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United States International Trade Commission

**SYNTHETIC
ORGANIC CHEMICALS**

**United States Production
and Sales, 1991**

USITC PUBLICATION 2607

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Seventy-Fifth Annual Edition

UNITED STATES INTERNATIONAL TRADE COMMISSION

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UNITED STATES INTERNATIONAL TRADE COMMISSION

SYNTHETIC ORGANIC CHEMICALS

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Introduction

This is the 75th annual report of the U.S. International Trade Commission on domestic production and sales of synthetic organic chemicals and the raw materials from which they are made. The report, along with the quarterly report titled *Preliminary Report on U.S. Production of Selected Synthetic Organic Chemicals (Including Synthetic Plastics and Resin Materials)*, is prepared under investigation No. 332-135, Synthetic Organic Chemicals Reports. This investigation is conducted under the authority of section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1322(g)), for the purpose of collecting data and preparing public reports on synthetic organic chemicals, plastics materials, medicinal chemicals, pesticides, and other organic chemical products. The annual report consists of 15 sections, each covering a specified group (based principally on use) of organic chemicals as follows: Tar and tar crudes; primary products from petroleum and natural gas for chemical conversion; cyclic intermediates; dyes; organic pigments; medicinal chemicals; flavor and perfume materials; plastics and resin materials; rubber-processing chemicals; elastomers; plasticizers; surface-active agents; pesticides and related products; miscellaneous end-use chemicals and chemical products; and miscellaneous cyclic and acyclic chemicals. Data have been supplied by approximately 698 producers.

Each of the 15 sections is headed by a summary of the statistical data. The first table in each section gives statistics on products and groups of products in as great detail as is possible without revealing the operations of individual producers. Statistics for an individual chemical or group of chemicals are given only when there are three or more producers, no one or two of which may be predominant. Moreover, even when there are three or more producers, statistics are not given if there is any possibility that their publication would violate the statutory provisions relating to unlawful disclosure of information accepted in confidence by the Commission.¹

Data are reported by producers for only those items where the volume of production or sales or value of sales exceeds certain minimums. Those minimums are 450 kilograms of production or sales or \$1,000 of value of sales for organic pigments, medicinal chemicals, flavor and perfume materials, rubber-processing chemicals, elastomers, and those chemicals whose end-use is not readily determinable; 2,250 kilograms or \$5,000 for tar and tar crudes, petroleum and natural gas products, dyes, plasticizers, surface-active agents, and pesticides; 4,500 kilograms or \$10,000 for cyclic intermediates and miscellaneous cyclic and acyclic chemicals; 9,000 kilograms or \$20,000 or miscellaneous end-use chemicals and products; and 22,500 kilograms or \$50,000 or plastics materials. Data are usually supplied in terms of undiluted materials; however, for reporting purposes, products of 95 percent or greater purity are considered to be 100 percent pure. Commercial concentrations are applicable for dyes, certain plastics and resins, and a few solvents; such concentrations are specifically noted.

The statistics given in this report include data from all known domestic producers of the items covered and include the total output of each company's plants, i.e., the quantities produced for consumption within the producing plant, as well as the quantities produced for domestic and foreign sale. The quantities reported as produced, therefore, generally exceed the quantities reported as sold. Some of these differences, however, are attributable to changes in inventory.

The second table in each section lists all items for which data on production or sales have been reported, by primary manufacturers, identified by manufacturers' codes. Each code consists of not more than three capital letters and is assigned on a permanent basis.

The third table in each section is a directory, alphabetized by the codes of the manufacturers reporting in that section.

Appendix A is a directory, alphabetized by the names of the manufacturers reporting in all sections and which includes their general corporate phone numbers and office addresses.

Appendix B lists synonymous names for cyclic intermediates. Information on synonymous names of the organic chemicals included in this report may be found in the *SOCMA Handbook: Commercial Organic Chemical Names*, published by the Chemical Abstracts Service of the American Chemical Society, or the *Colour Index (Revised Third Edition)*, published jointly by the Society of Dyes and Colourists and the American Association of Textile Chemists and Colorists.

Appendix C presents the data in this report aggregated in the format of the Harmonized System (HS) nomenclature on a 6-digit HS basis.

Appendix D is an alphabetical index of all the products in this edition of the report.

Data contained in this report are compiled primarily from Commission questionnaires sent to domestic producers and represent the best data available to the Commission. While the data supplied in the questionnaires are checked against data previously supplied by the submitting firm and with data supplied by other domestic producers, data are not independently verified by direct Commission examination of the books of companies furnishing information. Data contained in this report should not be used for investment and other purposes without independent verification.

As specified in the reporting instructions sent to manufacturers, production and sales (unless otherwise specified) are defined as follows:

Production is the total quantity of a commodity made available by original manufacturers only within the customs territory of the United States (includes the 50 states, the District of Columbia, and Puerto Rico). It covers synthetic organic chemicals, specified crudes from petroleum and coal tar, and certain chemically described natural products, such as alkaloids, enzymes, and perfume isolates. It is the sum—expressed in terms of 100% active ingredient unless otherwise specified in the reporting instructions—of the quantities:

¹ U.S.C. § 1905 and 44 U.S.C. § 3508.

Produced, separated, and consumed in the same plant or establishment. A commodity is considered separated either when it is isolated from the reactive system or when it is not isolated, but weighed, analyzed, or otherwise measured. This includes by-products and co-products that are not classifiable as waste materials;

Produced and not isolated, but directly converted to a finished or semifinished item not included in this report (e.g., polyester film, polyurethane tires, nylon fiber, bar soap, etc.). (See specific instructions in individual sections);

Produced and transferred to other plants or establishments of the same firm or 100% owned subsidiaries or affiliates;

Produced and sold to, or bartered with, other firms (including less than 100% owned subsidiaries);

Produced *for others* under toll agreements (see general instructions); and

Produced and held in stock.

PRODUCTION EXCLUDES:

Purification of a commodity, which is purchased by, or transferred from within, the company, unless inclusion of such processing is specifically requested in the reporting instructions for individual sections;

Intermediate products which are formed in the manufacturing process, but are not isolated from the reaction system—that is, not weighed, analyzed, or otherwise measured;

except such products as described above as being produced and not isolated, but directly converted to a finished or semifinished item. Materials that are used in the process but which are recovered for re-use or sale;

Waste products having no economic significance.

SALES are actual quantities of commodities sold by original manufacturers only. Sales include the quantity and value of:

Shipments of a commodity for domestic use or for export, or segregation in a warehouse when title has passed to the purchaser in a bona fide sale;

Shipments of a commodity produced for a company *by others* under toll agreement;

Shipments to subsidiary or affiliated companies, provided the ownership is less than 100%.

SALES EXCLUDE:

All intra-company transfers within a corporate entity;

All shipments to 100% owned subsidiary or affiliated companies;

All resales of imported or purchased material, including materials obtained by barter;

All shipments of commodity produced *for others* under toll agreements.

VALUE OF SALES is the net dollar receipts of sales f.o.b. plant or warehouse, or delivered. F.o.b. values were preferred, but if they are not readily available from company records, delivered values were acceptable.

Summary

Combined production of all synthetic organic chemicals, coal tar and crudes, and primary products from petroleum and natural gas in 1991 was 177,828 million kilograms—a decrease of 1.0 percent from the output in 1990. Sales of these materials in 1991, which totaled 101,236 million kilograms, valued at \$85,464 million, were 0.4 percent less than in 1990 in terms of quantity and 8.2 percent less in terms of value. These figures include data on production and sales of chemicals measured at several successive steps in the manufacturing process, and, therefore, they necessarily reflect some duplication. During 1987-91, the total output of these products rose each year since 1987 (figure 1). During that period the output of these products generally followed the trend of the Federal Reserve Board Index of U.S. Production, except for 1989.

In 1991, production of all synthetic organic chemicals, including cyclic intermediates and finished products totaled 122,971 million kilograms, or 3.2

percent less than the output in 1990. Three sections showed an increase in production in 1991 over 1990: medicinal chemicals (184 million kilograms) increased by 27.8 percent; flavor and perfume materials (69 million kilograms) increased by 15.0 percent; cyclic intermediates (24,103 million kilograms) increased by 0.5 percent; of the remaining sections, pesticides and related products (452 million kilograms) showed a decrease of 19.9 percent; rubber-processing chemicals (155 million kilograms) decreased 13.4 percent; surface-active agents (3,379 million kilograms) decreased 11.0 percent; miscellaneous end-use chemicals and chemical products (13,467 million kilograms) decreased 10.2 percent; plasticizers (828 million kilograms) decreased 7.1 percent; plastics and resin materials (28,253 million kilograms) decreased 6.0 percent; dyes (111 million kilograms) decreased 5.3 percent; elastomers (synthetic rubber) (2,166 million kilograms) decreased 3.0 percent; organic pigments (51 million kilograms) decreased 2.4 percent; and miscellaneous cyclic and acyclic chemicals (49,754 million kilograms) decreased 0.4 percent in 1991 from that in 1990.

Table 1
Synthetic organic chemicals and their raw materials: U.S. production and sales, 1990 and 1991

Chemical	Production		Increase or Decrease (-), 1991 over 1990 ¹	Sales					
	1990	1991		Quantity		Value			
				1990	1991	Increase or decrease (-), 1991 over 1990 ¹	1990	1991	Increase or decrease (-), 1991 over 1990 ¹
	Million kilograms	Million kilograms	Percent	Million kilograms	Million kilograms	Percent	Million dollars	Million dollars	Percent
Grand total	179,546	177,828	-1.0	101,624	101,236	-0.4	93,092	85,464	-8.2
Coal tar and crudes	843	759	-10.0	(²)	(²)	(²)	(²)	(²)	(²)
Primary products from petroleum and natural gas	51,722	54,098	4.6	26,914	27,640	2.7	11,206	9,634	-14.0
Synthetic organic chemicals, total ³	126,981	122,971	-3.2	74,710	73,596	-1.5	81,886	75,830	-7.4
Cyclic intermediates	23,996	24,103	0.4	11,866	11,494	-3.1	10,981	7,588	-30.9
Dyes	117	111	-5.3	104	107	2.8	775	761	-1.8
Organic pigments	53	51	-2.4	45	39	-11.9	717	644	-10.3
Medicinal chemicals	144	184	27.8	107	133	24.3	2,169	2,376	9.5
Flavor and perfume materials	60	69	15.0	37	39	5.4	992	925	-6.8
Plastics and resin materials	30,053	28,253	-6.0	25,729	24,787	-3.7	30,529	28,141	-7.8
Rubber-processing chemicals	179	155	-13.4	136	114	-16.2	458	457	-0.2
Elastomer (synthetic rubber)	2,233	2,166	-3.0	1,555	1,529	-1.7	3,128	2,979	-4.8
Plasticizers	891	828	-7.1	827	810	-2.1	967	1,052	8.8
Surface-active agents	3,795	3,379	-11.0	1,930	2,028	5.1	2,193	2,257	2.9
Pesticides and related products	557	452	-19.9	442	445	0.7	4,774	4,019	-15.8
Miscellaneous end-use chemicals and chemical products	14,992	13,467	-10.2	10,737	10,712	-0.2	9,711	9,938	2.3
Miscellaneous cyclic and acyclic chemicals	49,912	49,754	-0.4	21,197	21,359	0.7	14,492	14,690	1.3

¹ Percentage calculated from figures rounded to thousands.

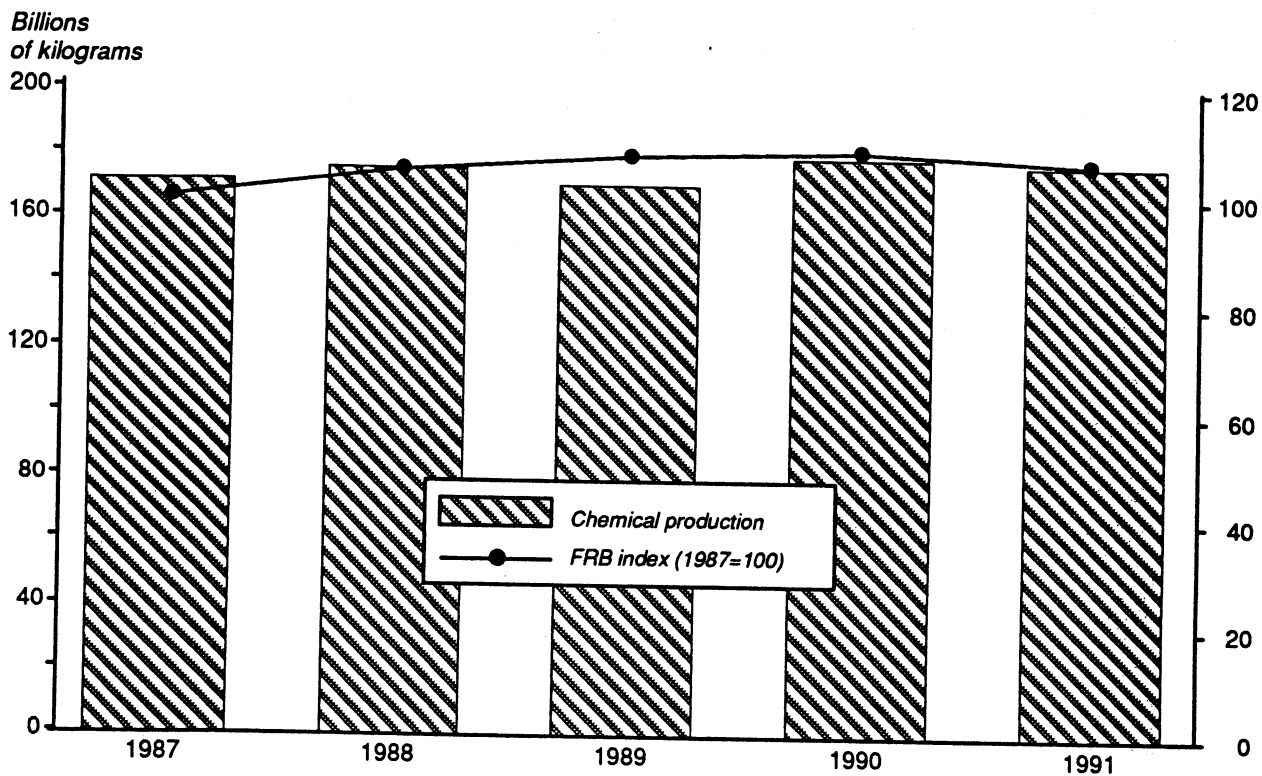
² Not available

³ Because of rounding, figures may not add to the totals shown.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Summary

Figure 1-1
Synthetic organic chemicals and their raw materials, total production, vs FRB Industrial production Index



Source: Production, U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*; FRB Industrial Production index, The Board of Governors of the Federal Reserve System.

General

In this report, synthetic organic chemicals are classified on the basis of their principal use as follows: Cyclic intermediates, dyes, organic pigments, medicinal chemicals, flavor and perfume materials, plastics and resin materials, rubber-processing chemicals, elastomers (synthetic rubber), plasticizers, surface-active agents, pesticides and related products, miscellaneous end-use chemicals and chemical products, and miscellaneous cyclic and acyclic chemicals. Most of these groups are further subdivided either by use or by chemical composition. As intermediates, chemicals are used in the manufacture of finished products. Aggregate figures that cover both intermediates and finished products, therefore, necessarily include considerable duplication.

Total production of synthetic organic chemicals (intermediates and finished products combined) in 1991 was 122,971 million kilograms, or 3.2 percent less than the output of 126,981 million kilograms reported for 1990, and 55.3 percent more than the output of 79,144 million kilograms reported in 1977 (table 2). Sales of synthetic organic chemicals in 1991

amounted to 73,596 million kilograms, valued at \$75,830 million, compared with 74,711 million kilograms, valued at \$81,886 million, in 1990, and 44,378 million kilograms, valued at \$32,434 million, in 1977. Production of all cyclic (ring chemical structure) products (intermediates and finished products combined) in 1991 totaled 38,789 million kilograms, or 0.01 percent less than the 38,823 million kilograms reported for 1990, and 122.2 percent more than the 17,451 million kilograms reported for 1977; however, the transfer of eight items, in 1979, from the primary products from petroleum and natural gas section to the section on cyclic intermediates has caused the output of cyclic products to appear much higher in relation to 1977 than would otherwise have resulted. Production of all acyclic (linear or branch chemical structure) products in 1991 totaled 82,016 million kilograms, or 4.6 percent less than the 85,925 million kilograms reported for 1990, and 38.8 percent more than the 59,057 million kilograms reported for 1977. Differences in trends between cyclic and acyclic products reflect the aggregation of changes in usage of individual chemicals rather than preferences for cyclic versus acyclic chemicals.

Table 2
Synthetic organic chemicals: Summary U.S. production and sales of intermediates and finished products, 1977, 1990, and 1991

(Production and sales in thousands of kilograms; sales value in thousands of dollars)

Chemicals	1977 ¹	1990	1991	Increase or decrease (-)	
				1991 over 1977	1991 over 1990
Organic chemicals, cyclic and acyclic, total:					
Production	79,144,460	126,980,989	122,970,963	55.3	-3.2
Sales	44,378,105	74,710,337	73,596,362	65.8	-1.5
Sales value	32,434,301	81,885,632	75,829,690	133.7	-7.4
Cyclic, total:²					
Production	17,451,083	38,823,382	38,788,700	122.2	-0.01
Sales	10,833,542	23,567,459	23,143,961	113.6	-1.8
Sales value	13,410,029	37,221,177	33,433,914	149.3	-10.2
Acyclic, total:²					
Production	59,056,510	85,924,531	82,016,099	38.8	-4.6
Sales	31,649,694	49,587,756	48,923,274	54.5	-1.4
Sales value	17,084,012	41,536,592	39,416,469	130.7	-5.2
1. Cyclic Intermediates					
Production	8,493,888	23,995,795	24,103,470	183.8	0.4
Sales	3,622,331	11,865,617	11,494,041	217.3	-3.1
Sales value	2,596,627	10,980,553	7,588,484	192.2	-30.9
2. Dyes					
Production	119,917	117,135	110,961	-7.5	-5.3
Sales	115,448	103,897	106,813	-7.5	2.8
Sales value	689,992	775,352	761,415	10.4	-1.8
3. Organic Pigments					
Production	31,165	52,551	51,311	64.6	-2.4
Sales	26,052	44,773	39,426	51.3	-11.9
Sales value	267,747	717,194	643,561	140.4	-10.3

See footnotes at end of table.

