1	692	270	21 737	827 188	12 740	26 497	385 228	3 388 170	3 951 522	7 330 970	240 682
California Connecticut Florida Georgia Illinois	- 4 1	70 11 20 40 45	21 6 6 17 21	1 728 844 346 880 1 399	71 151 24 924 12 333 32 222 59 477	882 484 180 540 838	1 704 972 409 1 089 1 791	24 414 9 632 5 913 15 954 28 430	261 560 62 348 49 802 172 040 301 717	227 250 109 520 69 101 232 379 310 537	486 131 172 466 116 811 404 074 610 701	10 507 5 828 3 897 10 726 22 450
Indiana Kansas Kentucky Maryland Massachusetts	2 1 2 3 2	23 7 7 7 7 30	9 3 6 4 10	788 129 857 473 915	24 860 4 151 34 080 19 369 35 120	529 95 603 265 366	1 083 181 1 428 656 801	13 669 2 752 22 819 10 895 12 116	66 311 18 506 172 518 89 986 111 245	81 789 18 209 390 019 49 942 103 123	147 432 36 881 565 448 140 314 211 979	10 115 1 002 17 161 3 434 4 265
Michigan Minnesota Missouri New Hampshire New Jersey	1 1 1 -	32 8 18 8 53	14 3 11 4 22	1 540 150 1 463 309 1 508	61 649 6 615 46 943 9 786 63 316	917 103 1 058 160 809	1 851 193 2 404 280 1 728	30 421 3 225 26 568 4 963 27 318	197 013 30 703 226 686 22 051 246 161	271 644 45 077 167 650 33 816 295 646	469 437 75 628 392 512 56 263 539 755	34 747 900 11 383 1 172 16 788
New York North Carolina Ohio Oklahoma Pennsylvania	2 4 1 1 2	29 25 59 7 34	9 7 29 2 11	790 318 2 980 153 820	30 233 13 952 115 055 3 791 32 403	507 166 1 699 104 455	1 075 322 3 269 208 1 028	13 006 4 318 54 032 2 347 14 763	141 394 35 591 462 027 21 477 163 118	121 267 47 560 501 004 29 925 188 695	266 318 83 643 964 003 51 349 353 459	5 091 5 404 25 902 804 12 644
South Carolina Tennessee Texas Virginia Washington Wisconsin	1 3 1 - 2 2	10 11 47 7 13 19	4 5 20 3 3 7	252 342 1 080 127 296 424	10 191 14 210 37 926 5 070 13 467 15 864	156 167 618 95 164 237	328 382 1 288 181 352 488	4 531 7 334 15 324 2 648 5 300 7 182	40 022 57 925 178 271 22 739 43 123 65 182	39 596 77 440 179 070 42 442 46 211 100 796	79 786 134 237 355 930 61 281 89 002 165 793	1 855 2 769 13 883 5 499 3 583 3 386

^{*} Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some 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 based on administrative-record 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.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
325520, ADHESIVE MFG		325520, ADHESIVE MFG—Con.	_
Companies ¹ number	541	Value added\$1,000	3 388 170
All establishments	692 422 222 48	Total inventories, beginning of year \$1,000. Finished goods inventories, beginning of year \$1,000. Work-in-process inventories, beginning of year \$1,000. Materials and supplies inventories, beginning of year \$1,000.	654 666 308 358 58 594 287 714
All employees number. Total compensation ² \$1,000. Annual payroll. \$1,000. Total fringe benefits \$1,000.	21 737 1 049 264 827 188 222 076	Total inventories, end of year \$1,000. Finished goods inventories, end of year \$1,000. Work-in-process inventories, end of year \$1,000. Materials and supplies inventories, end of year \$1,000.	678 822 314 410 61 264 303 148
Production workers, average for year	12 740 12 798 12 717	Gross book value of total assets at beginning of year\$1,000. Total capital expenditures (new and used)\$1,000. Capital expenditures for buildings and other structures (new and used)\$1,000.	1 970 523 240 682 53 969
Production workers on August 15number Production workers on November 15number	12 751 12 694	Capital expenditures for machinery and equipment (new and used)\$1,000	186 713
Production-worker hours	26 497 385 228	Total retirements ² \$1,000. Gross book value of total assets at end of year \$1,000.	57 087 2 154 118
Total cost of materials\$1,000.	3 951 522	Total depreciation during year ² \$1,000	127 209
Cost of materials, parts, containers, etc., consumed\$1,000 Cost of resales\$1,000 Cost of fuels\$1,000 Cost of purchased electricity\$1,000	3 572 555 240 104 27 889 60 628	Total rental payments ²	39 432 19 966 19 466
Cost of contract work\$1,000	50 346	structures ³ \$1,000	5 597
Quantity of electricity purchased for heat and power1,000 kWh Quantity of electricity generated less sold for heat and power1,000 kWh	914 772 962	Response coverage ratio ⁴ percent. Cost of purchased services for the repair of machinery and	68
Total value of shipments\$1,000	7 330 970	equipment ³ \$1,000 Response coverage ratio ⁴ percent	25 995 68
Primary products value of shipments\$1,000	6 445 999	Cost of purchased communications services ³ \$1,000	8 106
Secondary products value of shipments	505 288 379 683	Response coverage ratio ⁴ percent Cost of purchased legal services ³ \$1,000	68 2 908
Value of resales	364 019	Response coverage ratio ⁴ percent.	2 906
Contract receipts\$1,000		Cost of purchased accounting and bookkeeping services ³ \$1,000	2 680
Other miscellaneous receipts\$1,000	4 896	Response coverage ratio ⁴ percent. Cost of purchased advertising services ³ \$1,000	68 8 895
Primary products specialization ratio percent	92	Response coverage ratio ⁴ percent.	68
Value of primary products shipments made in all industries \$1,000	7 380 688		0.040
Value of primary products shipments made in this industry \$1,000 Value of primary products shipments made in other	6 445 999	services ³ \$1,000 Response coverage ratio ⁴ percent	9 913 68
industries\$1,000.	934 689	Cost of purchased refuse removal (including hazardous waste)	00
Coverage ratio percent	87	services ³ \$1,000 Response coverage ratio ⁴ percent	13 843 68

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

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

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

			All	All em	oloyees	Pr	oduction work	ers				
Employment size class	E ¹	Total	With 20 em- ploy- ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
325520, ADHESIVE MFG												
All establishments	1	692	270	21 737	827 188	12 740	26 497	385 228	3 388 170	3 951 522	7 330 970	240 682
Establishments with 1 to 4 employees	8	194	_	442	13 157	294	504	7 078	52 065	83 435	136 384	4 559
employees	5	118	-	802	26 960	478	902	13 132	108 177	156 401	267 025	8 266
employees	2	110	-	1 533	54 443	885	1 725	23 525	229 560	297 882	521 768	14 345
employees	1	147	147	4 807	181 017	2 868	5 686	81 350	752 869	932 533	1 684 952	53 167
employees	2	75	75	5 213	209 768	2 879	6 306	92 788	866 927	1 073 117	1 936 695	61 537
employees	1	39	39	5 860	224 383	3 482	7 423	113 851	906 950	852 521	1 761 757	62 787
employees	-	8	8	D	D	D	D	D	D	D	D	D
employees	-	1	1	D	D	D	D	D	D	D	D	D
employees	-	-	-	-	-	_	-	-	-	-	-	_
or more	-	-	_	-	-	_	-	_	-	_	-	_
Administrative records ²	9	237	_	1 004	26 877	629	1 011	14 535	112 332	175 418	288 999	10 770

¹Some 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 based on administrative-record 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; 70 to 79 percent; 8–80 to 89 percent or more.

2*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.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS		All	All employees		Production workers			Value added			Total capital
industry or product class code	Industry or primary product class	estab- lish- ments	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	expendi- tures (\$1,000)
325520	Adhesive mfg	692	21 737	827 188	12 740	26 497	385 228	3 388 170	3 951 522	7 330 970	240 682
3255201 3255204	Natural base glues and adhesives Synthetic resin and rubber adhesives, including all types of bonding and	24	737	31 792	362	783	10 598	85 762	112 098	197 300	4 922
3255207 325520A	laminating adhesivesStructural sealants (load-bearing) Nonstructural caulking compounds	232 15	11 869 1 350	476 049 48 129	6 747 795	14 218 1 757	217 240 23 689	2 097 710 170 332	2 220 025 371 287	4 298 846 544 558	142 107 19 177
0200207	and sealants	90	4 791	175 030	3 034	6 376	87 200	686 296	772 635	1 460 863	47 195

size classes shown.

Table 6a. Products Statistics: 1997 and 1992

[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. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

anii daddidiy toxi	. For explanation of terms, see appendixes		19	997			19	992	
NAICS		Number of		Product	shipments	Number of		Product	shipments
product code	Product	companies with shipments of \$100,000 or more	Quantity of production for all purposes	Quantity	Value (\$1,000)	companies with shipments of \$100,000 or more	Quantity of production for all purposes	Quantity	Value (\$1,000)
325520	Adhesives and sealants	N	х	х	7 380 688	N	х	х	5 414 552
3255201	Natural base glues and adhesives	N	х	x	324 534	N	x	x	191 843
32552011 3255201111 3255201121	Natural base glues and adhesives	N 7	X	X 914.3	290 084 17 600	N 4	X	X 17.6	N 15 970
3255201131	glues (not glue stock)	7 9	X	S	56 994 19 370	12	X	45.8	26 973 26 220
3255201141 3255201151 3255201161	blood, fish, soybean, albumen, etc mil lb Dextrine vegetable adhesives mil lb Starch vegetable adhesives	21 13	X X X	S S X	48 422 46 794	17 13	X X X	57.8 P151.1 X	56 345 33 207
	oleoresinous varnishes	20	X	Х	100 904	10	х	Х	24 951
3255201Y 3255201YWV	Natural base glues and adhesives, nsk	N N	X	X	34 450 34 450	N N	X	X	8 177
3255204	Synthetic resin and rubber adhesives, including all types of bonding and laminating adhesives	N	х	х	4 327 861	N	X	х	3 595 498
32552041 3255204111	Epoxy adhesives	N 55	X	×	433 804 433 804	N 62	X	X	N 249 301
32552042 3255204271	Rubber and synthetic resin combinations	N	Х	×	312 560	N	x	X	N
00550040	combinationsmil lb	25	Х	S	312 560	37	X	767.6	485 124
32552043 32552043D1	Hot melt adhesives, including polyamide, polyolefin, and other hot melts Hot melt adhesives, including polyamide, polyolefin, and other hot	N	Х	х	682 457	N	X	Х	N
00550044	meltsmil lb.	44	Х	S	682 457	52	X	306.4	363 952
32552044 32552044E1	Adhesive films, all types, including pressure-sensitive structural and nonstructural adhesive films. Adhesive films, all types, including	N	х	x	429 224	N	x	X	N
	pressure-sensitive structural and nonstructural adhesive films	21	х	S	429 224	19	x	N	268 949
32552045 3255204541 3255204551	Vinyl type adhesives	N 51	X X	q629.2	579 294 405 677	N N	X	X N	N N
3255204561	adhesives	12 19	X	S S	99 793 73 824	18 19	X	53.1 56.1	45 175 36 997
32552046	Other synthetic resin and rubber adhesives	N	х	x	1 725 476	N	x	X	N
3255204621 3255204631	Phenolics and phenolic derivative adhesives, including resorcinolmil lb Urea and modified urea adhesivesmil lb	11 10	X	S	103 899 130 020	14 11	X	1 357.2 D	212 310 D
3255204681 3255204691 32552046A1	Acrylic adhesivesmil lb Cyanoacrylate adhesivesmil lb. Polyester adhesivesmil lb.	49 11 11	X X X	^q 410.4 34.9 S	349 152 75 510 30 786	49 11 9	X X X X	⁹ 262.1 58.0 77.1	188 870 103 217 71 991
32552046B1 32552046C1 32552046F1	Urethane adhesivesil b Styrenic adhesives mil lb . Latex type rubber cement, for sale as	34 13	X	P143.1 P216.5	209 810 143 669	29 14	X X	44.9 237.3	68 234 130 396
32552046G1	such Solvent type rubber cement, for sale as such	26 35	X X	X	272 843 180 428	25 37	X X	X X	99 178 132 918
32552046H1	Other synthetic resin and rubber adhesives, including cellulose, nitrocellulose, polyamide, anaerobic, etc.		X	×	229 359	43	x	X	214 345
3255204Y	Synthetic resin and rubber adhesives, including all types of bonding and								
3255204YWV	laminating adhesives, nsk		×	X	165 046 165 046	N N	X	X	N 251 615
3255207	laminating adhesives, nsk	N	X	X	497 742	N	X X	X X	344 092
32552071 3255207111	Structural sealants (load-bearing)	N	х	х	470 267	N	x	Х	N
3255207121	(PVAC, butyl, vinyl, acrylic, neoprene, etc.). Synthetic base special performance structural (load-bearing) sealants, including applicability of the property	16	Х	x	108 034	8	х	х	50 703
3255207131	including polysulfide, silicone, epoxy, urethane, etc	20	X	s	321 259	17	X	149.2	263 890
3255207Y	polybutene, polyisobutylene, etc.) Structural sealants (load-bearing), nsk		X	X	40 974 27 475	2 N	X X	X	D N
3255207YWV	Structural sealants (load-bearing), risk	l N	X	X	27 475	l N	X	X	D