Table 2—Continued
Synthetic organic chemicals: Summary U.S. production and sales of intermediates and finished products,
1977, 1990, and 1991

(Production and sales in thousands of kilograms; sales value in thousands of dollars)

Chemicals	1977 ¹	1990	Increase or decrease (-)		
			1991	1991 over 1977	1991 over 1990
4. Medicinal Chemicals					
Cyclic:					
Production	69,819	119,726	136,971	96.2	14.4
Sales	37,914	65,847	68,947	81.9	4.7
Sales value	718,392	1,867,993	2,077,635	189.2	11.2
Acyclic:					
Production	39,377	24,615	46,934	19.2	90.7
Sales	35,743	41,400	64,116	79.4	54.9
Sales value	75,626	301,351	298,758	295.1	-0.9
5. Flavors and Perfume Materials					
Cyclic:					
Production	26,514	39,514	42,291	59.5	7.0
Sales	21,232	27,867	27,881	31.3	0.1
Sales value	134,628	909,620	826,627	514.0	-9.1
Acyclic:					
Production	41,715	20,417	26,552	-36.4	30.1
Sales	27,559	8,647	10,813	-60.8	25.1
Sales value	72,473	81,992	98,851	36.4	20.6
6. Plastics and Resin Materials					
Cyclic:					
Production	4,899,932	8,925,713	8,391,008	71.2	-6.0
Sales	4,284,062	7,512,789	7,237,785	68.9	-3.7
Sales value	4,275,111	12,394,918	11,425,177	167.2	-7.8
Acyclic:					
Production	10,804,977	21,127,193	19,861,543	83.8	-6.0
Sales	9,232,677	18,215,939	17,549,151	90.1	-3.7
Sales value	6,606,712	18,134,437	16,715,652	153.0	-7.8
7. Rubber-Processing Chemicals					
Cyclic:					
Production	152,204	138,426	139,796	-8.2	1.0
Sales	91,740	104,280	99,434	8.4	-4.7
Sales value	248,756	413,253	427,997	72.1	3.6
Acyclic:					
Production	21,076	40,181	14,800	-29.8	-63.2
Sales	16,254	32,131	14,379	-11.5	-55.3
Sales value	29,009	44,399	29,340	1.1	-33.9
8. Elastomers (Synthetic Rubber)					
Production	2,636,867	2,233,076	2,166,164	-17.9	-3.0
Sales	1,894,869	1,555,122	1,529,127	-19.3	-1.7
Sales value	1,940,260	3,127,863	2,979,307	53.6	-4.8
9. Plasticizers					
Cyclic:					
Production	638,249	640,099	604,042	-5.4	-5.6
Sales	630,645	644,104	604,433	-4.2	-6.2
Sales value	474,781	665,385	708,491	49.2	6.5
Acyclic:					
Production	174,615	250,619	223,889	28.2	10.7
Sales	125,784	182,423	205,494	63.4	12.7
Sales value	157,549	301,132	343,973	118.3	14.2
10. Surface-Active Agents					
Cyclic: ³					
Production	448,863	1,263,291	1,356,258	(⁴)	7.4
Sales	212,933	1,018,716	1,033,713	(⁴)	1.5
Sales value	200,244	813,759	841,648	(⁴)	3.4
Acyclic:					
Production	1,691,285	2,531,363	2,022,904	(⁴)	-20.1
Sales	927,674	911,544	994,110	(⁴)	9.1
Sales value	674,778	1,379,089	1,415,398	(⁴)	2.6

See footnotes at end of table.

Table 2—Continued
Synthetic organic chemicals: Summary U.S. production and sales of intermediates and finished products,
1977, 1990, and 1991

(Production and sales in thousands of kilograms; sales value in thousands of dollars)

Chemicals	1977 ¹	1990	1991	Increase or decrease (-)	
				1991 over 1977	1991 over 1990
11. Pesticides and Related Products					
Cyclic:					
Production	376,276	361,202	300,146	-20.2	-16.9
Sales	313,520	280,112	242,171	-22.8	-13.5
Sales value	1,664,008	3,366,910	2,834,941	70.4	-15.8
Acyclic:					
Production	253,099	195,673	151,357	-40.2	-22.7
Sales	259,376	161,453	203,165	-21.7	25.8
Sale value	1,144,265	1,407,435	1,184,282	3.5	-15.9
12. Miscellaneous End-Use Chemicals and Chemical Product					
Cyclic:					
Production	1,252,527	1,469,599	1,781,761	42.3	21.2
Sales	1,004,105	1,126,028	1,465,992	46.0	30.2
Sales value	1,479,800	2,831,664	3,772,391	154.9	33.2
Acyclic:					
Production	7,523,638	13,522,424	11,685,032	55.3	-13.6
Sales	3,919,801	9,610,721	9,245,939	135.9	-3.8
Sales value	1,067,681	6,879,700	6,165,975	477.5	-10.4
13. Miscellaneous Cyclic and Acyclic Chemicals					
Cyclic:					
Production	941,729	1,700,331	1,770,685	88.0	4.1
Sales	473,560	773,429	723,325	52.7	-6.5
Sales value	659,943	1,484,576	1,525,547	131.2	2.8
Acyclic:					
Production	38,506,728	48,212,046	47,983,088	24.6	-0.5
Sales	17,104,826	20,423,498	20,636,107	20.6	1.0
Sales value	7,255,919	13,007,057	13,164,240	81.4	1.2

¹ Standard reference base period for Federal Government general-purpose index numbers.

² Does not include data for elastomers.

³ Includes ligninsulfonates.

⁴ The data for 1977 are not comparable with current data as a result of a change in accounting procedures.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

The following tabulation shows, by chemical groups, the number of companies that reported production in 1991 of one or more of the chemicals included in each group.

Chemical group	Number of companies	Chemical group	Number of companies
Cyclic intermediates	157	Elastomers (synthetic rubber)	35
Dyes	30	Plasticizers	40
Organic pigments	29	Surface-active agents	135
Medicinal chemicals	78	Pesticides and related products	62
Flavor and perfume materials	26	Miscellaneous end-use chemicals and chemicals products	143
Plastics and resins materials	242	Miscellaneous cyclic and acyclic chemicals	240
Rubber-processing chemicals	20		

Section 1

Coal Tar, Tar Crudes, and Pitches

Coal tar is produced chiefly by the steel industry as a by-product of the manufacture of coke; water-gas tar and oil-gas tar are produced by the fuel-gas industry. Production of coal tar, therefore, depends on the demand for steel; production of water-gas tar and oil-gas tar reflects the consumption of manufactured gas for industrial and household use. Water-gas and oil-gas tars have properties intermediate between those of petroleum asphalts and coal tar. Petroleum asphalts are not usually considered to be raw materials for chemicals.

The U.S. International Trade Commission began collecting data on crude coal tar for the 1986 reporting year. In 1991, U.S. production of crude coal tar was 536 million liters. Production of crude light oil was 204 million liters in 1991.

Tar crudes are obtained from coke-oven gas and by distilling coal tar, water-gas tar, and oil-gas tar. The most important tar crudes are benzene, toluene, xylene, creosote oil, and pitch of tar. Some of these products

are identical with those obtained from petroleum. Data for materials obtained from petroleum are included, for the most part, with the statistics for like materials obtained from coke-oven gas and tars, and are shown in table 1-1.

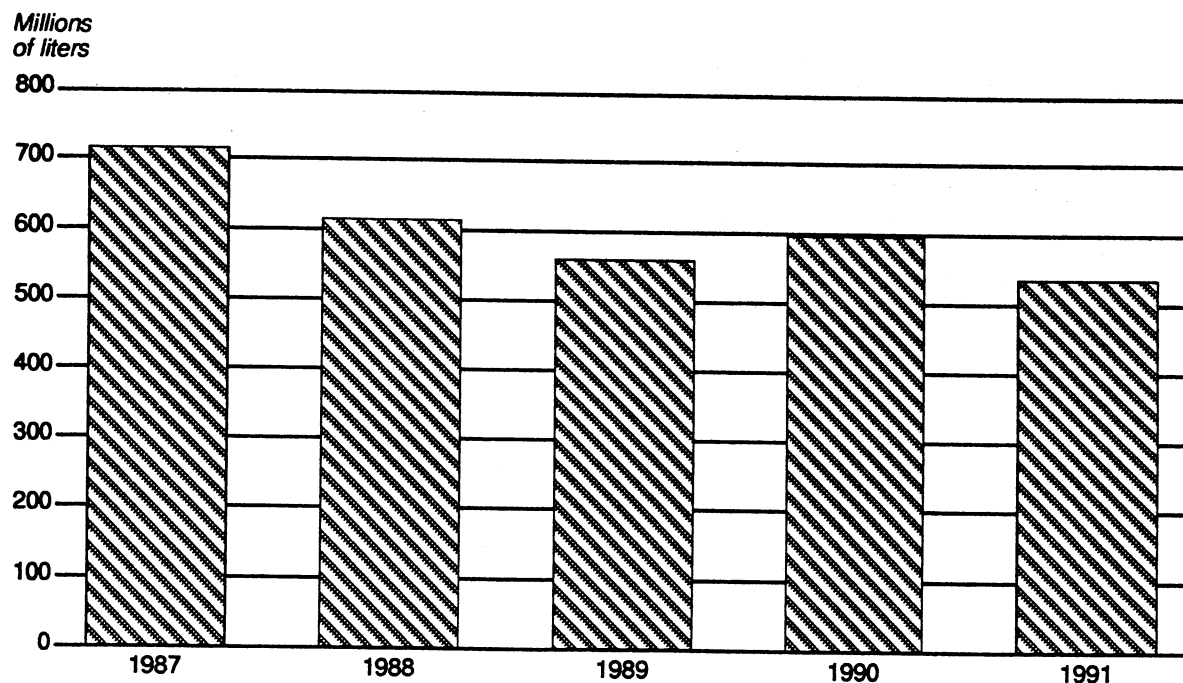
The domestic production by coke-oven operators of industrial and specification grades of benzene, toluene, and xylene cannot be published since to do so would disclose the operations of individual companies. Some of the products obtained from tar and included in the statistics in table 1-1 are obtained from other products for which data are also included in the table. The statistics, therefore, involve considerable duplication, and for this reason no group totals or grand totals are given.

Table 1-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 1-3.

Data for 1991 tar crudes were supplied by 23 companies and company divisions.

Cynthia B. Foreso
202-205-3348

Figure 1-1
Crude Coal tar: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section I

Table 1-1
Coal tar, tar crudes, and pitches: U.S. production and sales, 1991

Coal tar, tar crudes and pitches	Unit of Quantity	Production	Sales		Average Unit value ¹
			Quantity	Value	
				<i>1,000 Dollars</i>	
Crude coal tar (coke-oven operators)	1,000 liters	535,885	430,307	48,048	\$0.11
Crude light oil: (coke-oven operators)	1,000 liters	203,741	200,836	27,351	.14
Light-oil distillates:					
Benzene, all grades, total ²	1,000 liters	(³)	(³)	(³)	(³)
Coke-oven operators	1,000 liters	(³)	(³)	(³)	(³)
Petroleum refiners	1,000 liters	5,926,290	4,216,494	1,397,618	.33
Toluene, all grades, total ²	1,000 liters	(³)	(³)	(³)	(³)
Coke-oven operator	1,000 liters	(³)	(³)	(³)	(³)
Petroleum refiners	1,000 liters	3,295,099	1,662,345	405,686	.24
Xylene, all grades, total ²	1,000 liters	(³)	(³)	(³)	(³)
Coke-oven operator	1,000 liters	(³)	(³)	(³)	(³)
Petroleum refiners	1,000 liters	3,138,691	1,352,582	326,280	.24
Other tar distillate	1,000 liters	387,790	237,975	41,824	.18
Crude naphthalene	1,000 liters	110,254	(³)	(³)	(³)
Crude tar acid oils	1,000 liters	9,126	8,145	2,292	.28
(having a tar acid content of 5% to less than 24%)					
Creosote oil (Dead oil) (100 percent creosote basis):					
Distillate as such (100 percent creosote basis)	1,000 liters	183,713	106,231	21,437	.20
Creosote in coal tar solution (100 percent solution basis)	1,000 liters	84,697	123,600	18,095	.15
Tar and tar pitches:					
Pitch of tar - hard	1,000 metric ton	717	607	137,639	226.73

¹ Unit value per liter or metric ton as specified.

² Includes data for material produced for use in blending motor fuels. The annual production statistics for petroleum refiners on benzene, toluene, and xylene are not comparable with the combined monthly production figures because of fiscal year revisions.

³ Statistics cannot be published; to do so would disclose the operations of individual companies.

Note.—Statistics for materials produced in tar and petroleum refineries are compiled by the U.S. International Trade Commission. Data for all other tars and tar crudes are not included in the 1991 report because publication would disclose the operations of individual companies.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 1-2
Coal tar, tar crudes, and pitches for which U.S. production and/or sales were reported, identified by

Coal tar, tar crudes and pitches	Separate statistics ¹	Manufacturers' identification codes (according to list in table 1-3)
Light oil, light oil distillates, and tar bases:		
Crude light oil:		
Crude coal tar	Yes	ABP, ALS, CGU, EKO, GSS, ILI, INL, KPT, LTV, NBC, NTS, SGO, TWD, USX, WPS
Crude light oil	Yes	ABP, ALS, BTS, CGU, EKO, GSS, ILI, INL, KPT, LTV, NBC, NTS, SGO, TWD, USX, WPS.
Pyridine, tar bases:		
Benzene (benzol):		
Tar bases: crude bases (dry basis)	No	KPT, USX.
All other:		
All other light-oil distillates	No	LYP.
Other tar distillates:		
Naphthalene, crude:		
Methylnaphthalene	No	KPT.
Naphthalene, crude, solidifying at less than 74° C.	No	BTS, COP, GSS.
Naphthalene, crude, solidifying at 76° C to less than 79° C	Yes	ACS, ART, KPT.
Crude tar acid oils:		
Crude tar acid oils having a tar acid content of:		
5 percent to less than 24 percent	Yes	ACS, INL, KPT.
Creosote oil (Dead oil):		
Creosote oil (Dead oil): creosote content in solution (100 percent basis)	No	RIL.
Creosote oil (Dead oil): creosote in coal tar solution (100 percent solution basis)	Yes	ACS, ART, COP, KPT, RIL.
Creosote oil (Dead oil): distillate as such (100 percent creosote basis)	Yes	ACS, ART, KPT, RIL.
All other distillate products:		
Crude coal tar solvent	No	KPT.
Priming and refractory oil	No	BTS, KPT.
All other tar distillates	No	ACS, GIV.
Tar and tar pitches:		
Tar, road:		
Tar, road	No	ACS, RIL.
Tar for other uses:		
Tar for other uses: crude	No	BTS.
Tar for other uses: refined	No	ACS, KPT, RIL.
Pitch of tar:		
Pitch of tar: hard (M.P. 161° F and over)	Yes	ACS, COP, KPT, RIL.
Pitch of tar: medium (M.P. 110° To 160° F)	No	ART, COP, RIL.
Pitch of tar: soft (M.P. 80° To 109° F.)	No	ART, COP.
All other:		
All other pitch of tar	No	WPS.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 1-3
Coal tar, tar crudes and pitches: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ABP	Drummond Co. Inc.	KPT	Kopper Industries, Inc.
ACS	Allied Signal, Inc., Engineered Materials Sector	LTV	LTV Steel Co., Inc.
ALS	Armco, Inc.	LYP	Lyondell Petrochemical Co.
ART	Aristech Chemical Corp.	NBC	New Boston Coke Corp.
BTS	Bethlehem Steel Corp.	NTS	National Steel Corp., Great Lakes Div.
CGU	Citizen Gas And Coke Utility	RIL	Reilly Industries, Inc.
COP	Coopers Creek Chemical Corp.	SGO	Shenango, Inc.
EKO	Empire Coke Co.	TWD	Tonawanda Coke Corp.
GIV	Givaudan Corp.	USX	U.S. Steel, Div. of USX Clairton Plant Gary Works
GSS	Gulf States Steel, Inc.	WPS	Wheeling-Pittsburg Steel Corp.
ILI	Acme Steel Co.		
INL	Inland Steel Co.		

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
 Source: Compiled from data received in response to questionnaires of the U.S International Trade Commission.

Section 2

Primary Products from Petroleum and Natural Gas for Chemical Conversion

Primary products that are derived from petroleum and natural gas are related to the intermediates and finished products made from such primary materials in much the same way that crude products derived from the distillation of coal tar¹ are related to their intermediates and finished products. Many of the primary products derived from petroleum are identical with those derived from coal tar (e.g., benzene, toluene, and mixed xylenes). Considerable duplication exists in the statistics on the production and sales of primary petroleum products because some of these primary chemicals are converted to other primary products derived from petroleum and because data on some production and sales are reported at successive stages in the conversion process. The statistics are sufficiently accurate, however, to indicate trends in the industry. Many of the primary products for which data are included in the statistics may be used either as fuel or as basic materials from which other chemicals are derived. In this report every effort has been made to exclude data on materials that are used as fuel; however, data are included on toluene and mixed xylenes, which may be used in blending aviation and motor fuel.

¹ Statistics on chemicals from coal tar are given in Section 1 (Coal tar, tar crudes, and pitches) of this report.

The total production of primary products derived from petroleum and natural gas during 1987-91 is shown in figure 2-1. Beginning in 1988, production and sales data no longer are collected for ethane, propane, and butane. Total production for primary products during 1991 amounted to 54,098 million kilograms.

The output of aromatic and naphthenic products from petroleum amounted to 12,469 million kilograms in 1991, compared with 12,974 million kilograms in 1990. Sales amounted to \$2,362 million in 1991 down from \$2,889 million in 1990. In 1991, production of benzene was 5,209 million kilograms; production of toluene was 2,857 million kilograms; and production of mixed xylenes was 2,866 million kilograms (table 2-1).

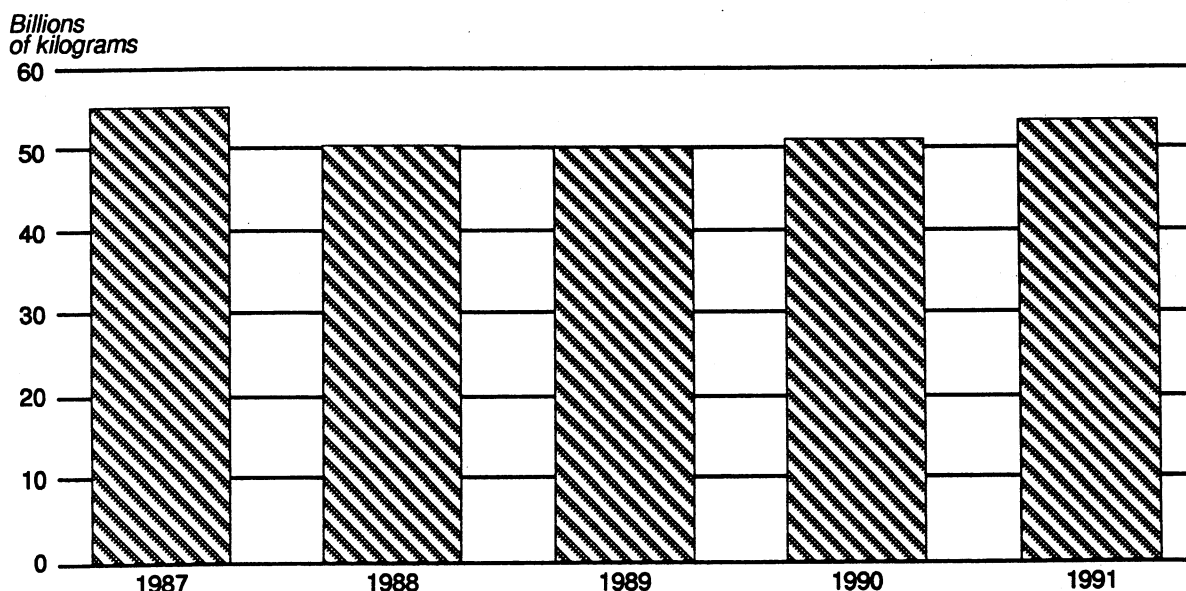
Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 41,629 million kilograms in 1991. Sales of these products were valued at \$7,272 million. Production of ethylene was 18,123 million kilograms in 1991. The output of 1,3-butadiene was 1,385 million kilograms and propylene production was 9,774 million kilograms during 1991 (table 2-1).

Table 2-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. The codes are identified by company name in table 2-3.

Data for 1991 primary products from petroleum and natural gas for chemical conversion were supplied by 61 companies or company divisions.