Table 6a. Products Statistics: 1997 and 1992—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. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

			19	997		1992			
NAICS		Number of		Product	shipments	Number of		Product	shipments
product code	Product	companies with shipments of \$100,000 or more	Quantity of production for all purposes	Quantity	Value (\$1,000)	companies with shipments of \$100,000 or more	Quantity of production for all purposes	Quantity	Value (\$1,000)
325520	Adhesives and sealants—Con.								
325520A	Nonstructural caulking compounds and sealants	N	х	Х	1 421 143	N	x	Х	863 269
325520A1	Nonstructural caulking compounds and sealants	N	Х	×	1 403 830	N	X	Х	N
325520A111	sealants Natural base nonstructural (nonload- bearing) caulks, modified and		^	,	1 100 000		^`		
325520A121	unmodified oil base Natural bituminous base (coal tar or asphalt) nonstructural (nonload-	21	Х	Х	77 317	19	Х	Х	38 228
325520A131	bearing) caulking compounds and sealants	18	Х	х	63 881	15	х	Х	31 005
325520A141	sealants (PVAC, butyl, vinyl, acrylic, neoprene, etc.) Synthetic base nonstructural (nonload-bearing) special performance	57	x	s	722 577	51	х	489.6	382 471
325520A151	sealants, including polysulfide, silcone, epoxy, urethane, etc	44	X	s	484 239	33	х	P171.8	265 844
	etc.)	11	X	X	55 816	16	X	X	121 675
325520AY	Nonstructural caulking compounds and sealants, nsk	N	Х	х	17 313	N	х	Х	N
325520AYWV	Nonstructural caulking compounds and sealants, nsk	N	Х	х	17 313	N	х	Х	24 046
325520W	Adhesives and sealants, nsk, total	N	Х	Х	809 408	N	Х	Х	419 850
325520WY 325520WYWW	Adhesives and sealants, nsk, total	N	Х	Х	809 408	N	Х	Х	N
325520WYWY	establishments	N N	X X	X X	541 016 268 392	N N	x x	X X	339 781 80 069

[#] Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which 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; 9 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[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 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class	Product class and geographic area	Value of product shipments (\$1,000)				
code		1997	1992			
3255201	NATURAL BASE GLUES AND ADHESIVES					
	United States	324 534	191 843			
	California	16 968 22 252 18 344 24 773 51 193	17 471 16 886 34 007 N 7 496			
	New York North Carolina Ohio Pennsylvania Tennessee Texas	20 050 16 373 27 056 13 581 8 846 8 442	25 784 23 544 9 116 N 3 759 5 424			
3255204	SYNTHETIC RESIN AND RUBBER ADHESIVES, INCLUDING ALL TYPES OF BONDING AND LAMINATING ADHESIVES					
	United States	4 327 861	3 595 498			
	California . Connecticut Florida Georgia Illinois	280 535 115 154 27 546 229 379 517 177	263 507 125 281 15 570 187 306 419 815			
	Indiana . Kentucky		43 743 134 934 61 066 90 294 154 729			

^{*}Additional Inflation is available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title. \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—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 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class	Product class and geographic area		luct shipments 000)
code		1997	1992
3255204	SYNTHETIC RESIN AND RUBBER ADHESIVES, INCLUDING ALL TYPES OF BONDING AND LAMINATING ADHESIVES—Con.		
New New Nori Ohid Pen Rho Sou Ten	New Hampshire New Jersey New York North Carolina Ohio	29 412 224 683 163 469 15 451 540 000	26 792 216 652 133 787 120 254 493 822
	Pennsylvania. Rhode Island. South Carolina Tennessee. Texas Virginia Wisconsin	232 146 8 481 102 519 92 605 178 948 67 469 93 377	162 612 N 83 756 57 830 112 065 28 987 57 346
3255207	STRUCTURAL SEALANTS (LOAD-BEARING) United States	497 742	344 092
325520A	Kentucky Michigan Missouri NONSTRUCTURAL CAULKING COMPOUNDS AND SEALANTS	305 931 59 331 25 569	N N N
	United States	1 421 143	863 269
	Arizona	2 744 119 885 89 010 45 230 28 437	N 73 480 41 999 18 313 20 079
	Kansas . Massachusetts . Michigan . Minnesota . Missouri .	21 889 13 787 97 485 15 879 142 360	N 6 481 52 789 38 345 117 762
	New Jersey Ohio Oklahoma Pennsylvania. Texas Wisconsin	176 301 250 598 84 982 82 317 77 869 43 344	79 595 131 236 N 54 701 39 885 N

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS		19	97	1992		
material code	Material consumed	Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)	
325520	ADHESIVE MFG					
32521135 32521109 32521205 31122115 32510095	Polyvinyl acetate resins purchased from other establishments	9361.4 9352.1 S S X	181 255 269 794 208 014 43 250 676 771	360.8 569.6 203.5 104.2 X	112 071 251 311 171 943 23 946 641 589	
325000A3 32410015	Industrial inorganic chemicals Refined petroleum products, including mineral oil, naphtha solvents,		323 612	X	112 942	
21230003 32610029 33240000	petrolatum, waxes, etc. Nonmetalic minerals and earths, ground or otherwise treated, used as extenders and fillers. Plastics containers Metal containers	x	238 543 118 475 113 939 124 185	X X X	227 672 204 794 60 488 77 599	
32220003 00970099 00971000	Paper and paperboard boxes and fiber cans, tubes and drums All other materials and components, parts, containers, and supplies Materials, ingredients, containers, and supplies, n.s.k.	X	196 142 404 286 674 289	X X X	86 617 295 592 391 125	

[#] Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which 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.

[#] Additional information is available for this item; see Appendix F.

@ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Appendix A. Explanation of Terms

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:

- 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.
- Cost of products bought and sold in the same condition.

- 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.

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 which 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

1997 ECONOMIC CENSUS APPENDIX A A-1

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.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and 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. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

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 non-reporters).

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.

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 which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. 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

This item 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

This item 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.

FRINGE BENEFITS

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 companyoperated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS 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 and end of year. 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.

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.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

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.

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.

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, in contrast to the four-digit SIC 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. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	_
Product code	3346120XXX	

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

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit 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.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

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

QUANTITY OF ELECTRIC ENERGY CONSUMED 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. However, the book value (original cost) of these companyowned 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.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

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.

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:

- 1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
- 2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
- 3. 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:

- 1. Primary products value of shipments.
- 2. Secondary product value of shipments.
- 3. 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.

1997 ECONOMIC CENSUS APPENDIX A A-5

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.

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.

Specialization and Coverage Ratios

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 ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a 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

325520 ADHESIVE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing adhesives, glues, and caulking compounds.

The data published with NAICS code 325520 include the following SIC industry:

2891 Adhesives and sealants

Appendix C. Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were 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). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

 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 our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) 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 which 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 four-digit SIC industry and then erroneously re-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 SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a 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.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

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.

MANUFACTURING APPENDIX C C-1

In an economic census year, the ASM report form (MA-1000) 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 480 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 many 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 for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was 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 or 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 nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G 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.

C-2 APPENDIX C MANUFACTURING

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 1997, 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). This represents an expansion of the four-digit SICbased U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census - Manufacturing.

For the 1997 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 1997, 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.

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 which 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 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 1997, 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 1997 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 annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

MANUFACTURING APPENDIX C C-3

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 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 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures 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 1994-98 sample, there are approximately 650 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. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three 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 1992 Census of Manufactures.

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 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), 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 our 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) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. 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.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM 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 1992 (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 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 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

C-4 APPENDIX C MANUFACTURING

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 contains approximately 170,000 individual establishments in 1994, 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.

QUALIFICATIONS OF THE ASM DATA

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, completecoverage 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.

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.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

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 1997 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.

C-6 APPENDIX C MANUFACTURING

Appendix D. Geographic Notes

Not applicable for this report.

1997 ECONOMIC CENSUS APPENDIX D D-1

Appendix E. Metropolitan Areas

Not applicable for this report.