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Figure 2-1
Primary products from petroleum and natural gas for chemical conversion U.S. production, 1987-91



Note.—Data for 1988-91 do not include ethane, propane, and butane production.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 2-1
Primary products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1991

Primary products from petroleum and natural gas for chemical conversion	Production <i>1,000 kilograms</i>	Sales		Average Unit value ¹ <i>Per kilogram</i>
		Quantity <i>1,000 kilograms</i>	Value <i>1,000 dollars</i>	
Grand total	54,097,917	27,640,421	9,633,676	\$0.35
Aromatics and naphthenes²				
Total	12,469,213	7,439,511	2,361,625	.32
Benzene, all grades	5,209,209	3,706,298	1,379,618	.37
Toluene, all grades ^{3 4}	2,856,521	1,441,087	405,686	.28
Xylenes, mixed	2,866,253	1,235,178	326,280	.26
All other aromatics and naphthenes ⁵	1,537,230	1,056,948	250,041	.24
Aliphatic hydrocarbons				
Total	41,628,704	20,200,910	7,272,051	.36
C₂ Hydrocarbons, total⁶				
Acetylene ⁷ (for chemical use only)	136,595	63,806	47,197	.74
Ethylene	18,123,454	6,930,275	2,784,597	.40
C₃ Hydrocarbons, total⁸				
Propylene ⁹	9,774,421	5,587,526	2,026,443	.36
C₄ Hydrocarbons, total¹⁰				
Butadiene and butylene fractions	1,046,777	693,111	139,031	.20
1,3-Butadiene, grade for rubber (elastomers)	1,385,318	1,387,608	432,999	.31
1-Butene	425,457	211,628	92,425	.44
Isobutane	499,319	458,547	102,503	.22
Isobutylene	440,829	201,982	83,031	.41
All other C ₄ hydrocarbons ¹¹	2,542,064	1,178,962	222,343	.19
C₅ Hydrocarbons, total				
Isoprene (2-Methyl-1,3-butadiene)	214,070	163,566	58,213	.36
Pentenenes, mixed	188,536	(¹²)	(¹²)	(¹²)
All other C ₅ hydrocarbons ¹³	1,293,985	741,031	184,064	.25
All other aliphatic hydrocarbons, derivatives, and mixtures, total				
Alpha olefins, C ₆ -C ₁₀	469,025	220,439	173,160	.79
Alpha olefins, C ₁₁ and higher	392,001	214,795	168,054	.78
Dodecene (Tetrapropylene)	157,390	142,894	65,950	.46
Hexane	(¹²)	171,827	50,324	.29
n-Heptane	52,416	55,889	18,863	.34
Nonene (Tripropylene)	253,756	77,228	35,506	.46
n-Paraffins ¹⁴	673,177	467,294	140,509	.30
All other ¹⁵	3,560,114	1,232,502	446,839	.36

See footnotes at end of table.

Table 2-1—Continued

Primary products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1991

- ¹ Calculated from rounded figures.
- ² The chemical raw materials designated as aromatics are in some cases identical with those obtained from the distillation of coal tar; however, the statistics given in the table above relate only to such materials as are derived from petroleum and natural gas. Statistics on production and/or sales of benzene, toluene, and xylene from all sources are given in table 1-1 of the report on "Coal tar, tar crudes, and pitches."
- ³ Includes toluene, solvent grade, 90 percent.
- ⁴ Includes toluene and xylene used as solvents; may include that which is blended in aviation and motor gasolines.
- ⁵ Includes data for alkyl aromatics, crude cresylic acid, cyclopentane, naphthalene, naphthenic acid, carbon black feedstock, distillates, solvents, and miscellaneous cyclic hydrocarbons.
- ⁶ Ethane production and sales data are no longer collected.
- ⁷ Production figures on acetylene from calcium carbide for chemical synthesis are collected by the U.S. Bureau of the Census.
- ⁸ Propane production and sales data are no longer collected.
- ⁹ Includes data for refinery propylene.
- ¹⁰ Butane production and sales data are no longer collected.
- ¹¹ Includes production and/or sales data for 2-butene, mixtures of 1-butene and 2-butene, and mixed C₄ streams.
- ¹² Reported data are accepted in confidence and may not be published, or no data were reported.
- ¹³ Includes data for mixtures of C₅ hydrocarbons, isopentane, n-pentane, 1-pentene, 2-pentene, mixed pentenes, and piperylene.
- ¹⁴ Includes data for the following chain lengths: C₆-C₉, C₉-C₁₅, C₁₀-C₁₄, C₁₂-C₁₈ and others.
- ¹⁵ Includes production and/or sales data for methane, isoheptanes, isohexane, iso-octane, neohexane, methylcyclopentadiene, mixed hexenes, mixed heptenes, mixed octenes, n-octane, di-isobutylene, mixtures of C₂ and C₃, C₅-C₆, C₅-C₇, C₆-C₇ hydrocarbons, hydrocarbon derivatives, and other hydrocarbons.
- Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 2-2

Primary products from petroleum and natural gas for chemical conversion for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Primary products from petroleum and natural gas for chemical conversion	Separate statistics ¹	Manufacturers' identification codes (according to list in table 2-3)
Aromatics and naphthenes:		
Alkyl aromatics:		
Cyclosols	No	CXI.
All other alkyl aromatics	No	SHC.
Benzene:		
Benzene high purity (98-100%)	No	AMO, ASH, CGO, CNE, CSD, CSP, DOW, ENJ, GRS, HES, KHI, LYP, MOC, PLC, PPR, SHC, SIO, SM, SOC, SOG, SUN, SWR, TX, USI, UVN, VST, (?).
All other benzene	No	
Cresylic acid (less than 75 percent distilling over 215° C)	No	KHI.
Cyclopentane	No	PLC.
Methylcyclopentane	No	CNE.
Naphthalene	No	CXI, TX.
Naphthenic acid:		
Naphthenic acid, acid number 150-199	No	CPS, HEC, MER.
Naphthenic acid, acid number 200-224	No	MER.
Naphthenic acid, acid number less than 150	No	HEC, SHC.
Toluene:		
Toluene high purity (98-100%)	No	ASH, CNE, CSD, ENJ, GRS, HES, KHI, LYP, MOC, PLC, PPR, PPX, SC, SHC, SIO, SM, SOC, SOG, SUN, SWR, TX, UVN.
All other toluene	No	ATR, GE, LYP.
Xylenes, mixed:		
Xylene high purity (98-100%)	No	AMO, ASH, CSD, CSP, ENJ, GRS, HES, PLC, PPR, SHC, SOG, SUN, SWR, UNV.
All other xylene	No	AMO, MOC.
All other aromatics and naphthene:		
Benzene, toluene, xylene, mixtures	No	ATR, ELP.
Carbon black feedstock	No	ENJ.
All other products from petroleum and natural gas, cyclic	No	AMO, ASH, BAS, BFG, CSD, EKX, ELP, ENJ, LYP, OMC, SHC, SOG, UCC, UPM, UTP, VST, (?).
Aliphatic hydrocarbons:		
C₁ Hydrocarbons:		
Methane	No	SHO.
C₂ Hydrocarbons:		
Acetylene (for chemical use only)	Yes	BCP, RH, UCC, USI.
Ethylene	Yes	AMO, BAS, BFG, CNE, DOW, DUP, EKX, ELP, ENJ, GE, JVL, KHI, LYP, OMC, PLC, SHC, SM, SOC, SUN, TX, UCC, USI, UTP, VST, WLK.
C₃ Hydrocarbons:		
Hydrocarbons, C ₂ -C ₃ mixtures	No	CGO, SM.
Propylene	Yes	AMO, ASH, BAS, BFG, CCP, CGO, CLK, CNE, CSD, DA, DOW, DUP, EKX, ELP, ENJ, EPC, KHI, LYP, MOC, PLC, SHC, SIO, SM, SOC, SOG, SUN, TX, UCC, UTP, VLR, VST.
C₄ Hydrocarbons:		
Butadiene and butylene fractions	Yes	BAS, CNE, DA, DOW, EKX, PLC, SOC, TX, UCC, USI, UTP, VST.
1,3-Butadiene, grade for rubber (Elastomers)	Yes	AMO, CNE, ENJ, LYP, SHC, SM, TPC, TX.
1-Butene	Yes	CNE, ENJ, SHC, SM, SOC, TNA, TPC.
2-Butene	No	TPC.
1-Butene and 2-butene, mixed	No	LYP, SHC.

See footnotes at end of table.

Table 2-2-Continued

Primary products from petroleum and natural gas for chemical conversion for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Primary products from petroleum and natural gas for chemical conversion	Separate statistics ¹	Manufacturers' identification codes (according to list in table 2-3)
Aliphatic hydrocarbons—Continued		
C ₄ Hydrocarbon—Continued		
Hydrocarbons, C ₄ fraction	No	TX
Hydrocarbons, C ₄ mixtures	No	LYP, PPR, SOG.
Isobutane (2-Methylpropane)	Yes	CSP, DA, MOC, PLC, SHO, SM, SUN, TX.
Isobutylene (2-Methylpropene)	Yes	AMO, ATR, ENJ, SHC, TPC, TX.
All other hydrocarbons, C ₄	Yes	GE, SM, TNA, TX.
C ₅ Hydrocarbons:		
Hydrocarbons, C ₅ mixtures	No	LYP.
Hydrocarbons, C ₅ -C ₇ mixtures	No	CNE.
Isopentane (2-Methylbutane)	No	PLC, SHO.
Isoprene (2-Methyl-1,3-butadiene)	Yes	CNE, DOW, ENJ, GYR, LYP, SHC, SOC.
n-Pentane	No	CNE, PLC, SHO.
1-Pentene	No	DOW.
2-Pentene	No	BFG.
Pentenenes, mixed	Yes	CSP, CXI, ENJ, PLC, SHO, TX.
Piperylene (1,3-Pentadiene)	No	CXI, LYP.
All other hydrocarbons, C ₅	No	CNE, DOW, ENJ, SHC.
All other aliphatic hydrocarbons, derivatives, and mixtures:	Yes	
C ₆ Hydrocarbons:		
Hexane	Yes	ENJ, PLC, SOG, TX, (?).
1-Hexene	No	PLC, (?).
Hexenes, mixed	No	ENJ.
Hydrocarbons, C ₅ -C ₆ mixtures	No	PLC.
Isohexane	No	PLC.
Methylcyclopentadiene	No	ENJ.
Neohexane (2,2-Dimethylbutane)	No	PLC.
All other hydrocarbons, C ₆	No	DA, PLC, SHC, SM, TNA.
C ₇ Hydrocarbons:		
n-Heptane	Yes	ENJ, PLC, SOG, TX.
Heptenes, mixed	No	ENJ, TX.
Isoheptanes	No	PLC.
All other hydrocarbons, C ₇	No	EKX, PPR, SHC.
C ₈ Hydrocarbons:		
Di-isobutylene (Di-isobutene)	No	EKT, TPC.
n-Octane	No	SOG.
Octenes, mixed	No	ENJ.
2,2,4-Trimethylpentane (Iso-octane)	No	LYP, PLC.
All other hydrocarbons, C ₈	No	SHC, TX.
C ₉ and above hydrocarbons (except alpha olefins):		
Dodecene	Yes	ATR, CSP, ENJ, SOC, SUN.
Nonene (Tripropylene)	Yes	ATR, CSP, ENJ, SOC, TX.
Alpha olefins:		
Alpha olefins, C ₆ -C ₁₀	Yes	SHC, SOC, TNA, TX.
Alpha olefins, C ₁₁ and higher	Yes	SHC, SOC, TNA.
N-paraffins		
n-Paraffins, C ₁₀ -C ₁₄	No	SHC.
n-Paraffins, C ₁₂ -C ₁₈	No	VST.
n-Paraffins, C ₆ -C ₁₆	No	ENJ.
n-Paraffins, C ₆ -C ₉	No	SOG.
n-Paraffins, C ₉ -C ₁₅	No	ENJ, SOG, TX.
All other n-paraffins	No	ENJ, SOG, VST.
Hydrocarbon derivatives:		
n-Butyl mercaptan (1-Butanethiol)	No	PAS, PLC.
sec-Butyl mercaptan (2-Butanethiol)	No	HAP, PLC.
tert-Butyl mercaptan (2-Methyl-2-propanethiol)	No	HAP, PAS, PLC.
Decyl mercaptans	No	PAS.
Di-tert-butyl disulfide	No	PLC.
Diethyl sulfide (Ethyl sulfide)	No	HAP, PAS.
Dimethyl sulfide	No	GAY, PAS.
Ethyl mercaptan (Ethanethiol)	No	HAP, PAS, PLC.
Isopropyl mercaptan (2-Propanethiol)	No	HAP, PAS, PLC.
Methyl ethyl sulfide	No	HAP.

See footnotes at end of table.

Table 2-2-Continued
Primary products from petroleum and natural gas for chemical conversion for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Primary products from petroleum and natural gas for chemical conversion	Separate statistics ¹	Manufacturers' identification codes (according to list in table 2-3)
All other aliphatic hydrocarbons, derivatives, and mixtures:—Continued		
Methyl mercaptan (Methanethiol)	No	PAS.
n-Propyl mercaptan (1-Propanethiol)	No	PAS, PLC.
Thiophane (Tetrahydrothiophene)	No	HAP.
All other hydrocarbon derivatives	No	PAS, PLC, SHC.
All other hydrocarbons, C ₉ and above, including mixtures	Yes	ENJ, PLC, SOC, TNA.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 2-3
Primary products from petroleum and natural gas for chemical conversion: Directory of manufacturers,
alphabetical by code, 1991

<i>Code</i>	<i>Name of company</i>	<i>Code</i>	<i>Name of company</i>
AMO	Amoco Corp.	HES	Amerada Hess Corp. (Hess Oil Virgin Islands Corp.)
ASH	Ashland Oil, Inc., Ashland Petroleum Co.	JVL	Javelina Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.	KHI	Koch Refining Co.
BAS	BASF Corp.	KLM	Kalama Chemical, Inc.
BCP	Borden Chemical & Plastics Delaware Limited	LYP	Lyondell Petrochemical Co.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	MER	Merichem Co.
CCP	Crown Central Petroleum Corp.	MOC	Marathon Oil Co.
CGO	Citgo Petroleum Corp.	OMC	Olin Corp.
CLK	Clark Oil & Refining Corp.	PAS	Atochem North America, Inc.
CNE	Oxy Petrochemicals, Inc.	PLC	Phillips 66 Co.
CPS	CPS Chemical Co., Inc.	PPR	Phillips Puerto Rico Core, Inc.
CSD	Fina Oil & Chemical Co.,	PPX	Phillips Paraxylene, Inc.
CSP	Coastal Refining & Marketing, Inc.	RH	Rohm & Haas Co.
CXI	Chemical Exchange Industries, Inc.	SC	Sterling Chemicals, Inc.
DA	Diamond Shamrock Refining & Marketing	SHC	Shell Oil Co., Shell Chemical Co.
DOW	Dow Chemical Co.	SHO	Shell Oil Co.
DUP	E. I. duPont de Nemours & Co., Inc. Eastman Kodak Co.:	SIO	BP Oil Company
EKT	Tennessee Eastman Co. Div.	SM	Mobil Oil Corp.: Gas Liquids Dept. Petrochemicals Div.
EKX	Texas Eastman Co. Div.	SOC	Chevron Corp., Chevron Chemical Co.
ELP	Rexene Products Company	SOG	Phibro Refining
ENJ	Exxon Chemical Americas	SUN	Sun Company, Inc.
EPC	EPC Partners, Ltd.	SWR	Southwestern Refining Co., Inc.
GAY	Gaylord Chemical Corp.	TNA	Ethyl Corp.
GE	General Electric, Specialty Chemical Group	TPC	Texas Petrochemicals Corp.
GRS	Citgo Refining & Chemicals, Inc.	TX	Texaco Chemical Co.
GYR	Goodyear Tire & Rubber Co.	UCC	Union Carbide Corp., Industrial Chemical Div.
HAP	Helmerich & Payne Inc., Natural Gas Odorizing, Inc.	UPM	UOP, Inc.
HEC	Hew, Inc.	USI	Quantum Chemical Corp., USI Div.
		UTP	Union Texas Product Corp.
		UVN	UNO-VEN Co.
		VLR	Valero Refining & Marketing Co.
		VST	Vista Chemical Co.
		WLK	Westlake Corp.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission

Section 3 Cyclic Intermediates

Cyclic intermediates are synthetic organic chemicals derived principally from petroleum and natural gas and from coal-tar crudes produced by destructive distillation (pyrolysis) of coal. Most cyclic intermediates are used in the manufacture of more advanced synthetic organic chemicals and finished products, such as dyes, medicinal chemicals, elastomers (synthetic rubber), pesticides, and plastics and resin materials. Some intermediates, however, are sold as end products without further processing. For example, ethylbenzene may be used as a raw material in the manufacture of styrene. In 1991, about 48 percent of the total output of cyclic intermediates was sold; the rest was consumed chiefly in the producing plants in the manufacture of more advanced intermediates and finished products.

The total annual production of cyclic intermediates during 1987-91 is shown in figure 3-1. Total production of cyclic intermediates in 1991 amounted to 24,104 million kilograms, an increase of 1 percent compared with production reported to the Commission

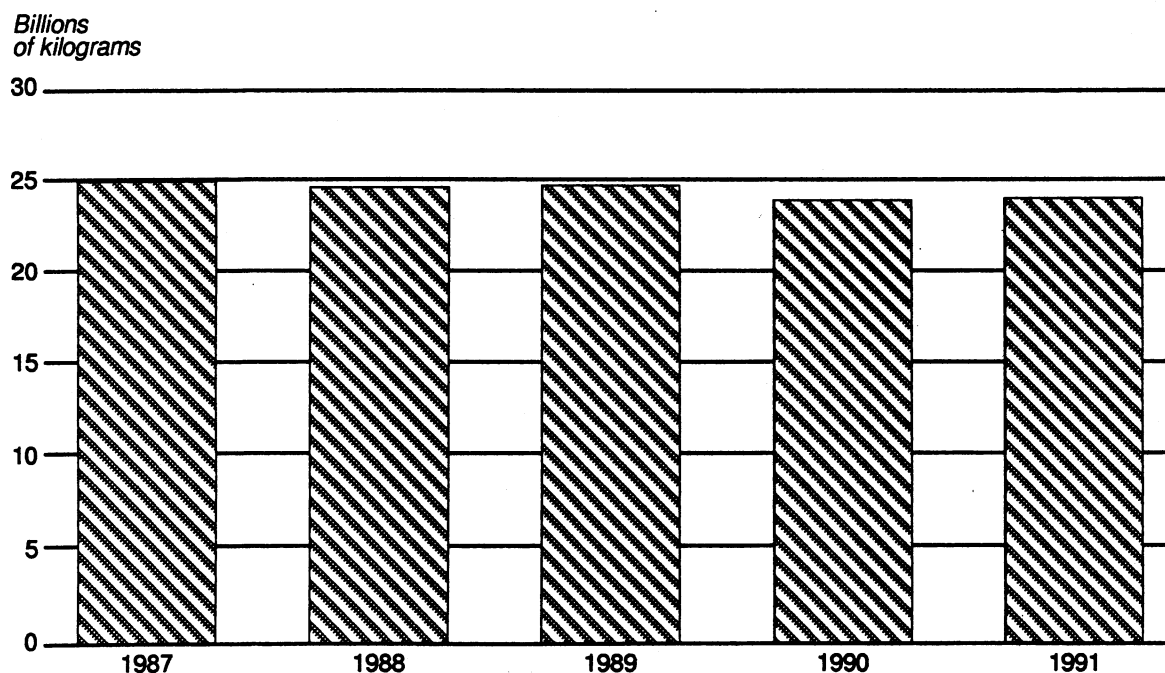
in 1990. Reported sales of cyclic intermediate chemicals in 1991 were 11,494 million kilograms, valued at \$7,588 million, compared with 11,866 million kilograms, valued at \$10,981 million, in 1990.

Intermediates that were produced in excess of 500 million kilograms in 1991 were ethylbenzene (4,024 million kilograms), styrene (3,681 million kilograms), terephthalic acid and terephthalic acid, dimethyl ester (3,466 million kilograms), p-xylene (2,427 million kilograms), cumene (1,890 million kilograms), phenol (1,632 million kilograms), cyclohexane (1,047 million kilograms), and bisphenol A (553 million kilograms). Intermediate chemicals produced in excess of 1 billion kilograms accounted for about 75 percent of the total output of cyclic intermediate chemicals produced in 1991.

Table 3-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 3-3.

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202-205-3356

Figure 3-1
Cyclic Intermediates: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 3-1
Cyclic intermediates: U.S. production and sales, 1991

Cyclic intermediates	Production <i>1,000 kilograms</i>	Sales		Average Unit value ¹ <i>Per kilogram</i>
		Quantity <i>1,000 kilograms</i>	Value <i>1,000 dollars</i>	
Grand total	24,103,470	11,494,041	7,588,484	\$0.66
Aniline (Aniline oil)	436,021	285,682	181,834	.64
Biphenyl	(²)	8,143	5,617	.69
Chlorobenzene, mono-	95,315	(²)	(²)	(²)
Cumene	1,890,456	1,510,477	682,426	.45
Cyclohexane	1,046,505	935,618	392,215	.42
Cyclohexanone	462,199	44,718	43,483	.97
o-Dichlorobenzene	19,657	17,050	15,020	.88
p-Dichlorobenzene	36,664	42,754	35,013	.82
Dicyclohexylamine	(²)	1,344	2,728	2.03
Dicyclopentadiene (including cyclopentadiene)	65,911	47,923	19,676	.41
Ethylbenzene	4,023,827	159,941	68,089	.43
Isocyanic acid derivatives, total	462,317	405,610	716,441	1.77
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)	255,471	217,049	393,920	1.81
All other isocyanic acid derivatives	206,846	188,561	322,521	1.71
4,4'-Isopropylidenediphenol (Bisphenol A)	552,801	191,341	200,437	1.05
α-Methylstyrene	(²)	18,956	11,172	.59
Nonylphenol	82,116	51,311	47,497	.93
Phenol, total	1,631,620	889,262	348,059	.39
From cumene	1,119,556	558,790	170,737	.31
All other phenol	512,064	330,472	177,322	.54
Phthalic anhydride	266,277	165,764	109,964	.66
Styrene	3,680,516	1,634,357	951,662	.58
Terephthalic acid, dimethyl ester ³	3,465,695	(²)	(²)	(²)
Tetrahydrofuran	96,584	48,742	96,027	1.97
o-Xylene	347,768	275,874	92,500	.34
p-Xylene	2,426,663	1,203,450	526,315	.44
All other cyclic intermediates	3,014,558	3,555,724	3,042,309	.86

¹ Calculated from unrounded figures.

² Reported data were accepted in confidence and may not be published, or no data were reported.

³ The figure for terephthalic acid, dimethyl ester (DMT) includes both the acid itself and the dimethyl ester without double counting. The acid production figure was multiplied by the factor 1.16 to convert it to equivalent DMT.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 3-2
Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic:		
p-Acetanilide	No	EKT.
Acetoacetanilide	No	BRD.
o-Acetoacetanilide	No	BRD, EKT.
o-Acetoacetotoluidide	No	BRD, EKT.
2',4'-Acetoacetoxylidide	No	BRD, EKT, PFZ.
Acetoguanamine	No	DX.
Acetophenone, tech	No	S.
p-Acetotoluidide	No	EK.
2-Acetylpyridine	No	RIL.
Aldadiene	No	SRL.
Alkylbenzenes:		
Alkylbenzene straight-chain (except dodecyl and tridecyl)	No	MON, PLC.
Dodecylbenzene (including tridecylbenzene):		
Dodecylbenzene, straight-chain	No	MON, VST.
Dodecylbenzene, other	No	MON.
All other alkylbenzene (except dodecyl, tridecyl and straight-chain)	No	(2).
Alkylphenols, mixed	No	SCN.
Alkylpyridines, mixed	No	RIL.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	No	HCL.
3'-Amino-p-acetanilide	No	BUC.
p-Aminobenzamide	No	NSC.
1-Amino-5-benzamidoanthraquinone	No	NSC.
o-Aminobenzenethiol	No	FMT.
p-Aminobenzoic acid, tech	No	NSC, WYK.
2-Amino-6-benzothiazolesulfonic acid	No	VPC.
2-Amino-1-bromo-3-chloroanthraquinone	No	PLC.
7-Aminocephalosporanic acid	No	BRS.
1-Amino-2-chlorobenzene	No	LMC.
4-Amino-6-chloro-m-benzenedisulfonamide	No	MRF.
5-Amino-2-chlorobenzenesulfonic acid	No	LMC.
3-Amino-5-chloro-2-hydroxybenzenesulfonic acid	No	CWN.
6-Amino-5-chloro-m-toluenesulfonic acid [SO ₃ H=1] (2B acid)	No	DUP, PHC.
4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5-methyl-o-anisidinesulfonic acid)	No	VPC.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid	No	DUP.
2-Amino-2-methylpropyl 8-bromotheophyllinate	No	CHT.
2-Amino-3-methylpyridine	No	RIL.
2-Amino-4-methylpyridine	No	RIL.
2-Amino-5-methylpyridine	No	RIL.
2-Amino-6-methylpyridine	No	RIL.
3-Amino-2,7-naphthalenedisulfonic acid	No	NES.
2-Amino-4-nitroacetanilide	No	SDC.
2-Amino-5-nitrothiazole	No	PCW, SAL.
5-Amino-2-[(2-oxo-5-benzimidazolyl)amino]-benzenesulfonic acid	No	BRS, PFZ.
p-Aminophenol	No	MAL.
p-[(p-Aminophenyl)azo]benzenesulfonic acid	No	VPC.
3-Aminophenylphosphonic acid	No	ICI.
2-Aminopyridine	No	RIL.
3-Aminopyridine	No	RIL.
4-Aminopyridine	No	REG, RIL.
4-Amino-m-toluenesulfonic acid [SO ₃ H=1]	No	DUP.
6-Amino-m-toluenesulfonic acid [SO ₃ H=1]	No	DUP, PHC.
4-Amino-1,2,4-triazole	No	RIL.
Aniline (Aniline oil)	Yes	ART, DUP, FST, ICI, MAL, RUC, USR.
2-Anilinoethanol	No	SCP.
Anilinomethanesulfonic acid and salt	No	VPC.
Anisole, tech	No	CHF.

See footnotes at end of table.

Table 3-2—Continued
Cyclic Intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic Intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
Anisoyl chloride	No	SD.
Anthranilic acid (o-Aminobenzoic acid)	No	PSG.
N,N'-(1,5-Anthraquinonylene)dianthranilic acid	No	SDC.
Benzaldehyde, tech	No	GIV, KLM.
Benzanilide	No	EK.
1,2,4,5-Benzenetetracarboxylic acid	No	AMO.
1,2,4-Benzenetricarboxylic acid, 1,2-dianhydride (Trimellitic anhydride)	No	AMO.
Benzhydrol (Diphenylmethanol)	No	PD.
Benzimidazole	No	EK.
1,3-Benzodioxole	No	AMB.
Benzoic acid, methyl ester	No	HCF.
Benzoic acid, tech	No	KLM, PFZ.
Benzonitrile	No	PSG.
Benzophenone	No	CWN.
2-Benzothiazolethiol, sodium salt	No	BFG, USR.
1H-Benzotriazole	No	PSG.
2-Benzoxazolethiol	No	EK.
Benzoyl chloride	No	HK, VEL.
Benzylamine	No	HXL, KLM.
2-(Benzylamino)ethanol	No	HXL.
2-Benzyl-2'-hydroxy-5,9-dimethyl-6,7-benzomorphanhydrobromide	No	SD.
1-Benzyl-4-phenylisonipecotonitrile	No	SDW.
Benzyltrimethylammonium hydroxide	No	RSA.
Biphenyl	Yes	KHI, MON, SOC.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, diacetate ester	No	SCP.
N,N-Bis(2-hydroxyethyl)-p-toluidine	No	RSA.
1,2-Bis(tribromophenoxy)ethane	No	GTL.
3-Bromoacetophenone	No	(²).
Bromobenzene, mono	No	DAZ.
o-Bromobenzoic acid	No	PD.
2-Bromo-4,6-dinitroaniline	No	HCL.
Bromoethylbenzene	No	GTL.
p-Bromofluorobenzene	No	(²).
2-Bromopyridine	No	DAZ.
4-Butoxyacetophenone	No	BUC.
p-tert-Butylbenzaldehyde	No	GIV.
n-Butylbenzene	No	PLC.
2-tert-Butyl-p-cresol	No	PSG.
o-sec-Butylphenol	No	SCN, VCC.
o-tert-Butylphenol	No	TNA.
p-sec-Butylphenol	No	SCN.
p-tert-Butylphenol	No	SCN.
Butylphenols, mixed	No	FMC, (²).
p-tert-Butyltoluene	No	GIV.
4,4'-Carbonylbis[phthalic anhydride]	No	ACH.
N-Carboxy-N-methylanthranilic anhydride	No	(²).
2-Chloro-4-aminotoluene	No	LMC.
o-Chloroaniline	No	DUP.
p-Chloroaniline	No	DUP.
Chlorobenzene, mono	Yes	MON, PPG, SCC.
4'-Chloro-2',5'-dimethoxyacetoacetanilide	No	BRD.
2-Chloro-1,4-dimethoxybenzene	No	CHF.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	No	SDC.
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt	No	LMC.
3-Chlorodiphenylamine	No	SK.
p-[(2-Chloroethyl)methylamino]benzaldehyde	No	VPC.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide	No	REG.
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	No	DUP, MON.

See footnotes at end of table.

Table 3-2—Continued
Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)	No	DUP, MON.
2-Chlorophenothiazine	No	SK.
1-(3-Chloropropyl)-4-methylpiperazine	No	SK.
3-Chloropropyl-2,5-xylol ether	No	PD.
2-Chloropyridine	No	OMC.
α -Chlorotoluene (Benzyl chloride)	No	MON.
3-Chloro-p-toluidine [NH ₂ =1]	No	DUP.
3-(2-Chloro-4-trifluoromethylphenoxy)toluene	No	(?).
4-Chloro-3,5-xylol	No	FER.
Cresols:		
m-Cresol	No	MER.
O-cresol:		
o-Cresol, from petroleum	No	GE, MER.
p-Cresol	No	MER, PSG.
Cresols, mixed:		
(m,p)-cresol:		
(m,p)-Cresol, from petroleum	No	MER.
Cresylic acid, refined:		
Cresylic acid, refined, from petroleum	No	MER.
Cumene (Isopropyl benzene)	Yes	ART, ASH, BTL, GGC, GRS, KHI, SHC, SOC, TX
4-(Cyanoacetyl) morpholine	No	DUP, PCW.
N-Cyanoethyl-N-acetoxyethylaniline	No	SCP.
3-Cyanopyridine	No	RIL.
Cyclohexane	Yes	GRS, PLC, PPR, SOC, SUN, TX.
1,2-Cyclohexanedicarboxylic acid anhydride	No	HK.
Cyclohexanol	No	ACS, BAS, DUP, MON.
Cyclohexanone	Yes	ACS, BAS, CNP, DUP, MON.
Cyclohexanone oxime	No	CNP.
Cyclohexene	No	USR.
4-Cyclohexene-1,2-dicarboxylic anhydride	No	DKA.
Cyclohexene oxide	No	USR.
β -(1-Cyclohexenyl)ethylamine	No	HXL.
Cyclohexylamine	No	AIP.
Cyclooctadiene	No	DUP.
2-Cyclopropylmethylamino-5-chlorobenzophenone	No	PD.
2-(N-Cyclopropylmethyl-N-phthalimidoacetyl)-amino-5-chlorobenzophenone	No	PD.
p-Cymene	No	HPC.
Decyldiphenyl oxide	No	TCC.
Dialkylbenzene	No	VST.
1,3-Diaminocyclohexane	No	DUP.
2,6-Diaminopyridine	No	REG, RIL.
2,5-Dianilinoterephthalic acid	No	VPC.
Dibenzyl oxalate	No	MRF.
p-Dibromobenzene	No	DAZ.
2,6-Dibromo-4-nitroaniline	No	HCL.
Dibromostyrene	No	GTL.
p-Dibutoxybenzene (DBB)	No	ALL.
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate salt (DBB Sulfate)	No	ALL.
2,5-Dibutoxy-4-morpholinonitrobenzene	No	ALL.
2,6-Di-tert-butyl-alpha-dimethylamino-p-cresol	No	TNA.
Dibutyl-p-cresol	No	PSG.
2,6-Di-t-butyl-p-cresol	No	PLC.
2,4-Di-tert-butylphenol	No	SCN, TNA.
2,6-Di-tert-butylphenol	No	SCN.
2,6-Di-tert-butylphenol	No	TNA.
2,6-Di-tert-4-sec-butylphenol	No	SCN.
3,4-Dichloroaniline	No	DUP.
o-Dichlorobenzene	Yes	MON, PPG, SCC, SOI.

See footnotes at end of table.

Table 3-2—Continued

Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
m-Dichlorobenzene	No	MON.
p-Dichlorobenzene	Yes	MON, PPG, SCC, SOI.
3,3'-Dichlorobenzidine base and salts	No	LMC.
3,4-Dichlorobenzotrifluoride	No	HK, (?).
3,3'-Dichloro-4,4'-biphenyl	No	LMC.
Dichlorodiphenylsilane	No	DCC.
2,6-Dichloro-3-methylaniline	No	SDC.
Dichloromethylphenylsilane	No	DCC.
2,6-Dichloro-4-nitroaniline	No	ASL.
Dicyclohexylamine	Yes	AIP, HK, VEL.
Dicyclohexylamine, nitrate salt	No	OMC.
Dicyclopentadiene (includes Cyclopentadiene)	Yes	CXI, DOW, ENJ, LYP, SHC, (?).
α,α -Diethoxyacetophenone	No	CWN.
p-(Diethylamino)benzaldehyde	No	VPC.
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide	No	VPC.
N-(3-Diethylamino-1,4-methoxyphenyl)acetamide	No	SCP.
N,N-Diethylaniline	No	BCC, DUP.
2,6-Diethylaniline	No	TNA.
Diethylbenzene	No	UPM.
N,N-Diethylcyclohexylamine	No	AIP.
3,5-Diethyl-1,2-dihydro-1-phenyl-2-propylpyridine	No	RIL.
3,5-Diethyltoluene-2,4-diamine	No	TNA.
N,N-Diethyl-m-toluidine	No	DUP, FST.
N,N-Diethyl-p-toluidine	No	RSA.
6,11-Dihydrodibenz(b,e)oxepin-11-one	No	PFZ.
2-(2,3-Dihydro-1,3-dioxo-1H-inden-2yl)-(quinolinyl)]-6-methylbenzothiazole-7-sulfonic acid	No	VPC.
2,4-Dihydroxybenzaldehyde	No	EK.
6,7-Dihydroxy-2-naphthalenesulfonic acid	No	CCC.
m-Diiodobenzene	No	GGC.
2,6-Diisopropylphenol	No	TNA.
2,6-Diisopropyl-4-phenoxyaniline	No	TNA.
2,5-Dimethoxybenzaldehyde	No	CWN.
m-Dimethoxybenzene	No	ACY.
3,3'-Dimethoxybenzidine hydrochloride	No	BRI.
2-[4-(Dimethylamino)benzoyl]benzoic acid	No	EK.
N,N-Dimethylaniline	No	BCC, DUP.
N,N-Dimethylbenzylamine	No	HXL.
N-(1,3-Dimethylbutyl)-N-phenyl-1,4-benzenediamine	No	VPC.
Dimethyl-1,4-cyclohexanedicarboxylate	No	EKT.
N,N-Dimethylcyclohexylamine	No	AIP, BAS.
5,5-Dimethylhydantoin	No	BRD.
2,6-Dimethylnaphthalene	No	UPM.
N,N'-Dimethyl-3,4,9,10-perylenetetracarboxylic acid 3,4:9,10-diimide	No	VPC.
3,5-Dimethylpiperidine	No	RIL.
N,N-Dimethyl-o-toluidine	No	RSA.
N,N-Dimethyl-m-toluidine	No	RSA.
N,N-Dimethyl-p-toluidine	No	FST, RSA.
3,5-Dinitro-N ⁴ ,N ⁴ -dipropylsulfanilamide	No	LMC.
2,4-Dinitroacetanilide	No	SDC.
m-Dinitrobenzene	No	FST.
2,4-Dinitrobenzenesulfonic acid, sodium salt	No	EK.
3,5-Dinitrobenzoic acid	No	SAL.
2,6-Dinitro-4-isopropylphenol	No	SDC.
3,5-Dinitrosalicylic acid, methyl ester	No	SAL.
p-Dinitrosobenzene	No	LC.
2,4-Dinitrotoluene	No	DUP.
2,4(and 2,6)-Dinitrotoluene	No	RUC, (?).

See footnotes at end of table.

Table 3-2—Continued
Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
Dinonylphenol	No	TX.
Di-para-benzoquinone dioxime	No	LC.
2,4-Di-tert-pentylphenol	No	PAS, SCN.
Diphenylamine	No	ART, RUC, USR.
9,10-Diphenylanthracene	No	PAH.
Diphenyldisulfide	No	PAH.
Diphenyl phthalate	No	EK.
1,3-Di-4-piperidylpropane	No	RIL.
2,5-Di-p-toluidinoterephthalic acid	No	VPC.
1,5-Diureidonaphthalene	No	SOI.
Divinylbenzene	No	DLT, DOW, TCC.
1,1-Di-3,4-xylylethane	No	ACH.
Dodecyldiphenyl oxide	No	TCC.
p-Dodecylphenol	No	MON, SCN.
2-Ethanolpyridine	No	RIL.
5-Ethanoxy-3-trichloromethyl-1,2,4-thiadiazole	No	OMC.
Ethisterone	No	SRL.
o-Ethylaniline	No	TNA.
N-Ethylaniline, refined	No	BCC, FST.
2-(N-Ethylanilino)ethanol	No	SCP.
3-(N-Ethylanilino)propionitrile	No	SCP.
Ethylbenzene	Yes	AMO, ATR, CSD, DOW, ELP, GE, KHI, SC, SOC.
2-(N-Ethyl-N,β-cyanoethyl)-4-acetaminoanisole	No	S, SOC, SCP (?).
Ethyl 4-dimethylaminobenzoate	No	FST.
N-Ethyl-N-(2-hydroxyethyl)-m-toluidine	No	SCP.
6-Ethyl-2-methylaniline	No	TNA.
2-[Ethyl(3-methylphenyl)amino]ethanol	No	FST.
1-Ethylpiperidine	No	BAS.
N-Ethyl-m-toluidine	No	DUP, FST.
3-(N-Ethyl-m-toluidino)propionitrile	No	SCP.
o-Fluorobenzoyl chloride	No	OMC.
1-Formylpiperidine	No	RIL.
Furan	No	QKO.
Furfuryl alcohol	No	QKO.
Guanine	No	LLI.
1,4,5,6,7,7-Hexachloro-5-norbornene-2, 3-dicarboxylic anhydride (Chlorendic anhydride)	No	OMC, VEL.
(Hexadecylphenoxy)benzene	No	TCC.
Hexahydro-1-[(2-aminophenyl)sulfonyl]-1h-azepine	No	SAL.
Hexahydro-1-[(2-nitrophenyl)sulfonyl]-1h-azepine	No	SAL.
Hexamethyleneimine	No	CXI, DUP.
Hydroquinone, tech	No	EKT, GYR.
p-Hydroxybenzoic acid	No	LEM.
4-Hydroxy-2H-1,2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide	No	PFZ.
2'-Hydroxy-5,9-dimethyl-6,7-benzomorphan	No	SD.
3-[N-(2-Hydroxyethyl)anilino]propionitrile	No	SCP.
N-β-Hydroxyethyl-2,4-dihydroxybenzamide	No	PCW.
4-Hydroxy-2-methyl-2H-1, 2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide	No	PFZ.
2-Hydroxymethylene-17α-ethinylandroster-17 β-ol-4-en-3-one	No	SD.
3-Hydroxy-N-(3-N-morpholino-γ-propyl) -2-naphthimide	No	PCW.
1-Hydroxy-2-naphthoic acid	No	PCW.
3-Hydroxy-2-naphthoic acid (B.O.N.)	No	PCW.
3-Hydroxy-2-naphthoic acid, methyl ester	No	PCW.
p-Iodotoluene	No	RSA.
Isobutylbenzene	No	PLC, TNA.
Isobutylbiphenyl	No	TCC.