1997 ECONOMIC CENSUS APPENDIX E E-1

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3251101 3251101111 3251101121 3251101YWV	2865658 2865659	28656 2865658 2865659 2865600	3251820 pt 3251820100 pt 3251820100 pt 3251820YWW pt	2895000	28950 2816388 2895000 2816000 pt	325199H	28693 pt	28693 pt 2869313 2869315 2869300 pt
3251104 3251104111 3251104121	2869132	28691 2869132 2869133	3251820YWW pt 3251820YWY pt 3251820YWY pt	2816002 pt	2816300 pt 2816002 pt 2895002	325199K 325199K100	28693 pt 2869331	28693 pt 2869331
3251104YWV	2869100 28650 pt	2869100	3251881 3251881000	28193	28193 2819300	325199N 325199N100	28693 pt 2869351	28693 pt 2869351
325110W pt	28690 pt	28690 pt	3251884 3251884000	28194 2819400		325199R 325199R100	28693 pt 2869399	28693 pt 2869300 pt
325110WYWW pt 325110WYWW pt 325110WYWY pt	2869000 pt	2869000 pt	3251887 3251887000	28196 2819600	28196 2819600	325199T pt	28696	28696
325110WYWY pt	2869002 pt	2869002 pt 28132	325188A 325188A000	28197 2819700	28197 2819700	325199T pt 325199T100 pt 325199T100 pt	28698 pt 2869600 2869898	28698 pt 2869600 2869898
3251201000 3251204	2813200	2813200		28198 2819800		325199U 325199U100	28697 pt 2869719	28697 pt 2869700 pt
	2813300			28199 pt	28199 pt	325199W pt	28690 pt	28690 pt
3251207000 325120A	2813500 28136	2813500 28136	325188G pt 325188G000 pt 325188G000 pt 325188G000 pt	28697 pt	2819900 pt	325199W pt 325199WYWW pt 325199WYWW pt	2899000 pt	2899000 pt
	2813600 28137			28190 pt	•	325199WYWY pt 325199WYWY pt	2899002 pt	2869002 pt 2899002 pt
325120D pt 325120D000 pt	2813700	2813700	325188W pt		28690 pt 2819000 pt 2869000 pt	3252111 3252111100	28213 2821300	28213 2821300
325120D000 pt			325188WYWY pt 325188WYWY pt	2819002 pt	2819002 pt 2869002 pt	3252114 3252114100		2821400
325120W pt 325120WYWW pt	28690 pt	28690 pt 2813000	3251910 3251910111 3251910121	2861010		325211W	28210 2821000 2821002	2821000
325120WYWY pt	2813002 2869002 pt	2813002	3251910231 3251910241 pt	2861025	2861025 2861030	3252120 3252120111	28220 2822011	28220 2822011
3251311 3251311000	28161 2816100	28161 2816100	3251910291 pt 3251910291 pt	2861049 pt	2861015 2861040	3252120211 3252120311 3252120321	2822040 2822045	2822012 2822040 2822045
3251314 3251314111	28162	28162	3251910YWW 3251910YWY	2861000 2861002	2861000 2861002	3252120411 3252120511	2822050 2822057 2822060	2822050 2822057 2822060
3251314121	2816255 2816265 2816200	2816255	3251921 3251921100	2865100		3252120611 3252120711 3252120811 3252120YWW	2822072 2822082 2822000	2822072 2822082 2822000
	28163 pt		3251924 3251924100	28655 2865500	28655 2865500	3252120YWY	2822002	2822002
3251317 pt	2816310 2816331	2816310 2816331	325192W	28650 pt	28650 pt 2865000 pt 2865002 pt	3252210 3252210111 3252210121 3252210131	2823037 2823036	28230 2823033 2823037 2823036
3251317311 3251317321 3251317331 pt	2816391	2816391 2816398	3251930 pt	28690 pt 28692	28690 pt 28692	3252210141 3252210YWW 3252210YWY	2823045 2823000 2823002	2823045 2823000 2823002
3251317331 pt	2816300 pt	2816300 pt	3251930111 3251930211 3251930221	2869215 2869210	2869215 2869210 2869219	3252221 3252221111	28241 2824115	28241 2824115
325131W pt			3251930311 3251930411	2869225 2869220	2869225 2869220	3252221121 3252221131 3252221141	2824129	2824129
325131W pt 325131WYWW pt 325131WYWW pt	28190 pt 2816000 pt 2819000 pt	2816000 pt	3251930511 3251930YWW pt 3251930YWW pt	2869229 2869000 pt 2869200	2869229 2869000 pt 2869200	3252221151 3252221YWV	2824145 2824100	2824145
325131WYWY pt	2816002 pt	2816002 pt	3251930YWY	2869002 pt	2869002 pt 28697 pt	3252224 3252224111	28242	28242 2824261
3251321 3251321100	28652 2865200	28652 2865200	3251991 pt	28992 2899211	28992	3252224121 3252224131 3252224141	2824263 2824265 2824266	2824265 2824266
3251324 3251324100	28653 2865300	28653 2865300	3251991121 3251991131	2899224	2899224 2899259	3252224151 3252224YWV	2824269 2824200	2824269 2824200
325132WYWW	28650 pt 2865000 pt 2865002 pt	2865000 pt	3251991151 3251991161 3251991171	2899283 2899292 2899294	2899283 2899292 2899294	3252227 3252227111 3252227211	2824429	28244 2824415 2824429 2824442
3251811 3251811000	28121 2812100	28121 2812100	3251991181 3251991YWV pt 3251991YWV pt	2869700	2869700 pt 2869700 pt 2899200	3252227311 3252227411 3252227421	2824442 2824444 2824447	2824444 2824447
3251814 3251814000	28123 2812300	28123 2812300	3251994 3251994100	28694	28694 2869400	3252227YWV 325222A 325222A111	2824400 28249 2824915	2824400 28249 2824915
3251817 3251817000	28125 2812500		3251997 3251997100	28698 pt 2869831	28698 pt 2869831	325222A111 325222A121 325222A131 325222AYWV	2824917 2824919 2824900	2824917 2824919 2824900
	28120 2812000 2812002	2812000		2869837	28698 pt 2869837	325222D	28248 2824815	28248 2824815
	28160 pt		325199E 325199E111 325199E121	2869853	28698 pt 2869853 2869855	325222D211 325222D221 325222D231	2824851 2824875 2824879	2824851 2824875 2824879
3251820 pt	28163 pt	28163 pt	325199EYWV	2869800	2869800	325222D231	2824800	2824800