See footnotes at end of table.

Table 3-2—Continued
Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to IIST in table 3-3)
Cyclic—Continued:		
Isobutyrophenone	No	ARS.
Isocyanic acid derivatives:		
Bitolylene diisocyanate (TODI)	No	CWN.
Diphenylmethane-4,4'-diisocyanate (MDI)	No	BAS, ICI, RUC.
Polymethylene polyphenylisocyanate	No	BAS, ICI, RUC.
Toluene 2,4-and 2,6-diisocyanate (80/20 mixture) ...	Yes	BAS, DOW, ICI, OMC, RUC.
p-Toluenesulfonyl isocyanate	No	VCM.
All other isocyanic acid derivatives	Yes	CWN.
Isonicotinic acid	No	RIL.
Isonicotinonitrile	No	RIL.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	No	AMO.
Isophthalic acid, dimethyl ester	No	UTC.
Isophthalonitrile	No	DUP, PSG.
Isophthaloyl chloride	No	DUP, TLC.
Isopropylbiphenyl	No	TCC.
4,4'-Isopropylidenediphenol (Bisphenol A)	Yes	ART, DOW, GE, SHC.
4,4'-Isopropylidenediphenol, ethoxylated	No	ICI, SCP.
4,4'-Isopropylidenediphenol, propoxylated	No	ICI, SCP.
o-Isopropylphenol	No	FMC.
2,6-Lutidine	No	RIL.
3,4-Lutidine	No	RIL.
3,5-Lutidine	No	RIL.
Melamine	No	ACY, MLC.
p-Mentha-1,4(8)-diene	No	NCI.
dl-p-Mentha-1,8-diene (Limonene)	No	ARZ, NCI.
4-Methoxyacetophenone	No	BUC.
4-Methoxybenzyl alcohol	No	BUC.
N-(4-Methoxy-3-nitrophenyl)acetamide	No	SDC.
2-(N-Methylanilino)ethanol	No	SCP.
3-(N-Methylanilino)propionitrile	No	SCP.
5-Methyl-o-anisidine [NH ₂ =1]	No	PSG.
2-Methylanthraquinone	No	ACY.
4-Methylbenzotriazole	No	VPC.
o-Methylbenzoyl chloride	No	TLC.
N-Methylbenzylamine	No	HXL.
2-Methyl-1,1-biphenyl(n-3-yl) methanol	No	NES.
Methylcyclohexane	No	PLC.
Methyl-3-(D- α -dihydrocarboxybenzylamino)crotonate, sodium salt	No	KAN.
4,4-Methylenebis(2,6-di-tert-butylphenol)	No	TNA.
2,2'-Methylenebis(4-methyl-6-nonyl-p-cresol)	No	PSG.
4,4'-Methylenedianiline	No	AUS, RUC, USR.
5,5'-Methylenedisalicylic acid	No	KLM.
Methyl p-formylbenzoate	No	KMT.
Methylhydroquinone	No	EKT.
1-Methyl-(2-hydroxyethyl)piperidine	No	RIL.
6-Methyl-2-(2-methyl-6-quinolyl)-7- benzothiazolesulfonic acid	No	VPC.
N-Methyl-p-nitroaniline	No	ACY.
4-Methyl-2-nitroanisole	No	PSG.
1-(2-Methyl-4-nitrophenyl)pyrrolidine	No	ALL.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride	No	BCC.
4-(1-Methyl-1-phenyl)ethylphenol	No	SCN.
4-Methylphthalic acid	No	EK.
1-Methylpiperidine	No	BAS.
2-Methylpiperidine	No	RIL.
p-Methylstyrene	No	DLT.
α -Methylstyrene	Yes	ART, BTL, GGC, TX.
ar-Methylstyrene (Vinyltoluene)	No	DLT.
2,6-Naphthalenedicarboxylic acid	No	AMO.
2-Naphthalenesulfonic acid	No	ACY.
Naphthalimide	No	VPC.

See footnotes at end of table.

Table 3-2—Continued

Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine)	No	SDC.
Nicotinonitrile (3-Cyanopyridine)	No	NEP.
o-Nitroaniline	No	MON.
p-Nitroaniline	No	MON.
5-Nitroanthranilic acid	No	SAL.
p-Nitrobenzamide	No	PD.
Nitrobenzene	No	FST, ICI, RUC.
m-Nitrobenzenesulfonic acid, sodium salt	No	USM.
o-Nitrobenzoic acid	No	SAL.
m-Nitrobenzoic acid	No	SAL.
p-Nitrobenzoic acid	No	DUP.
m-Nitrobenzoic acid, sodium salt	No	SAL.
2-Nitro-N-benzoylaniline	No	SAL.
2-Nitro-p-cresol	No	PSG.
5-Nitrodimethylisophthalate	No	SAL.
Nitrodiphenylamine	No	ACY, MON.
5-Nitroisophthalic acid	No	RIL, SAL.
p-Nitrophenethyl alcohol	No	PCW.
p-Nitrophenol	No	MON.
p-Nitrophenol, sodium salt	No	DUP.
p-Nitrophenoxyethanol	No	SCP.
3 (and 5)-Nitrosalicylic acid	No	SAL.
p-Nitrosophenol	No	LC, SDC.
4-Nitrosophenol, sodium salt	No	SDC.
o-Nitrotoluene	No	DUP, FST.
m-Nitrotoluene	No	FST.
p-Nitrotoluene	No	DUP, FST.
Nitrotoluene mixtures	No	FST.
Nonylphenol	Yes	GE, KLM, MON, SCN, TX.
(-)-Octamandate	No	LLI.
Octylphenol	No	PSG, SCN.
Octylphenoxydiethoxy chloride	No	RH.
3-Oxo-1,2-benzisothiazoline-2-acetic acid, methyl ester, 1,1-dioxide	No	PFZ.
4,4'-Oxydianiline	No	CHT, DUP.
Parahydroxyphenylglycine potassium methyl dane salt	No	KAN.
o-Pentylphenol (o-Amylphenol)	No	PAS, SCN.
p-tert-Pentylphenol	No	PAS.
3,4,9,10-Perylenetetracarboxylic-3,4,9,10-dianhydride	No	VPC.
3,4,9,10-Perylenetetracarboxylic-3,4,9,10-diimide	No	VPC.
1,10-Phenanthroline	No	(?).
2-Phenethylamine	No	HXL.
p-Phenetidine	No	MNA.
Phenol:		
Natural:		
From petroleum:		
Phenol, natural, from petroleum, U.S.P.	No	MER.
Synthetic:		
By caustic fusion:		
Phenol, synthetic, by caustic fusion, all other	No	ISP.
Phenol, styrenated	No	PSG.
Phenol, synthetic, from cumene by oxidation, U.S.P.	Yes	ACS, ART, BTL, DOW, GE, GGC.
Phenoxathiin	No	PAH.
All other phenol	Yes	GGC, KLM, SHC, TX.
Phenolsulfonic acid	No	SAL.
Phenolsulfonic acid, sodium salt	No	SAL.
Phenoxyacetic acid, sodium salt	No	NCC.
m-Phenoxytoluene	No	MER.

See footnotes at end of table.

Table 3-2—Continued
Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
4-(Phenylazo)diphenylamine	No	EK.
2-Phenylbenzimidazole	No	SAL.
m-Phenylenediamine	No	NES.
o-Phenylenediamine	No	DUP, PSG.
m-Phenylenediamine	No	DUP, FST.
p-Phenylenediamine	No	DUP.
Phenyl ether (Diphenyl oxide)	No	DOW, MON.
d(9)-Phenylethylamine	No	HXL.
N-Phenylglycine	No	EK.
Phenylglycine, potassium salt	No	KAN.
Phenylglycine, sodium salt	No	BCC, LIL.
2,2'-[(Phenyl)imino]diethanol		
(N-Phenyldiethanolamine)	No	MIL, SCP.
2,2'-[(Phenyl)imino]diethanol, diacetate ester	No	SCP.
o-Phenylphenol	No	DOW.
p-Phenylphenol	No	DOW.
o-Phenylphenol, sodium salt	No	DOW, USR.
Phenyl-2-propanone	No	SK.
4-Phenylpropylpyridine	No	RIL.
N-Phenylurea	No	RSA.
Phthalic acid	No	EK.
Phthalic anhydride	Yes	ART, BAS, ENJ, STP, USR.
Phthalimide	No	PSG.
[Phthalocyaninato(2-)]copper	No	PC, PHC.
Phthalocyaninetetrasulfonyl chloride, copper derivative	No	S, VPC.
Phthaloyl chloride (Phthalyl chloride)	No	TLC.
Picolines:		
Picoline (3,4-mixture)	No	RIL.
2-Picoline (α -Picoline)	No	RIL.
3-Picoline (β -Picoline)	No	NEP, RIL.
4-Picoline (γ -Picoline)	No	RIL.
Picolinonitrile (2-Cyanopyridine)	No	NEP.
3-Picolylamine	No	RIL.
Picric acid (Trinitrophenol)	No	SDC.
Pipecolic acid	No	RIL.
Piperidine	No	AIP, RIL.
Polyethylbenzene (80 percent diethylbenzene)	No	ELP.
Propiophenone	No	ARS, ORT.
Pyridine hydrochloride	No	HXL.
Pyridine, refined:		
2° Pyridine, refined	No	NEP.
Pyridine, refined all other grades	No	RIL.
2 Pyridinethiol-1-oxide, sodium salt	No	OMC.
2 Pyridinethiol-1-oxide, zinc salt	No	OMC.
Pyromellitic dianhydride	No	ACH.
2-Pyrrolidinone (2-Pyrrolidone)	No	GAF.
Pyrvinium pamoate	No	(?).
Quinaldine	No	CIC.
Quinone dioxime	No	LC.
Resorcinol, tech.	No	ISP.
β -Resorcylic acid	No	ISP.
Salicylaldehyde oxime	No	EK.
Salicylic acid, tech.	No	DOW, KLM.
Sodium p-sulfophenylmethallyl ether	No	SAL.
Styrene (Vinylbenzene)	Yes	AMO, ATR, CSD, DLT, DOW, ELP, HMN, PLC.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	No	RMI.
5-Sulfoisophthalic acid, 1,3-dimethyl ester, sodium salt	No	DUP.
5-Sulfoisophthalic acid, sodium salt	No	EKT, PCW.

See footnotes at end of table.

Table 3-2—Continued

Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
Terephthalic acid	Yes	AMO, DUP, HCF.
Terephthalic acid, dimethyl ester	Yes	DUP, EKT, HCF.
Terephthaloyl chloride	No	DUP, TLC.
Terphenyl (Phenylbiphenyl) (m-, o-, and p-isomers)	No	MON.
Tetrabromophthalic anhydride	No	GTL.
1,2,3,4-Tetrachlorobenzene	No	SCC.
Tetrachlorophthalic anhydride	No	MON.
Tetrahydrofuran	Yes	ATR, BAS, DUP, GAF, QKO.
1,2,4,5-Tetramethylbenzene (Durene)	No	KHI.
p-(1,1,3,3-Tetramethylbutyl)phenol	No	GAF.
4,4'-Thio-bis(6-t-butyl-o-cresol)	No	TNA.
4,4'-Thiobis(6-t-butyl-m-cresol)	No	AUS.
Thiodiphenol	No	AUS.
Toluene-2,3-(and 3,4)-diamine (35/65 mixture)	No	OMC.
Toluene-2,4-diamine (4-m-Tolylenediamine)	No	RUC, (?).
Toluene-2,4-(and 2,6)-diamine (80/20 mixture)	Yes	OMC, BAS, DOW, ICI.
Toluene-3,4-diamine	No	(?).
Toulenesulfonamide	No	UTC.
p-Toulenesulfonic acid, aniline salt	No	NES.
p-Toulenesulfonic acid monohydrate	No	TEN.
m-Toluic acid	No	WTC.
p-Toluic acid, methyl ester	No	HCF.
o-Toluidine	No	DUP, FST.
m-Toluidine	No	DUP, FST.
p-Toluidine	No	DUP, FST.
2,2'-(m-Tolylimino)diethanol	No	MIL, SCP.
Tolytriazole	No	PSG.
2,4,6-Tribromophenol	No	GTL.
1,2,3-Trichlorobenzene	No	SCC.
1,2,3(and 1,2,4)-Trichlorobenzene	No	PPG, SCC.
1,2,4-Trichlorobenzene	No	SCC.
3-Trichloromethyl-1,2,4-thiadiazole	No	OMC.
1,2,4-Trichloro-5-nitrobenzene	No	PCW.
Trichlorophenylsilane	No	DCC.
α,α,α -Trichlorotoluene (Benzotrichloride)	No	HK.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	No	DGC.
Tri(dimethylaminomethyl)phenol	No	PEL.
Trimellitic anhydride, acid chloride	No	(?).
Trimellitic trichloride	No	TLC.
1,2,4-Trimethylbenzene (Pseudocumene)	No	KHI.
1,3,5-Trimethylbenzene (Mesitylene)	No	ABB.
1,3,3-Trimethyl- γ^2 , α -indolineacetaldehyde	No	VPC.
Trioxane	No	UTF.
Triphenylmethane	No	EK.
α,α',α'' -Tris(dimethylamino)mesitol	No	RH.
1,1,1-Tris(p-hydroxyphenyl)ethane	No	SAL.
Tris(2-methyl-1-aziridinyl)phosphine oxide	No	ARS.
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J-Acid urea)	No	S.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	No	GIV.
5-Vinyl-2-picoline (MVP)	No	HK, PD.
2-Vinylpyridine	No	RIL.
4-Vinylpyridine	No	RIL.
o-Xylene (90-100% of o-xylene isomer)	Yes	ENJ, KHI, LYP, PLC, PPR.
m-Xylene (90-100% of m-xylene isomer)	No	AMO, PLC.
p-Xylene (90-100% Of p-xylene isomer)	Yes	AMO, ENJ, KHI, LYP, PPX, SOC, STX.
2,4-Xylenesulfonic acid	No	PLC.
Xylenesulfonic acid, mixed isomers	No	NES.
2,6-Xylenol	No	GE.
Xylenol crystals	No	BRS, HXL.

See footnotes at end of table.

Table 3-2—Continued
Cyclic intermediates for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Cyclic intermediates	Separate statistics ¹	Manufacturers' identification codes (according to list in table 3-3)
Cyclic—Continued:		
Xylenols:		
Xylenol, low boiling point	No	MER.
Xylenols, not classified as to boiling point	No	GE.
Xylidines:		
2,4-Xylidine (m-4-Xylidine)	No	FST.
Xylidine, original mixture	No	DUP.
All other cyclic intermediates	Yes	ACY, AMD, AUS, BRS, BUC, CWN, DUP, EKT, FST, HCF, HCL, HXL, LC, MRX, OMC, PCW, PD, PFZ, PIL, PRC, PSG, RAY, RIL, SAL, SCP, SDC, SDW, SK, TNA, UCC, VPC, (?).

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 3-3
Cyclic intermediates: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ABB	Abbott Laboratories	FER	Ferro Corp.: Bedford Chemical Div.
ACH	Allco Chemical Corp.	FMC	FMC Corp., Nitro Div.
ACS	Allied Signal Inc., Engineered Material Sector	FMT	Fairmount Chemical Co., Inc.
ACY	American Cyanamid Co.	FST	First Chemical Corp.
AIP	Air Products & Chemicals, Inc.	GAF	ISP Chemicals, Inc.
ALL	Alliance Chemical, Inc.	GE	General ELeCtric Co., Speciality Chemical Group
AMB	American Bio-Synthetics Corp.	GGC	Georgia-Gulf Corp.: Houston Div. Plaquemine Div.
AMD	Cyclo Products, Inc.	GIV	Givaudan Corp
AMO	Amoco Corp.	GRS	Citgo Refining & Chemicals, Inc.
ARS	Arsynco, Inc., Sub. Div. of Aceto Corp.	GTL	Great Lakes Chemical Corp.
ART	Aristech Chemical Corp.	GYR	Goodyear Tire & Rubber Co.
ARZ	Arizona Chemical Co.	HCF	Cape Industries
ASH	Ashland Oil, Inc., Ashland Petroleum Co.	HCL	Hoechst Celanese Corp.: Sou-Tex Works Specialty Chem Group
ASL	Specialtychem Products, Corp.	HK	Occidental Chemical Corp., ED & S Div.
ATR	Atlantic Richfield Co., Arco Chemical Co.	HMN	Huntsman Chemical Corp.
AUS	Ausimont N.V.	HPC	Hercules, Inc.
BAS	BASF Corp.	HXL	Hexcel Corp., Hexcel Chemical Products
BCC	Buffalo Color Corp.	ICI	ICI Americas, Inc., Polyurethanes Group Specialty Chem Div.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	ISP	Indspec Chemical Corp.
BRD	Lonza, Inc.	KAN	Kanasco, Ltd
BRI	Burlington Industries	KHI	Koch Refining Co.
BRS	Bristol-Myers Co.	KLM	Kalama Chemical, Inc.
BTL	BTL Specialty Resin Corp.	LC	Lord Corp., Chemical Products Group
BUC	Synalloy Corp., Blackman Uhler Chemical Div.	LEM	Napp Chemicals, Inc.
CCC	C.N.C. International, Inc.	LIL	Eli Lilly & Co.
CHF	Kincaid Enterprises, Inc.	LLI	Lee Laboratories, Inc.
CHT	Chattem, Inc.	LMC	Lomac, Inc.
CIC	Color Chem International Corp.	LYP	Lyondell Petrochemical Co.
CNP	DSM Chemicals North America	MAL	Mallinckrodt, Inc.
CSD	Fina Oil & Chemicals Co.	MER	Merichem Co.
CWN	Upjohn Co., Fine Chemicals	MIL	Milliken & Co., Milliken Chemical Div.
CXI	Chemical Exchange Industries, Inc.	MLC	Melamine Chemicals, Inc.
DAZ	Diaz Chemical Corp.	MNA	Monsanto Co., Agricultural Group
DCC	Dow Corning Corp.	MON	Monsanto Co.
DGC	Degussa Corp.	MRF	Morflex, Inc.
DIX	Dixie Chemical Co., Inc.	MRX	Johnson Matthey, Materials Technology Div.
DKA	Miles, Inc.	NCC	Niacet, Corp.
DLT	Deltech Corporation	NCI	Union Camp Corp., B B A Div.
DOW	Dow Chemical Co.	NEP	Nepera, Inc.
DUP	E. I. duPont de Nemours & Co., Inc. Chemicals and Pigments Dept. Petrochemicals Dept.	NES	Ruettgers-Nease Chemical Co.
EK	Eastman Kodak Co.:	NSC	National Starch & Chemical Corp.
EKT	Tennessee Eastman Co. Div.		
ELP	Rexene Products Company		
ENJ	Exxon Chemical Americas		

See footnotes at end of table.

Table 3-3—Continued
Cyclic intermediates: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
OMC	Olin Corp.	SCP	Henkel Corp.
ORT	Roehr Chemicals, Inc., Div. of Aceto Corp.	SD	Sterling Drug, Inc., Sterling Pharmaceuticals, Inc.
PAH	Parish Chemical Co.	SDC	Sandoz Chemicals Corp.
PAS	Elf Atochem North America, Inc.	SDW	Sterling Drug, Inc., Organic Div.
PC	PCI, Inc.	SHC	Shell Oil Co., Shell Chemical Co.
PCW	Pfister Chemical, Inc.	SK	Smithkline Beecham Chemicals
PD	Parke-Davis Div. of Warner-Lambert Co.	SOC	Chevron Corp., Chevron Chemical Co.
PEL	Pelron Corp.	SOG	Phibro Refining
PFZ	Pfizer, Inc., & Pfizer Pharmaceuticals, Inc.	SOI	Specialty Organics, Inc.
PHC	Phthalchem, Inc.	SRL	G. D. Searle & Co.
PIL	Pilot Chemical Co.	STP	Stepan Co.
PLC	Phillips 66 Co.	STX	St. Croix Petrochemical Corp.
PPG	PPG Industries, Inc.	SUN	Sun Company, Inc.
PPR	Phillips Puerto Rico Core, Inc.	TCC	Sybron Chemicals, Inc.
PPX	Phillips Paraxylene, Inc.	TEN	BIT Manufacturing, Inc.
PRC	Products Research & Chemical Corp.	TLC	Twin Lake Chemical, Inc.
PSG	PMC, Inc., PMC Specialty Group, Inc.	TNA	Ethyl Corp.
QKO	QO Chemicals, Inc.	TX	Texaco Chemical Co.
RAY	ITT Rayonier Liguin Products, Inc.	UCC	Union Carbide Corp., Industrial Chemicals Div.
REG	Regis Chemical Co.	UPJ	Upjohn Co
RH	Rohm & Haas Co.	UPM	UOP, Inc.
RIL	Reilly Industries, Inc.	USM	Crown Metro, Inc.
RMI	R-M Industries, Inc.	USR	Uniroyal Chemical Co., Inc.
RSA	R.S.A. Corp.	UTC	Unitex Chemical Corp.
RUC	Rubicon, Inc.	VCM	Vanchem, Inc.
S	Sandoz Chemicals Corp.	VEL	Velsicol Chemical Corp.
SAL	Salsbury Chemicals, Inc.	VPC	Miles, Inc.
SC	Sterling Chemicals, Inc.	VST	Vista Chemical Co.
SCC	Standard Chlorine of Delaware, Inc.	WTC	Witco Corp.
SCN	Schenectady Chemical, Inc.		

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 4 Dyes

Synthetic dyes are derived in whole or in part from cyclic intermediates. Approximately two-thirds of the dyes consumed in the United States are used by the textile industry to dye natural and synthetic fibers or fabrics; about one-sixth is used for coloring paper; and the rest is used chiefly in the production of organic pigments and in dyeing leather and plastics. Of the several thousand different synthetic dyes that are known, more than seven hundred are manufactured by domestic producers, collectively. The large number of dyes results from the many different types of materials to which dyes are applied, the different conditions of service for which dyes are required, and the cost that a particular use can bear. Commercial dyes are formulated products which are sold in a variety of physical forms (e.g., granular, powders, liquids, and pastes) containing concentrations of colorant ranging from 5 percent (approximately) to 100 percent. In the statistical tables, production and sales quantities are expressed in terms of a standard strength of product (based on dyeing performance) and not in terms of the amount of actual colorant.

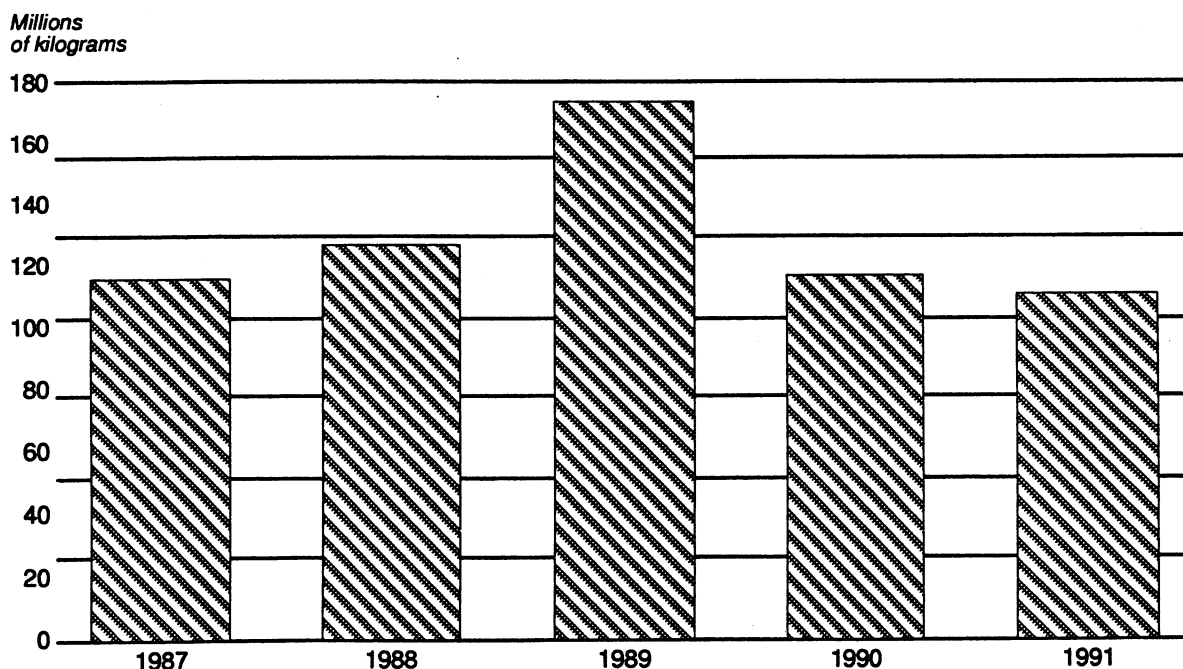
Total domestic production of dyes in 1991 amounted to 111 million kilograms, or 5 percent less than the 117 million kilograms produced in 1990 (table 4-1). Sales of dyes in 1991 amounted to 107 million kilograms, valued at \$761 million, compared with 104 million kilograms, valued at \$775 million, in 1990. In terms of quantity, sales of dyes in 1991 was 3 percent greater, and in terms of value 2 percent lower. The average unit value of sales of all dyes in 1991 was \$7.13 per kilogram, compared with \$7.46 per kilogram in 1990.

Production of four classes of dyes decreased in 1991, while the production of two classes increased. Statistics on four classes - fibers reactive dyes, mordant dyes, fluorescent brightening agents, and food, drug, and cosmetic colors - were not publishable. Changes in U.S. production of synthetic dyes followed overall changes in U.S. economic activity during 1987-91 (see figure 4-1).

Table 4-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 4-3.

Rob Randall
202-205-3366

Figure 4-1
Dyes: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 4-1
Dyes: U.S. production and sales, 1991

Dyes	Production	Sales		Average Unit value ¹
		Quantity	Value	
	<i>1,000 kilograms</i>	<i>1,000 kilograms</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Grand total	110,961	106,813	761,415	\$7.13
Acid dyes				
Total	5,655	5,346	70,788	13.24
Acid yellow dyes	612	559	6,514	11.66
Acid blue dyes, total	1,493	1,512	23,648	15.64
Acid Blue 324	536	551	10,306	18.72
All other acid blue dyes	957	961	13,342	13.88
All other acid dyes	3,550	3,275	40,626	12.40
Basic dyes (classical and modified)				
Total	3,983	3,862	55,394	14.34
Basic yellow dyes	1,102	1,147	15,560	13.56
Basic red dyes	761	755	13,949	18.47
Basic violet dyes	846	765	10,112	13.22
Basic blue dyes	643	598	8,938	14.95
All other basic dyes	631	597	6,835	11.46
Direct dyes				
Total	18,454	17,866	138,724	7.76
Direct yellow dyes	7,332	7,403	41,320	5.58
Direct red dyes, total	3,315	3,072	39,411	12.83
Direct Red 254	849	785	4,983	6.34
All other direct red dyes	2,466	2,287	34,428	15.06
Direct violet dyes	123	96	1,469	15.36
Direct blue dyes, total	3,287	3,176	28,090	8.84
Direct Blue 86	332	347	2,456	7.08
All other direct blue dyes	2,955	2,829	25,634	9.06
All other direct dyes	4,397	4,119	28,434	6.90

See footnotes at end of table.

Table 4-1—Continued
Dyes: U.S. production and sales, 1991

Dyes	Production	Sales		Average Unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Disperse dyes				
Total	20,363	20,311	113,040	\$5.57
Disperse yellow dyes	2,319	2,086	9,400	4.51
Disperse orange dyes	2,159	2,590	9,681	3.74
Disperse red dyes, total	2,650	1,937	24,493	12.64
Disperse Red 153	120	112	1,895	16.91
Disperse Red 177	158	133	1,802	13.57
All other disperse red dyes	2,372	1,692	20,796	12.29
Disperse blue dyes, total	9,861	10,741	52,316	4.87
Disperse blue 79	7,033	7,164	12,991	1.81
All other disperse blue dyes	2,828	3,577	39,325	10.99
Disperse black, brown, green and violet dyes, total ...	3,374	2,957	17,150	5.21
Disperse Brown 1	324	282	2,599	9.21
All other disperse black, brown, green and violet dyes	3,050	2,675	14,551	5.00
Solvent dyes				
Total	5,144	3,372	41,660	12.36
Solvent yellow dyes, total	377	402	7,280	18.09
Solvent yellow 13	15	15	330	21.16
All other solvent yellow dyes	362	387	6,950	17.97
Solvent orange dyes	140	142	3,102	21.90
Solvent red dyes	1,406	1,327	15,318	11.54
Solvent violet dyes	36	26	1,335	51.97
Solvent blue dyes	2,033	427	7,650	17.91
All other solvent dyes	1,152	1,048	6,975	6.65
Vat dyes				
Total	14,203	13,973	57,007	4.08
Vat orange dyes	88	102	2,083	20.45
All other vat dyes	14,115	13,871	54,924	3.96
All other dyes				
Total ⁴	43,159	42,083	284,802	6.77

¹ Calculated from unrounded figures.

² Reported data were accepted in confidence and may not be published, or no data were reported.

³ The data include external drug and cosmetic dyes.

⁴ The data include azoic compositions, azoic coupling components, azoic diazo components (bases and salts), fiber reactive dyes, fluorescent brightening agents, food, drug and cosmetic colors, mordant dyes, sulfur dyes, and miscellaneous dyes. Statistics for those groups of dyes may not be published separately because publication would disclose information received in confidence.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 4-2
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Acid dyes:	Yes	
Acid yellow dyes:	Yes	
Acid Yellow 5	No	BAS.
Acid Yellow 17	No	CK.
Acid Yellow 19	No	CK.
Acid Yellow 23	No	BAS, LVR, WJ.
Acid Yellow 34	No	CK.
Acid Yellow 36	No	CK.
Acid Yellow 49	No	CK, FAB.
Acid Yellow 59	No	BAS, CK.
Acid Yellow 65	No	CK.
Acid Yellow 135	No	ICI.
Acid Yellow 137	No	CK.
Acid Yellow 151	No	CK.
Acid Yellow 159	No	CK.
Acid Yellow 199	No	CK.
Acid Yellow 200	No	CK.
Acid Yellow 216	No	VPC.
Acid Yellow 219	No	CK.
Acid Yellow 226	No	BAS.
Acid Yellow 239	No	DGO.
All other acid yellow dyes	No	CK.
Acid orange dyes:	No	
Acid Orange 7	No	BAS, CK, LVR, WJ.
Acid Orange 8	No	CK.
Acid Orange 10	No	CK, ROM.
Acid Orange 24	No	CK.
Acid Orange 60	No	CK.
Acid Orange 64	No	CK.
Acid Orange 89	No	BAS.
Acid Orange 116	No	CK.
Acid Orange 128	No	CK.
Acid Orange 152	No	CK.
Acid Orange 156	No	CK.
Acid Orange 161	No	CK.
Acid red dyes:	No	
Acid Red 1	No	CK.
Acid Red 14	No	CK.
Acid Red 18	No	CK.
Acid Red 26	No	CK.
Acid Red 33	No	FAB.
Acid Red 57	No	CK.
Acid Red 73	No	PSC.
Acid Red 88	No	FAB.
Acid Red 119	No	CK.
Acid Red 151	No	CK.
Acid Red 182	No	CK, VPC.
Acid Red 201	No	CK.
Acid Red 226	No	BAS.
Acid Red 266	No	CK, FAB, VPC.
Acid Red 278	No	CK.
Acid Red 296	No	BAS.
Acid Red 299	No	CK.
Acid Red 337	No	CK, FAB, VPC.
Acid Red 350	No	CK.
Acid Red 364	No	CK.
Acid Red 384	No	CK.
Acid Red 388	No	CK.
Acid Red 396	No	ICI.
Acid Red 400	No	CK.
Acid Red 418	No	CK.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Acid dyes-Continued	Yes	
Acid red dyes-Continued	No	
Acid Red 419	No	CK.
All other acid red dyes	No	BAS.
Acid violet dyes:	No	
Acid Violet 3	No	FAB.
Acid Violet 7	No	CK, FAB.
Acid Violet 12	No	CK, FAB.
Acid Violet 17	No	BAS.
Acid blue dyes:	Yes	
Acid Blue 9	No	BAS, LVR, WJ.
Acid Blue 15	No	BAS.
Acid Blue 25	No	VPC.
Acid Blue 40	No	CK.
Acid Blue 41	No	CK.
Acid Blue 50	No	BAS.
Acid Blue 62	No	CK.
Acid Blue 67	No	BAS.
Acid Blue 104	No	CK.
Acid Blue 113	No	CK.
Acid Blue 145	No	CK.
Acid Blue 231	No	CK.
Acid Blue 281	No	CK.
Acid Blue 298	No	CK.
Acid Blue 321	No	CK.
Acid Blue 324	Yes	CK, S, VPC.
Acid Blue 330	No	CK.
All other acid blue dyes	No	CK.
Acid green dyes:	No	
Acid Green 1	No	LVR.
Acid Green 5	No	WJ.
Acid Green 16	No	LVR.
Acid Green 20	No	CK.
Acid Green 25	No	CK.
All other acid green dyes	No	CK.
Acid brown dyes:	No	
Acid Brown 14	No	CK, FAB, LVR.
Acid Brown 19	No	CK.
Acid Brown 50	No	BAS.
Acid Brown 96	No	FAB.
Acid Brown 97	No	BAS, FAB.
Acid Brown 98	No	FAB.
Acid Brown 147	No	CK.
Acid Brown 159	No	BAS.
Acid Brown 160	No	BAS.
Acid Brown 161	No	BAS.
Acid Brown 165	No	BAS.
Acid Brown 188	No	CK.
Acid Brown 189	No	CK.
Acid Brown 227	No	BAS.
Acid Brown 239	No	CK.
Acid Brown 264	No	BAS.
Acid Brown 439	No	CK.
Acid black dyes:	No	
Acid Black 1	No	CK, LVR.
Acid Black 2	No	CK, LVR.
Acid Black 52	No	CK, S.
Acid Black 60	No	CK.
Acid Black 63	No	BAS.
Acid Black 92	No	FAB.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Acid dyes-Continued	Yes	
Acid black dyes-Continued	No	
Acid Black 107	No	CK.
Acid Black 172	No	CK.
Acid Black 194	No	BAS.
Acid Black 210	No	BAS.
All other acid black dyes	No	BAS.
Azoic dyes and components:	No	
Azoic compositions:	No	
Azoic yellow compositions:	No	
Azoic Yellow 1	No	BUC.
Azoic red compositions:	No	
Azoic Red 1	No	BUC.
Azoic Red 2	No	BUC.
Azoic Red 6	No	BUC.
Azoic Red 32	No	CK.
All other azoic red compositions	No	BUC.
Azoic violet compositions:	No	
All other azoic violet compositions	No	BUC.
Azoic blue compositions:	No	
Azoic Blue 3	No	BUC.
Azoic Blue 6	No	CK.
Azoic Blue 20	No	CK.
Azoic brown compositions:	No	
Azoic Brown 9	No	BUC.
Azoic black compositions:	No	
Azoic Black 4	No	BUC.
Azoic Black 48	No	CK.
All other azoic black compositions	No	BUC.
Azoic diazo components, bases:	No	
Azoic Diazo Component 5, base	No	ALL.
Azoic Diazo Component 13, base	No	ALL.
Azoic Diazo Component 32, base	No	ALL.
All other azoic diazo components, base	No	ALL.
Azoic diazo components, salts:	No	
Azoic Diazo Component 1, salt	No	BUC.
Azoic Diazo Component 3, salt	No	ALL, BUC.
Azoic Diazo Component 5, salt	No	ALL, BUC.
Azoic Diazo Component 8, salt	No	BUC.
Azoic Diazo Component 9, salt	No	BUC.
Azoic Diazo Component 10, salt	No	BUC.
Azoic Diazo Component 12, salt	No	ALL, BUC.
Azoic Diazo Component 13, salt	No	BUC.
Azoic coupling components:	No	
Azoic Coupling Component 2	No	ALL.
Azoic Coupling Component 4	No	ALL.
Azoic Coupling Component 12	No	ALL.
Azoic Coupling Component 14	No	ALL.
Azoic Coupling Component 17	No	ALL.
Azoic Coupling Component 18	No	ALL.
Azoic Coupling Component 20	No	ALL.
Azoic Coupling Component 34	No	ALL.
Azoic Coupling Component 43	No	ALL.
Basic dyes (classical and modified)		
Basic yellow dyes	Yes	
Basic Yellow 15	No	CK.
Basic Yellow 28	No	BAS, VPC.
Basic Yellow 29	No	BAS.
Basic Yellow 53	No	CK.
Basic Yellow 58	No	VPC.
Basic Yellow 65	No	BAS.
Basic Yellow 78	No	BAS.
Basic Yellow 79	No	CK.

See footnotes at end of table.

Table 4-2—Continued
 Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Basic dyes (classical and modified)-Continued	Yes	
Basic yellow dyes-Continued	Yes	
Basic Yellow 11	No	CK.
Basic Yellow 83	No	CK.
Basic Yellow 94	No	S.
Basic Yellow 96	No	BAS.
Basic Yellow 98	No	BAS.
Basic Yellow 102	No	BAS.
All other basic yellow dyes	No	ALL.
Basic orange dyes:	Yes	
Basic Orange 1	No	BAS, CK.
Basic Orange 2	No	BAS, CK, PSC.
Basic Orange 21	No	CK, VPC.
Basic Orange 26	No	CK.
All other basic orange dyes	No	BAS.
Basic red dyes:	Yes	
Basic Red 12	No	CK, VPC.
Basic Red 14	No	BAS, CK, VPC.
Basic Red 15	No	BAS, CK.
Basic Red 17	No	CK.
Basic Red 29	No	BAS.
Basic Red 46	No	CK.
Basic Red 49	No	BAS.
Basic Red 73	No	CK.
Basic Red 104	No	CK.
Basic Red 111	No	S.
All other basic red dyes	No	BAS.
Basic violet dyes:	Yes	
Basic Violet 1	No	BAS, DSC.
Basic Violet 3	No	CK, DSC.
Basic Violet 4	No	DSC.
Basic Violet 16	No	CK, VPC.
All other basic violet dyes	No	BAS.
Basic blue dyes:	Yes	
Basic Blue 1	No	BAS.
Basic Blue 3	No	BAS, CK.
Basic Blue 6	No	BAS.
Basic Blue 7	No	DSC.
Basic Blue 21	No	CK.
Basic Blue 41	No	BAS.
Basic Blue 60	No	BAS.
Basic Blue 77	No	CK.
Basic Blue 94 and 94:1	No	CK.
Basic Blue 140	No	S, VPC.
Basic Blue 152	No	BAS.
All other basic blue dyes	No	BAS.
All other basic blue dyes, modified	No	BAS.
Basic green dyes:	No	
Basic Green 4	No	BAS.
All other basic green dyes	No	BAS.
Basic brown dyes:	No	
Basic Brown 1	No	PSC.
Basic Brown 4	No	BAS, PSC.
All other basic brown dyes	No	BAS.
Basic black dyes:	No	
All other basic black dyes	No	BAS.
All other basic black dyes, modified	No	BAS, CK.

See footnotes at end of table.