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
325222W	28240 2824000	28240 2824000	3253207143 3253207145	2879E43	2879940 pt 2879940 pt	3255107 3255107000	28513 2851300	
325222WYWY	2824002	2824002	3253207151 3253207155	2879E51	2879986 pt 2879971	325510A pt		
	2873100	2873100	3253207157 3253207159	2879E57	2879930 2879986 pt 2879900	325510A pt 325510A000 pt	28995 pt 2851500	28995 pt 2851500
3253114 3253114000	28732 2873200	28732 2873200	325320W	28790	28790	325510A000 pt	2899586	2899586
3253117	28733		325320WYWY	2879002	2879002	325510W pt	28510	28510 28990 pt
325311W	28730 2873000 2873002	2873000	3254111 3254111111 3254111221 3254111YWV	2833120	28331 2833110 2833120 2833100	325510WYWW pt 325510WYWW pt 325510WYWY pt	2851000	2851000 2899000 pt 2851002
3253121	28741	28741	3254114		28333	325510WYWY pt	2899002 pt 28913	2899002 pt 28913
3253124		28742	3254114131 3254114141	2833318 2833323 2833324	2833323 2833324	3255201111 3255201121 3255201131	2891311	2891326 2891350
3253127 3253127111	28744 2874410	28744 2874410	3254114161	2833326 2833344 2833392	2833344	3255201141 3255201151 3255201161	2891355	2891351 2891355 2891380
3253127121 3253127131	2874411 2874421	2874411 2874421	3254114291	2833399 2833300	2833399	3255201161 3255201YWV		2891300
3253127141 3253127YWV	2874431 2874400	2874431 2874400	325411W	2833000	2833000	3255204 3255204111 3255204271	28914	2891411
325312W	2874000	2874000	325411WYWY	2833002	2833002 28341	32552043D1	2891465 2891471	2891465 2891471
	2874002 28750		3254121000	2834100		3255204541 pt 3255204541 pt 3255204551	2891437 pt	2891443
3253140111 3253140121	2875010 2875011	2875010 2875011	3254124000	2834200	2834200	3255204561 3255204621	2891447 2891424	2891447 2891424
3253140141	2875021 2875041 2875051	2875000 pt	3254127000	2834300	2834300	3255204631		2891433 2891453
3253140161 3253140241	2875061 2875031	2875000 pt 2875031	325412A 325412A000	2834400		3255204681 3255204691 32552046A1	2891453 2891454 2891455	2891454 2891455
3253140YWW 3253140YWY	2875000 2875002	2875000 pt 2875002		2834500	2834500	32552046B1 32552046C1	2891457 2891461	2891457 2891461
·	2879A pt	•		28346 2834600		32552046F1 32552046G1 32552046H1	2891481 2891483 2891499	2891481 2891483 2891499
	2879A pt		325412L	28347 2834700	28347 2834700	32552046H1 3255204YWV 3255207	2891400	2891400 28916
3253201 pt	2879A pt	28798 pt	325412P 325412P000	28348 2834800	28348 2834800	3255207111	28916	2891610 2891625
3253201413	2879A11	2879541 pt	325412T 325412T000	28349	28349 2834900	3255207131 3255207YWV	2891650 2891600	2891650 2891600
3253201A17	2879A15	2879581 pt	325412V 325412V111	28352 2835212	28352 2835212	325520A	28917	28917 2891711
3253201A23 3253201A27	2879A23	2879661 pt 2879675 pt	325412V121 325412V191	2835220 2835225	2835220 2835225	325520A121 325520A131 325520A141	2891721 2891731 2891746	2891721 2891731 2891746
3253201A29 3253201A41	2879A29 2879A41	2879685 pt 2879812 pt		2835200 28340		325520A151 325520AYWV	2891771 2891700	2891771 2891700
	2879A45	2879822 pt	325412W pt	28350 pt 2834000	28350 pt 2834000	325520W	28910 2891000	28910 2891000
3253201D31	2879A47	2879721 pt	325412WYWW pt 325412WYWY pt	2835000 pt	2835000 pt 2834002	325520WYWY	2891002	2891002
3253201YWV pt 3253201YWV pt	2879A00 pt 2879A00 pt	2879500 pt 2879600 pt		2835002 pt		3256111 3256111111 pt 3256111111 pt	28411 2841120 pt 2841120 pt	28411 2841126 pt 2841141 pt
3253201YWV pt 3253201YWV pt	2879A00 pt 2879A00 pt	2879700 pt 2879800 pt	3254130 pt 3254130111	28351	28351	3256111111 pt 3256111121 pt	2841120 pt	2841143 pt 2841125 pt
	2879C pt		3254130221 3254130331	2835115 2835120	2835115 2835120	3256111121 pt 3256111121 pt 3256111121 pt	2841122 pt 2841122 pt 2841122 pt	2841145 pt 2841146 pt 2841149 pt
	2879C pt		3254130341 3254130351	2835125 2835130 2835135	2835130	3256111121 pt 3256111131 pt	2841122 pt	2841178 pt 2841125 pt
3253204 pt	2879C pt	28798 pt	3254130571 3254130691	2835140 2835145	2835140 2835145	3256111131 pt	2841127 pt	2841145 pt 2841146 pt
3253204113	2879C11 2879C13 2879C15	2879541 pt	3254130YWW pt	2835000 pt	2835100	3256111131 pt 3256111131 pt	2841127 pt	2841149 pt 2841178 pt
3253204117 3253204121	2879C17	2879581 pt 2879641 pt	3254141	28361	28361	3256111211 pt 3256111211 pt 3256111221 pt	2841129 pt 2841129 pt 2841130 pt	2841141 pt 2841143 pt 2841145 pt
3253204123 3253204125 3253204127	2879C25 2879C25	2879665 pt 2879675 pt	3254141121	2836115 2836120 2836100	2836120	3256111221 pt 3256111221 pt	2841130 pt	2841146 pt 2841149 pt
3253204129	2879C29 2879C31	2879685 pt	3254144		28362	3256111311 pt 3256111311 pt	2841131 pt	2841123 2841141 pt
3253204133 3253204141	2879C33 2879C41		3254147	28363	28363	3256111311 pt 3256111321 pt	2841131 pt	2841143 pt 2841121
3253204143 3253204145	2879C43 2879C45	2879818 pt 2879822 pt	3254147111 3254147121 3254147YWV	2836310 2836320 2836300	2836310 2836320 2836300	3256111321 pt 3256111321 pt 3256111321 pt	2841132 pt 2841132 pt 2841132 pt	2841145 pt 2841146 pt 2841149 pt
3253204YVVV pt	2879C47 2879C00 pt 2879C00 pt	2879600 pt	325414A	28364	28364	3256111411 pt	2841133 pt	2841125 pt 2841126 pt
3253204YWV pt 3253204YWV pt	2879C00 pt 2879C00 pt	2879700 pt 2879800 pt	325414A121 325414A131	2836410 2836415 2836422	2836415 2836422	3256111411 pt 3256111411 pt 3256111411 pt	2841133 pt	2841128 pt 2841141 pt 2841143 pt
3253207111	2879E 2879E11	2879921	325414A241 325414AYWV	2836430 2836400	2836430 2836400	3256111411 pt	2841133 pt	2841145 pt
3253207113 3253207121	2879E21	2879924 2879912	325414W	2836000	28360 2836000	3256111411 pt 3256111411 pt 3256111411 pt	2841133 pt	2841146 pt 2841149 pt
3253207125 3253207131	2879E25	2879986 pt 2879945 pt	325414WYWY	28511	2836002 28511	3256111511 pt 3256111511 pt	2841134 pt	2841124 2841141 pt
3253207133 3253207135	2879E35	2879945 pt 2879945 pt	3255101000	2851100 28512	2851100	3256111511 pt 3256111511 pt	2841134 pt	2841143 pt 2841145 pt
3253207141	2879E41	2879940 pt	3255104000	2851200	2851200	3256111511 pt	2841134 pt	2841149 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3256111511 pt 3256111611 pt	2841135 pt	2841125 pt	3256127 3256127111	28424 2842412	28424 2842411 pt	3259104 3259104111	2893231	28932 2893231