Table 4-2—Continued

Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Direct dyes:	Yes	
Direct yellow dyes:	Yes	
Direct Yellow 4	No	BAS, CK, LVR, VPC.
Direct Yellow 5	No	BAS.
Direct Yellow 6	No	BAS, VPC.
Direct Yellow 11	No	BAS, VPC.
Direct Yellow 34	No	CK.
Direct Yellow 44	No	CK.
Direct Yellow 51	No	S.
Direct Yellow 105	No	CK.
Direct Yellow 106	No	CK.
Direct Yellow 107	No	CK.
Direct Yellow 118	No	CK.
Direct Yellow 119	No	VPC.
Direct Yellow 127	No	BAS, CK, S, VPC.
Direct Yellow 131	No	VPC.
Direct Yellow 132	No	S.
Direct Yellow 133	No	S.
Direct Yellow 137	No	VPC.
Direct Yellow 147	No	BAS, CK, FAB, VPC.
Direct Yellow 148	No	S.
All other direct yellow dyes	No	BAS, CK, VPC.
Direct orange dyes:	No	
Direct Orange 15	No	FAB, VPC.
Direct Orange 26	No	CK.
Direct Orange 34	No	CK, FAB.
Direct Orange 39	No	CK, FAB.
Direct Orange 72	No	CK.
Direct Orange 80	No	CK.
Direct Orange 102	No	BAS, CK, VPC.
Direct Orange 118	No	S.
All other direct orange dyes	No	BAS.
Direct red dyes:	Yes	
Direct Red 2	No	CK.
Direct Red 9	No	CK.
Direct Red 16	No	CK, FAB.
Direct Red 24	No	CK, FAB.
Direct Red 26	No	CK.
Direct Red 72	No	CK.
Direct Red 73	No	CK.
Direct Red 79	No	CK.
Direct Red 80	No	CK.
Direct Red 81	No	CK, LVR, VPC.
Direct Red 83	No	CK, FAB.
Direct Red 224	No	CK.
Direct Red 227	No	CK.
Direct Red 236	No	BAS, VPC.
Direct Red 238	No	VPC.
Direct Red 239	No	BAS, CK, S.
Direct Red 243	No	CK.
Direct Red 254	Yes	BAS, CK, VPC.
Direct Red 263	No	BAS.
All other direct red dyes	No	BAS, CK, VPC.
Direct violet dyes:	Yes	
Direct Violet 9	No	CK.
Direct Violet 35	No	S.
Direct Violet 66	No	CK.
Direct Violet 99	No	VPC.
Direct Violet 195	No	CK.
All other direct violet dyes	No	BAS.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Basic dyes (classical and modified)-Continued	Yes	
Basic yellow dyes-Continued	Yes	
Basic Yellow 11	No	CK.
Basic Yellow 83	No	CK.
Basic Yellow 94	No	S.
Basic Yellow 96	No	BAS.
Basic Yellow 98	No	BAS.
Basic Yellow 102	No	BAS.
All other basic yellow dyes	No	ALL.
Basic orange dyes:	Yes	
Basic Orange 1	No	BAS, CK.
Basic Orange 2	No	BAS, CK, PSC.
Basic Orange 21	No	CK, VPC.
Basic Orange 26	No	CK.
All other basic orange dyes	No	BAS.
Basic red dyes:	Yes	
Basic Red 12	No	CK, VPC.
Basic Red 14	No	BAS, CK, VPC.
Basic Red 15	No	BAS, CK.
Basic Red 17	No	CK.
Basic Red 29	No	BAS.
Basic Red 46	No	CK.
Basic Red 49	No	BAS.
Basic Red 73	No	CK.
Basic Red 104	No	CK.
Basic Red 111	No	S.
All other basic red dyes	No	BAS.
Basic violet dyes:	Yes	
Basic Violet 1	No	BAS, DSC.
Basic Violet 3	No	CK, DSC.
Basic Violet 4	No	DSC.
Basic Violet 16	No	CK, VPC.
All other basic violet dyes	No	BAS.
Basic blue dyes:	Yes	
Basic Blue 1	No	BAS.
Basic Blue 3	No	BAS, CK.
Basic Blue 6	No	BAS.
Basic Blue 7	No	DSC.
Basic Blue 21	No	CK.
Basic Blue 41	No	BAS.
Basic Blue 60	No	BAS.
Basic Blue 77	No	CK.
Basic Blue 94 and 94:1	No	CK.
Basic Blue 140	No	S, VPC.
Basic Blue 152	No	BAS.
All other basic blue dyes	No	BAS.
All other basic blue dyes, modified	No	BAS.
Basic green dyes:	No	
Basic Green 4	No	BAS.
All other basic green dyes	No	BAS.
Basic brown dyes:	No	
Basic Brown 1	No	PSC.
Basic Brown 4	No	BAS, PSC.
All other basic brown dyes	No	BAS.
Basic black dyes:	No	
All other basic black dyes	No	BAS.
All other basic black dyes, modified	No	BAS, CK.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Direct dyes:	Yes	
Direct yellow dyes:	Yes	
Direct Yellow 4	No	BAS, CK, LVR, VPC.
Direct Yellow 5	No	BAS.
Direct Yellow 6	No	BAS, VPC.
Direct Yellow 11	No	BAS, VPC.
Direct Yellow 34	No	CK.
Direct Yellow 44	No	CK.
Direct Yellow 51	No	S.
Direct Yellow 105	No	CK.
Direct Yellow 106	No	CK.
Direct Yellow 107	No	CK.
Direct Yellow 118	No	CK.
Direct Yellow 119	No	VPC.
Direct Yellow 127	No	BAS, CK, S, VPC.
Direct Yellow 131	No	VPC.
Direct Yellow 132	No	S.
Direct Yellow 133	No	S.
Direct Yellow 137	No	VPC.
Direct Yellow 147	No	BAS, CK, FAB, VPC.
Direct Yellow 148	No	S.
All other direct yellow dyes	No	BAS, CK, VPC.
Direct orange dyes:	No	
Direct Orange 15	No	FAB, VPC.
Direct Orange 26	No	CK.
Direct Orange 34	No	CK, FAB.
Direct Orange 39	No	CK, FAB.
Direct Orange 72	No	CK.
Direct Orange 80	No	CK.
Direct Orange 102	No	BAS, CK, VPC.
Direct Orange 118	No	S.
All other direct orange dyes	No	BAS.
Direct red dyes:	Yes	
Direct Red 2	No	CK.
Direct Red 9	No	CK.
Direct Red 16	No	CK, FAB.
Direct Red 24	No	CK, FAB.
Direct Red 26	No	CK.
Direct Red 72	No	CK.
Direct Red 73	No	CK.
Direct Red 79	No	CK.
Direct Red 80	No	CK.
Direct Red 81	No	CK.
Direct Red 83	No	CK, LVR, VPC.
Direct Red 224	No	CK, FAB.
Direct Red 227	No	CK.
Direct Red 236	No	CK.
Direct Red 238	No	BAS, VPC.
Direct Red 239	No	VPC.
Direct Red 243	No	BAS, CK, S.
Direct Red 254	No	CK.
Direct Red 263	Yes	BAS, CK, VPC.
All other direct red dyes	No	BAS.
Direct violet dyes:	No	
Direct Violet 9	Yes	
Direct Violet 35	No	CK.
Direct Violet 66	No	S.
Direct Violet 99	No	CK.
Direct Violet 195	No	VPC.
All other direct violet dyes	No	CK.
	No	BAS.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Direct dyes—Continued		
Direct blue dyes:	Yes	
Direct Blue 14	No	FAB.
Direct Blue 15	No	VPC.
Direct Blue 25	No	CK, FAB.
Direct Blue 75	No	CK, S.
Direct Blue 76	No	CK.
Direct Blue 80	No	CK, FAB.
Direct Blue 86	Yes	CK, S, VPC.
Direct Blue 98	No	CK, FAB.
Direct Blue 100	No	FAB.
Direct Blue 108	No	CK.
Direct Blue 160	No	CK.
Direct Blue 189	No	CK.
Direct Blue 191	No	CK.
Direct Blue 199	No	BAS, S, VPC.
Direct Blue 218	No	CK, FAB, VPC.
Direct Blue 261	No	S.
Direct Blue 269	No	VPC.
Direct Blue 273	No	S.
Direct Blue 279	No	VPC.
Direct Blue 281	No	VPC.
Direct Blue 283	No	CK.
Direct Blue 285	No	CK.
Direct Blue 286	No	CK.
All other direct blue dyes	No	BAS, CK, VPC.
Direct green dyes:	No	
Direct Green 92	No	CK.
All other direct green dyes	No	CK, FAB.
Direct brown dyes:	No	
Direct Brown 44	No	FAB.
Direct Brown 154	No	CK.
All other direct brown dyes	No	FAB, VPC.
Direct black dyes:	No	
Direct Black 22	No	CK, FAB.
Direct Black 80	No	CK, FAB.
Direct Black 163	No	S.
Direct Black 165	No	CK.
Direct Black 170	No	CK.
Direct Black 179	No	CK.
All other direct black dyes	No	BAS, CK, FAB, VPC.
Disperse dyes:	Yes	
Disperse yellow dyes:	Yes	
Disperse Yellow 3	No	CK.
Disperse Yellow 23	No	CK.
Disperse Yellow 34	No	EKT.
Disperse Yellow 42	No	S.
Disperse Yellow 54	No	BAS.
Disperse Yellow 64	No	BAS, HCL.
Disperse Yellow 77	No	VPC.
Disperse Yellow 86	No	CK, EKT.
Disperse Yellow 88	No	EKT.
Disperse Yellow 108	No	EKT.
Disperse Yellow 114	No	HCL.
Disperse Yellow 126	No	ICI.
Disperse Yellow 198	No	BAS.
Disperse Yellow 219	No	S.
Disperse Yellow 238	No	CK.
Disperse Yellow 239	No	CK.
All other disperse yellow dyes	No	BAS, ICI, VPC.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Disperse dyes—Continued		
Disperse orange dyes:		
Disperse Orange 3	Yes	
Disperse Orange 25 and 25:1	No	CK.
Disperse Orange 29	No	CK, ICI.
Disperse Orange 30	No	CK.
Disperse Orange 37	No	BUC, CK, S, SDC.
Disperse Orange 41	No	CK, EKT.
Disperse Orange 44 and 44:1	No	S.
Disperse Orange 73	No	CK, EKT.
Disperse Orange 89	No	BAS, CK.
Disperse Orange 138	No	CK.
Disperse Orange 153	No	EKT.
	No	CK.
Disperse red dyes:		
Disperse Red 1	Yes	
Disperse Red 5	No	CK.
Disperse Red 9	No	CK.
Disperse Red 13	No	CK.
Disperse Red 17	No	CK.
Disperse Red 30	No	EKT.
Disperse Red 50	No	CK.
Disperse Red 55	No	BAS.
Disperse Red 60	No	BAS, CK.
Disperse Red 65	No	CK.
Disperse Red 73	No	CK, S.
Disperse Red 74	No	S.
Disperse Red 86	No	CK, S, SDC.
Disperse Red 88	No	EKT.
Disperse Red 91	No	BAS.
Disperse Red 117	No	EKT.
Disperse Red 135	No	CK.
Disperse Red 136	No	EKT.
Disperse Red 137	No	EKT.
Disperse Red 145	No	CK.
Disperse Red 153	Yes	
Disperse Red 159	No	CK, FAB, S.
Disperse Red 167 and 167:1	No	VPC.
Disperse Red 177	No	CK, S.
Disperse Red 179	Yes	CK, ICI, S.
Disperse Red 273	No	S.
Disperse Red 274	No	S.
Disperse Red 278	No	CK, S.
Disperse Red 305	No	ICI.
Disperse Red 307	No	EKT.
Disperse Red 311	No	EKT.
Disperse Red 313	No	ICI.
Disperse Red 316	No	S.
Disperse Red 325	No	S.
Disperse Red 333	No	CK.
Disperse Red 338	No	S.
Disperse Red 339	No	EKT.
Disperse Red 340	No	EKT.
Disperse Red 345	No	EKT.
Disperse Red 358	No	CK.
All other disperse red dyes	No	HCL.
	No	BAS, SDC.

See footnotes at end of table.

Table 4-2—Continued
 Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Disperse dyes—Continued		
Disperse violet dyes:		
Disperse Violet 1	No	CK.
Disperse Violet 17	No	CK.
Disperse Violet 28	No	CK.
Disperse Violet 33	No	ICI, S.
Disperse Violet 36	No	S.
Disperse Violet 48	No	HCL.
Disperse Violet 60	No	S.
All other disperse violet dyes	No	EKT.
Disperse blue dyes:		
Disperse Blue 1	No	CK.
Disperse Blue 3	No	CK, EKT.
Disperse Blue 14	No	CK.
Disperse Blue 27	No	EKT.
Disperse Blue 56	No	CK.
Disperse Blue 60	No	BAS.
Disperse Blue 62	No	EKT.
Disperse Blue 64	No	EKT.
Disperse Blue 73	No	S.
Disperse Blue 79	Yes	BAS, BUC, CK, EKT, ICI, S.
Disperse Blue 95	No	HCL.
Disperse Blue 102	No	CK, EKT.
Disperse Blue 118	No	EKT.
Disperse Blue 148	No	BAS.
Disperse Blue 175	No	CK.
Disperse Blue 183	No	S.
Disperse Blue 200	No	ICI.
Disperse Blue 281	No	S.
Disperse Blue 284	No	ICI.
Disperse Blue 291	No	CK, S.
Disperse Blue 333	No	HCL.
Disperse Blue 337	No	EKT.
Disperse Blue 359	No	CK.
All other disperse blue dyes	No	BAS, BUC, ICI, SDC.
Disperse green dyes:		
Disperse Green 9	No	ICI.
Disperse brown dyes:		
Disperse Brown 1	Yes	BUC, CK, S, SDC.
Disperse Brown 18	No	S.
Disperse Brown 22	No	EKT.
Disperse Brown 26	No	CK.
Disperse Brown 27	No	CK.
Disperse black dyes:		
Disperse Black 9	No	CK, EKT, FAB.
All other disperse black dyes	No	BAS, SDC.
Fiber-reactive dyes:		
Reactive yellow dyes:		
Reactive Yellow 7	No	ICI.
Reactive Yellow 15	No	HCL.
Reactive Yellow 18	No	ICI.
Reactive Yellow 42	No	HCL.
Reactive Yellow 86	No	ICI.
Reactive Yellow 135	No	ICI.
Reactive Yellow 160	No	HCL.
Reactive Yellow 165	No	S.
All other reactive yellow dyes	No	HCL.

See footnotes at end of table.

Table 4-2—Continued
 Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Fiber-reactive dyes—Continued		
Reactive orange dyes:		
Reactive Orange 1	No	
Reactive Orange 4	No	ICI.
Reactive Orange 12	No	ICI.
Reactive Orange 13	No	ICI.
Reactive Orange 16	No	ICI.
Reactive Orange 20	No	CK.
Reactive Orange 72	No	CK.
Reactive Orange 84	No	CK.
Reactive Orange 86	No	ICI.
All other reactive orange dyes	No	ICI.
Reactive red dyes:		
Reactive Red 2	No	HCL.
Reactive Red 11	No	ICI.
Reactive Red 21	No	ICI.
Reactive Red 24	No	HCL.
Reactive Red 31	No	BAS.
Reactive Red 33	No	ICI.
Reactive Red 35	No	ICI.
Reactive Red 43	No	HCL.
Reactive Red 49	No	CK, ICI.
Reactive Red 94	No	HCL.
Reactive Red 120	No	HCL.
Reactive Red 141	No	ICI, S.
Reactive Red 180	No	ICI.
All other reactive red dyes	No	HCL.
Reactive violet dyes:		
Reactive Violet 1	No	CK, HCL.
Reactive Violet 5	No	ICI.
All other reactive violet dyes	No	HCL.
Reactive blue dyes:		
Reactive Blue 3	No	HCL, ICI.
Reactive Blue 4	No	ICI.
Reactive Blue 5	No	ICI.
Reactive Blue 7	No	ICI.
Reactive Blue 19	No	CK.
Reactive Blue 21	No	HCL.
Reactive Blue 28	No	HCL.
Reactive Blue 38	No	CK.
Reactive Blue 41	No	HCL.
Reactive Blue 71	No	S.
Reactive Blue 89	No	ICI.
Reactive Blue 199	No	ICI.
Reactive Blue 214	No	ICI.
All other reactive blue dyes	No	S.
Reactive green dyes:		
Reactive Green 19	No	HCL, ICI.
Reactive brown dyes:		
Reactive Brown 1	No	ICI.
Reactive Brown 17	No	ICI.
Reactive Brown 18	No	ICI.
Reactive black dyes:		
Reactive Black 5	No	HCL.
Reactive Black 9	No	CK, HCL.
All other reactive black dyes	No	ICI.
		HCL.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Fluorescent brighteners:	No	
Fluorescent Brightener 28	No	VPC.
Fluorescent Brightener 49	No	S.
Fluorescent Brightener 52	No	S.
Fluorescent Brightener 61	No	BAS.
Fluorescent Brightener 71	No	VPC.
Fluorescent Brightener 130	No	BAS.
Fluorescent Brightener 205	No	VPC.
Fluorescent Brightener 231	No	S.
Fluorescent Brightener 232	No	S.
Fluorescent Brightener 290	No	S.
Flourescent Brightener 315	No	CK.
Flourescent Brightener 339	No	CK.
All other fluorescent brighteners	No	S, VPC.
Food, drug, and cosmetic colors:	No	
Food, drug, and cosmetic dyes:	No	
Food, Drug, and Cosmetic Blue 1	No	WJ.
Food, Drug, and Cosmetic Blue 2	No	WJ.
Food, Drug, and Cosmetic Green 3	No	WJ.
Food, Drug, and Cosmetic Red 2	No	WJ.
Food, Drug, and Cosmetic Red 3	No	WJ.
Food, Drug, and Cosmetic Red 40	No	WJ.
Food, Drug, and Cosmetic Yellow 5	No	WJ.
Food, Drug, and Cosmetic Yellow 6	No	CK, WJ.
Drug and cosmetic dyes:	No	
Drug and Cosmetic Red 57:1	No	SNA.
Drug and Cosmetic Red 1 1	No	SNA.
Drug and Cosmetic Green 5	No	CK, WJ.
Drug and Cosmetic Orange 5	No	CCG, SNA.
Drug and Cosmetic Red 6	No	CCG, SNA.
Drug and Cosmetic Red 7	No	CCG, SNA.
Drug and Cosmetic Red 17	No	WJ.
Drug and Cosmetic Red 21	No	CCG, SNA.
Drug and Cosmetic Red 22	No	WJ.
Drug and Cosmetic Red 27	No	CCG, SNA, WJ.
Drug and Cosmetic Red 30	No	CCG, SNA.
Drug and Cosmetic Red 33	No	CCG, CK, SNA, WJ.
Drug and Cosmetic Red 34	No	CCG, SNA.
Drug and Cosmetic Red 36	No	CCG, SNA.
Drug and Cosmetic Yellow 5	No	CCG.
Drug and Cosmetic Yellow 8	No	WJ.
Drug and Cosmetic Yellow 10	No	CCG, CK, WJ.
Drug and cosmetic dyes, external:	No	
External Drug and Cosmetic Orange 3	No	CK, WJ.
Mordant dyes:	No	
Mordant yellow dyes:	No	
Mordant Yellow 16	No	CK.
Mordant orange dyes:	No	
Mordant Orange 1	No	FAB.
Mordant Orange 3	No	FAB.
Mordant Orange 6	No	FAB.
Mordant brown dyes:	No	
Mordant Brown 1	No	FAB.
Mordant Brown 33	No	FAB.
Mordant Brown 70	No	FAB.
Solvent dyes:	Yes	
Solvent yellow dyes:	Yes	
Solvent Yellow 3	No	PSC.
Solvent Yellow 13	Yes	BAS, CK, FAB.
Solvent Yellow 14	No	PSC.
Solvent Yellow 16	No	PSC.
Solvent Yellow 18	No	CK.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Solvent dyes—Continued:		
Solvent yellow dyes—Continued:		
Solvent Yellow 33	Yes	
Solvent Yellow 40	No	BAS, CIC, MRT.
Solvent Yellow 42	No	CK.
Solvent Yellow 43	No	CK.
Solvent Yellow 56	No	HCL.
Solvent Yellow 72	No	PSC.
Solvent Yellow 96	No	CIC, FAB, PSC, UCM.
Solvent Yellow 131	No	MRT.
Solvent Yellow 135	No	DGO.
Solvent Yellow 143	No	DGO.
Solvent Yellow 160	No	MRT.
Solvent Yellow 161	No	(?).
Solvent Yellow 167	No	MRT.
All other solvent yellow dyes	No	CIC.
Solvent orange dyes:		
Solvent Orange 2	Yes	CK, MRT, (?).
Solvent Orange 3	No	PSC.
Solvent Orange 7	No	PSC.
Solvent Orange 20	No	CK, PSC.
Solvent Orange 23	No	BAS, CK, FAB.
Solvent Orange 31	No	CK.
Solvent Orange 60	No	PSC.
Solvent Orange 77	No	CIC.
Solvent Orange 97	No	MRT.
All other solvent orange dyes	No	MRT.
Solvent red dyes:		
Solvent Red 1	Yes	(?).
Solvent Red 23	No	PSC.
Solvent Red 24	No	PSC.
Solvent Red 26	No	PSC.
Solvent Red 27	No	PSC.
Solvent Red 49	No	PSC.
Solvent Red 68	No	BAS.
Solvent Red 111	No	CK, MRT.
Solvent Red 164	No	MRT.
Solvent Red 166	No	MRT, (?), (?).
Solvent Red 168	No	MRT.
Solvent Red 169	No	MRT.
Solvent Red 175	No	MRT.
Solvent Red 179	No	MRT.
Solvent Red 207	No	CIC.
Solvent Red 208	No	MRT.
Solvent violet dyes:		
Solvent Violet 8	Yes	MRT.
Solvent Violet 9	No	BAS, DSC.
Solvent Violet 11	No	DSC.
Solvent Violet 13	No	CK.
Solvent Violet 38	No	CK.
All other solvent violet dyes	No	MRT.
Solvent blue dyes:		
Solvent Blue 3	Yes	CK.
Solvent Blue 5	No	PSG.
Solvent Blue 23	No	DSC.
Solvent Blue 35	No	BAS.
Solvent Blue 36	No	MRT.
Solvent Blue 38	No	MRT.
Solvent Blue 58	No	TNI.
Solvent Blue 59	No	VPC.
Solvent Blue 98	No	MRT, VPC.
	No	MRT.