3256111611 pt 3256111611 pt	2841135 pt	2841141 pt	3256127121 3256127131	2842416	2842411 pt 2842415 pt	3259104221 3259104341	2893244	2893232 2893244
3256111611 pt 3256111611 pt	2841135 pt	2841145 pt	3256127141 3256127151	2842420	2842421 pt	3259104431 3259104451	2893246	2893246
3256111611 pt 3256111611 pt	2841135 pt	2841149 pt	3256127161 3256127171	2842423	2842423	3259104YWV		
3256111611 pt 3256111611 pt	2841135 pt	2841165 2841167	3256127181 3256127191	2842443	2842443	3259107 3259107131 3259107141	28933 2893344 2893346	28933 2893344 2893346
3256111711	2044442	2841112	32561271A1 32561271B1	2842498	2842498	3259107141 3259107211 3259107221	2893341 2893342	2893341 2893342
3256111721 3256111731	2841114	2841114		2842400		3259107221 3259107251 3259107YWV	2893349 2893300	2893349 2893300
3256111731 3256111741 pt 3256111741 pt	2841136 pt	2841125 pt	325612W	2842000	2842000	325910A	28934	28934
3256111741 pt	2841136 pt	2841141 pt	325612WYWY			325910A111 325910A121	2893482	2893482 2893483
	2841136 pt	2841145 pt	3256130	2843031	28430 2843031	325910A131 325910A141	2893487 2893489	2893487 2893489
3256111741 pt 3256111741 pt	2841136 pt	2841149 pt	3256130121 3256130131	2843055	2843055	325910AYWV	2893400	2893400
3256111YWV			3256130241 3256130YWW 3256130YWY	2843000	2843000	325910E 325910E111 325910E121	28936 2893611 2893621	28935 pt 2893598 pt
3256114 3256114111	28412 2841221	28412 2841221	3256201		28441	325910E121	2893631	2893598 pt 2893598 pt 2893500 pt
3256114121 3256114211			3256201111 3256201121	2844149	2844149	325910H	28937	28935 pt
3256114311 3256114411			3256201131 3256201YWV	2844159	2844159	325910H111 325910H121	2893771 2893785	2893571 2893585
3256114511 3256114521	2841203	2841203	3256204		28442	325910H131 325910HYWV	2893799 2893700	2893598 pt 2893500 pt
3256114531 3256114541	2841205	2841205	3256204111 3256204121	2844211	2844211	325910W	28930	28930
3256114551	2841206	2841206	3256204131 3256204211	2844235	2844235	325910WYWW 325910WYWY	2893000 2893002	2893000 2893002
3256114561 3256114571	2841209 2841210	2841209 2841210	3256204YWV	2844200	2844200	3259200 3259200111	28920 2892017	28920 2892017
3256114581 3256114591	2841211 2841261	2841211	3256207 3256207111	2844311	2844311	3259200121 pt 3259200121 pt	2892019 pt	2892020 2892024
3256114YWV	2841200	2841200	3256207121 3256207131	2844314	2844314	3259200231 3259200341 pt	2892059 pt	2892039
3256117 3256117111	28413	28413 2841312	3256207141 3256207151	2844318	2844318	3259200341 pt 3259200YWW	2892059 pt	2892071 2892000
3256117211 3256117311	2841313 2841314	2841313 2841314	3256207211 3256207221	2844322	2844322	3259200YWY	2892002	2892002 30870 pt
3256117321 3256117331	2841315	2841315	3256207231 3256207241	2844328	2844326 pt 2844326 pt	3259911115 3259911221	3087112 3087113	3087012 3087013
3256117YWV	2841300	2841300	3256207251 3256207261		2844336 2844339	3259911YWV	3087100	3087000 pt
325611A 325611A111	2841411	2841411	3256207271 3256207281	2844341	2844341	3259912 3259912100	30872 3087200	30870 pt 3087000 pt
325611A121 pt	2841419 pt	2841451	3256207291 32562072A1	2844353	2844351 pt	325991W	30870 3087000	30870 pt 3087000 pt
325611AYWV			32562072B1 32562072C1	2844364	2844364 2844365	325991WYWY	3087002	3087002
325611D	2844400 pt	2844400 pt	32562072D1	2844395 2844300	2844395 2844300	3259921 pt	38615 38616	38615 38616
325611D100 pt			325620A	28444 pt	28444 pt 2844431	3259921101 3259921106	3861503	3861503 3861506
325611W pt	28410		325620A111 325620A121 325620AYWV	2844498	2844498	3259921111 3259921116 pt	3861600	3861600 3861502
325611WYWW pt 325611WYWW pt	2841000	2841000	325620D	•		3259921116 pt 3259921116 pt	3861531 pt	3861508 3861519
325611WYWY pt 325611WYWY pt	2841002	2841002	325620D111	2844611 2844613	2844611	3259921YWV 3259923 pt	3861500	3861500 38617
3256121	28422	28422	325620D131 325620D141	2844615 2844617	2844615 2844617	3259923 pt	38619	38619
3256121111 3256121121	2842244 2842245	2842243 pt	325620D151	2844619 2844621	2844619 2844621	3259923101 pt 3259923101 pt	3861713 3861718	3861713 3861718
3256121131 3256121141	2842254 2842255	2842253 pt 2842253 pt	325620D221 325620D231	2844622	2844622 2844623	3259923101 pt 3259923101 pt	3861722	3861722 3861723
3256121YWV	2842200	2842200	325620D241 325620D251	2844624 2844625	2844624 2844625	3259923101 pt 3259923106 pt	3861729	3861729 3861741
3256124 3256124111	28423	2842332 pt	325620D261 325620D271	2844626 2844629	2844629	3259923106 pt 3259923106 pt 3259923106 pt	3861745 3861747	3861743 3861745 3861747
3256124211 pt 3256124211 pt	2842340 pt	2842397 pt	325620DYWV			3259923106 pt 3259923106 pt 3259923111	3861747 3861751 3861900	3861751 3861900
3256124221 3256124231	2842343	2842397 pt	325620G	2844711	28447 2844711	3259923YWV	3861700	3861700
3256124241 pt 3256124241 pt	2842347 pt	2842397 pt	325620G121	2844721	2844721	3259925 3259925101	38618	38618 3861812
3256124251 pt 3256124251 pt 3256124261 pt	2842350 pt	2842397 pt	325620G211	2844731	2844731	3259925206	3861814	3861814 3861815
			325620G231	2844741	2844741	3259925321 3259925YWV	3861819 3861800	3861819 3861800
3256124261 pt 3256124311	2842382	2842397 pt 2842381 pt	325620G331	2844751 2844755	2844751	325992W	38610 pt 3861000 pt	38610 pt 3861000 pt
3256124321 3256124331	2842383 2842386 2842387	2842385 pt	325620G351	2844761	2844761	325992WYWY	3861002 pt	3861002 pt
3256124341 3256124411 3256124421	2842312	2842311 pt	325620G361	2844765 2844771	2844771	3259981 3259981100	28991 pt 2899111	28991 pt 2899100 pt
3256124431 3256124441	2842315	2842315	325620G381	2844775	2844775 2844781	3259984 3259984100	39993	39993 3999300
3256124451	2842324		325620G3A1 325620G3B1	2844795	2844795	3259987	28994	28994
3256124461 3256124471	2842325 2842328	2842326 pt 2842328	325620GYWV		2844700 28440 pt	3259987111 3259987121	2899411	2899411 2899431
3256124471 3256124481 3256124491	2842330	2842330	325620W	2844000 pt	2844000 pt	3259987131 3259987YWV	2899497 2899400	2899497 2899400
32561244E1 32561244F1	2842351	2842351	3259101	•		325998A 325998A111	28995 pt 2899573	28995 pt 2899573
32561244G1	2842371 2842390	2842371 2842390	3259101111 3259101121	2893105	2893105 2893115	325998A121 325998A131	2899576 2899577	2899576 2899577
32561244J1 3256124YWV	2842398	2842397 pt	3259101131	2893117 2893100	2893117	325998A141	2899578	2899578
							•	•

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
325998E 325998E111 325998E121 325998E131 325998E141 325998E151 325998E161 325998E171 325998E181	2899532 2899533 2899535 2899536 2899537 2899538	2899534 2899543 pt 2899543 pt 2899543 pt 2899543 pt 2899543 pt 2899543 pt	325998H106 325998H107 325998H109 325998H111 325998H121 325998H131 325998H141 325998H151 325998H161	2899525 2899526 2899531 2899539 2899541 2899549 2899553 2899553 2899561	2899525 2899526 2899531 2899539 2899541 2899549 2899553 2899559 2899561	325998H1E1 pt 325998HYWV pt 325998HYWV pt 325998HYWV pt 325998W pt 325998W pt	2819900 pt	2899500 pt 3952400 pt 28190 pt 28990 pt
·	2899545	2899543 pt 2899500 pt 28199 pt	325998H171 325998H181 325998H191 325998H1A1	2899568	2899572 2899581 2899591	325998W pt 325998WYWW pt 325998WYWW pt 325998WYWW pt 325998WYWW pt	2819000 pt 2899000 pt 2899100 pt	39990 pt 2819000 pt 2899000 pt 2899100 pt 3952000 pt 3999000 pt
325998H pt 325998H101	39524 pt	39524 pt	325998H1C1 325998H1D1 325998H1E1 pt 325998H1E1 pt	2899595	2899595 2899598 2819900 pt	325998WYWY pt 325998WYWY pt 325998WYWY pt 325998WYWY pt	2819002 pt 2899002 pt 3952002 pt	2819002 pt 2899002 pt 3952002 pt 3999002 pt