See footnotes at end of table.

Table 4-2—Continued
 Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Solvent blue dyes—Continued:	Yes	
Solvent Blue 99	No	MRT.
Solvent Blue 100	No	MRT.
Solvent Blue 102	No	MRT.
Solvent Blue 128	No	MRT.
Solvent Blue 129	No	MRT.
Solvent green dyes:	No	
Solvent Green 3	No	CK, MRT.
Solvent brown dyes:	No	
Solvent Brown 12	No	PSC.
Solvent Brown 20	No	CK, MRT.
Solvent Brown 22	No	PSC.
Solvent Brown 38	No	FAB.
Solvent Brown 52	No	MRT.
Solvent black dyes:	No	
Solvent Black 5	No	LVR.
Solvent Black 7	No	BAS, CK, OCC, PSC.
Solvent Black 13	No	CK.
Solvent Black 26	No	FAB.
Solvent Black 46	No	MRT.
Solvent Black 47	No	MRT.
Solvent Black 49	No	MRT.
Sulfur dyes:	No	
Sulfur yellow dyes:	No	
Leuco Sulfur Yellow 21	No	SDC.
Leuco Sulfur Yellow 22	No	SDC.
All other sulfur yellow dyes	No	SDC.
Sulfur orange dyes:	No	
All other sulfur orange dyes	No	SDC.
Sulfur red dyes:	No	
Leuco Sulfur Red 14	No	SDC.
Sulfur Red 10	No	SDC.
Sulfur blue dyes:	No	
Leuco Sulfur Blue 7	No	S, SDC.
Leuco Sulfur Blue 11	No	SDC.
Leuco sulfur blue 20	No	S.
Sulfur green dyes:	No	
Leuco Sulfur Green 2	No	SDC.
Leuco Sulfur Green 16	No	SDC.
Leuco Sulfur Green 34	No	SDC.
Leuco Sulfur Green 35	No	SDC.
Leuco Sulfur Green 36	No	SDC.
Solubilized Sulfur Green 11	No	S.
Sulfur brown dyes:	No	
Leuco Sulfur Brown 1, 1:1	No	SDC.
Leuco Sulfur Brown 3	No	SDC.
Leuco Sulfur Brown 37	No	S, SDC.
Leuco Sulfur Brown 52	No	SDC.
Leuco Sulfur Brown 96	No	SDC.
Sulfur Brown 37	No	SDC.
Sulfur Brown 96	No	SDC.
Sulfur black dyes:	No	
Leuco Sulfur Black 1	No	SDC.
Leuco Sulfur Black 2	No	S, SDC.
Leuco Sulfur Black 11, 11:1	No	SDC.
Leuco Sulfur Black 18	No	SDC.
Solubilized Sulfur Black 2	No	SDC.
Sulfur Black 2	No	SDC.
Sulfur Black 11, 11:1	No	SDC.

See footnotes at end of table.

Table 4-2—Continued
Dyes for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Dyes	Separate statistics ¹	Manufacturers' identification codes (according to list in table 4-3)
Vat dyes:	Yes	
Vat orange dyes:	Yes	
Vat Orange 1, 20%	No	SDC.
Vat Orange 2, 12%	No	BAS.
Vat Orange 7, 11%	No	HCL.
Vat Orange 9, 12%	No	BAS.
Vat red dyes:	No	
Vat Red 10, 18%	No	BAS.
Vat Red 15, 10%	No	HCL.
All other vat red dyes	No	HCL.
Vat violet dyes:	No	
Vat Violet 13, 6-1/4%	No	BAS, SDC.
Vat blue dyes:	No	
Vat Blue 1, 20%	No	BCC.
Vat Blue 6, 8-1/3%	No	BAS, SDC.
Vat Blue 16, 16%	No	BAS.
Vat Blue 19	No	BAS.
Vat Blue 29	No	BAS.
Vat Blue 43	No	SDC.
Vat Blue 66	No	BAS.
All other vat blue dyes	No	SDC.
Vat green dyes:	No	
Vat Green 1, 6%	No	BAS, SDC.
Vat Green 3, 10%	No	BAS, SDC.
Vat Green 7	No	SDC.
Vat brown dyes:	No	
Vat Brown 57, 12.8%	No	HCL.
Vat black dyes:	No	
Vat Black 22, 19%	No	SDC.
Vat Black 25, 12-1/2%	No	BAS, SDC.
Miscellaneous dyes:	Yes	
All other dyes	Yes	MRT, RIL, SDC.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to his identification with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 4-3
Dyes: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ALL	Alliance Chemical, Inc.	ICI	ICI Americas, Inc., Specialty Chem Div.
BAS	BASF Corp.	LVR	C. Lever Co., Inc.
BCC	Buffalo Color Corp.	MRT	Morton International, Inc., Specialty Chemicals
BUC	Synalloy Corp., Blackman Uhler Chemical Div.	OCC	Orient Chemical Corp.
CCG	Warner-Jenkinson Cosmetic Colors	PSC	Passaic Color & Chemical Co.
CIC	Color Chem International Corp.	PSG	PMC, Inc., PMC Specialities Group, Inc.
CK	Crompton & Knowles Corp.	RIL	Reilly Industries, Inc.
DGO	Day-Glo Color Corp.	ROM	Roma Color, Inc.
DSC	Dye Specialties, Inc.	S &	Sandoz, Inc.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	SDC	Sandoz Chemicals Corp.
FAB	Fabricolor Manufacturing Corp.	SNA	Sun Chemical Corp., Pigments Div.
HCL	Hoechst Celanese Corp.: Sou-Tex Works Specialty Chem Group	TNI	Gillette Chemical Co.
		UCM	United Color Manufacturing Co.
		VPC	Miles, Inc.
		WJ	Warner-Jenkinson Co.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
 Source: Compiled from data received in response to questionnaire of the U.S. International Trade Commission.

Section 5 Organic Pigments

Organic pigments are toners and lakes¹ derived in whole or in part from benzenoid chemicals and colors.

Statistics on production and sales of all organic pigments in 1990 are given in table 5-1. Individual toners and lakes are identified in this report by the names used in the third edition of the Colour Index.

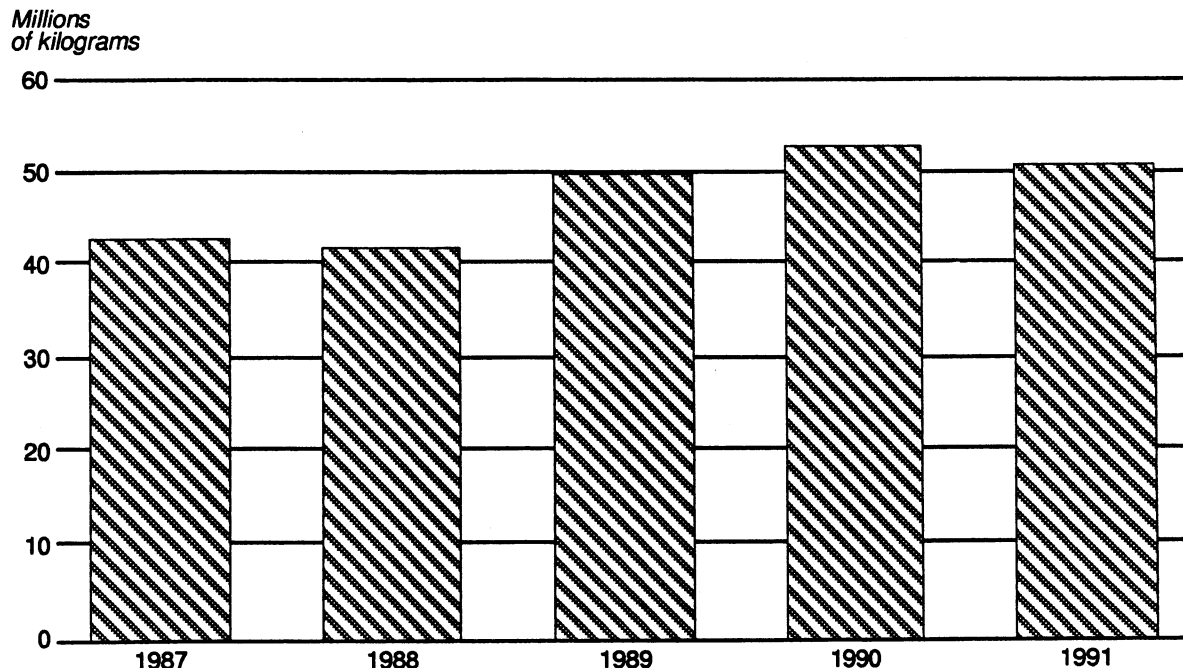
Total production of organic pigments in 1991 was 51 million kilograms, 2.4 percent less than the 52 million kilograms produced in 1990. Total sales of organic pigments in 1991 amounted to 39 million kilograms, valued at \$644 million, compared with 45 million kilograms, valued at \$717 million, in 1990. In terms of quantity, sales of organic pigments in 1991 were 11.9 percent lower than in 1990; in terms of value, sales in 1991 were 10.3 percent lower than in 1990. Changes in U.S. production of pigments have followed overall changes in U.S. economic activity during 1987-91 (see figure 5-1).

Production of toners in 1991 accounted for over 99 percent of total pigment production. Changes in toner production and sales mirrored changes in production and sales of total pigments. The individual toners listed in the report which were produced in the largest quantities in 1991 were Pigment Yellow 12, Pigment Yellow 14, Pigment Red 48:2 calcium toner, Pigment Red 53:1 barium toner, and Pigment Green 7.

Table 5-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 5-3.

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202-205-3351

Figure 5-1
Organic pigments: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

¹ Toners and lakes are essentially the same in their final form; they differ in the method of preparation. A lake is an organic pigment produced by the interaction of a soluble dye, a precipitant, and an absorptive inorganic substrate. A toner is an insoluble dye produced as a powder; some toners are extended by the inclusion of a solid diluent.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 5-1
Organic pigments: U.S. production and sales, 1991

Organic pigments	Production	Sales		Average Unit value ²
		Quantity	Value ¹	
	<i>1,000 Kilograms dry basis³</i>	<i>1,000 Kilograms dry basis³</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Grand Total	51,311	39,426	643,561	\$16.32
Toners				
Yellow toners, total	14,548	10,602	135,156	12.75
Acetoacetarylide yellows, total	1,498	1,040	18,875	18.15
Pigment Yellow 65, C.I. 11 740	135	146	2,697	18.52
Pigment Yellow 74, C.I. 11 741	531	500	9,350	18.69
All other acetoacetarylide yellows	832	394	6,828	17.33
Diarylide:				
Pigment Yellow 12, C.I. 21 090	9,040	5,828	63,684	10.93
Pigment Yellow 13, C.I. 21 100	285	207	3,285	15.84
Pigment Yellow 14, C.I. 21 095	2,963	2,792	30,973	11.09
Pigment Yellow 17, C.I. 21 105	147	143	2,271	15.87
Pigment Yellow 83, C.I. 21 108	537	518	13,812	26.78
All other yellow toners	78	74	2,256	30.49
Orange toners, total	1,217	1,104	18,233	16.52
Pigment Orange 5, C.I. 21 075	392	342	4,165	12.19
Pigment Orange 13	58	51	1,201	23.74
Pigment Orange 16, C.I. 21 160	382	344	5,275	15.32
Pigment Orange 34	41	43	1,066	24.79
All other Orange toners	344	324	6,526	20.14
Red toners, total	15,959	12,470	224,549	18.01
Naphthol reds, total	1,000	985	27,946	28.38
Pigment Red 2, C.I. 12 310	25	26	56	21.16
Pigment Red 22, C.I. 12 315	210	199	4,149	20.88
Pigment Red 23, C.I. 12 355	103	101	2,866	28.48
All other naphthol reds	662	659	20,875	31.68
Other red toners, total	14,959	11,485	196,603	17.12
Pigment Red 3, C.I. 12 120	251	219	3,810	17.41
Pigment Red 38, C.I. 12 120	72	72	1,848	25.51
Pigment Red 48:1, barium toner, C.I. 15 865	777	609	8,012	13.17
Pigment Red 48:2, calcium toner, C.I. 15 865	955	886	11,946	13.49
Pigment Red 52:1, calcium toner, C.I. 15 860	854	815	9,049	11.10
Pigment Red 52:2, manganese toner, C.I. 15 860 ..	74	72	1,168	16.16
Pigment Red 53:1, barium toner, C.I. 15 585	1,391	1,249	9,870	7.90
Pigment Red 81, PMA, C.I. 45 160	157	141	3,571	25.27
All other red toners	10,428	7,422	147,329	19.85
Violet toners, total	2,288	1,628	76,773	47.15
Blue toners, total	15,569	12,070	155,348	12.87

See footnotes at end of table.

Table 5-1—Continued
Organic pigments: U.S. production and sales, 1991

Organic pigments	Production	Sales		Average Unit value ²
		Quantity	Value ¹	
	<i>1,000 Kilograms dry basis³</i>	<i>1,000 Kilograms dry basis³</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Green toners, total	1,393	1,344	30,202	22.47
Pigment Green 7, C.I. 74 260	1,350	1,290	28,089	21.77
Pigment green 36	0	38	1,377	36.31
All other green toners	43	16	736	46.00
Lakes				
Pigment Red 83, C.I. 58 000	9	12	391	32.58
Pigment Violet 5:1, C.I. 58 055	24	23	609	26.48
All other lakes and toners	304	173	2,300	13.29

¹ The value of sales for toners is reported on a dry-full strength basis and the value of sales for lakes is reported on a dry form basis. All sales value data exclude the additional cost of processing or packaging in commercial forms other than the dry full-strength or dry form.

² Calculated from unrounded figures.

³ Quantities for toners are reported as dry full-strength toner content, excluding the weight of any dispersing agent, vehicle, or extender. Quantities for lakes are reported as dry lake content, excluding the weight of any dispersing agent or vehicle.

Note.—The C.I. (Colour Index) number shown in this report are the identifying number given in the third edition of the Colour Index. The abbreviation PMA stands for phosphomolybdic acids.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 5-2
Organic pigments for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Organic pigments	Separate statistics ¹	Manufacturers' identification codes (according to list in table 5-3)
Toners:		
Yellow toners:		
Acetoacetarylide yellows:		
	Yes	
Pigment Yellow 1	No	BAS, DUP, HSH, MAX, SNA.
Pigment Yellow 2	No	KCW.
Pigment Yellow 3	No	HEU, HSH, KCW, MAX, SNA, VPC.
Pigment Yellow 60	No	HSH.
Pigment Yellow 65	Yes	HCL, HEU, HSH, SNA, VPC.
Pigment Yellow 73	No	HCL, HSH, SNA, VPC.
Pigment Yellow 74	Yes	BAS, HCL, HEU, HSH, ROM, SNA, VPC.
Pigment Yellow 75	No	HCL, HSH, SNA.
Pigment Yellow 97	No	HCL.
Pigment Yellow 98	No	HCL.
Pigment Yellow 119	No	BAS.
Pigment Yellow 194	No	HCL.
All other acetoacetarylide yellows	Yes	KCW.
Diarylide yellows:		
Pigment Yellow 12	Yes	APO, BAS, CDR, HCL, HSH, IDC, IND, POP, ROM, SNA.
Pigment Yellow 13	Yes	APO, BAS, CDR, GLX, HCL, IDC, IND, ROM, SNA.
Pigment Yellow 14	Yes	BAS, CDR, FAB, GLX, HCL, HSH, IDC, IND, ROM, SNA, VPC.
Pigment Yellow 17	Yes	APO, BAS, FAB, GLX, HCL, HSH, IDC, IND, ROM.
Pigment Yellow 83	Yes	BAS, FAB, GLX, HCL, IDC, IND, ROM, SNA.
Pigment Yellow 124	No	GLX.
Pigment Yellow 176	No	SNA.
Yellow pigments, other:		
(Basic Yellow 2), fugitive	No	MAX.
Pigment Yellow 16	No	HCL.
Pigment Yellow 139	No	VPC.
All other pigment yellow toners	Yes	HSH, VPC.
Orange toners:		
Pigment Orange 1	No	MAX.
Pigment Orange 2	No	UHL.
Pigment Orange 5	Yes	BAS, HCL, HSH, SNA.
Pigment Orange 13	Yes	BAS, HSH, SNA.
Pigment Orange 15	No	IND.
Pigment Orange 16	Yes	FAB, GLX, HSH, IND, ROM, SNA.
Pigment Orange 34	Yes	BAS, HCL, ROM, SNA.
Pigment Orange 38	No	CDR, HCL.
Pigment Orange 46	No	BAS, SNA.
Pigment Orange 48	No	CGY.
All other pigment orange toners	Yes	GLX, UHL.
Red toners:		
Naphthol reds:		
	Yes	
Pigment Red 2	Yes	GLX, HCL, HSH, MAX.
Pigment Red 5	No	FAB, GLX, HSH.
Pigment Red 13	No	KCW.
Pigment Red 17	No	ROM, SNA, UHL.
Pigment Red 21	No	IND.
Pigment Red 22	Yes	FAB, GLX, HEU, IND, MAX, ROM, SNA.
Pigment Red 23	Yes	DUP, FAB, GLX, HEU, HSH, IND, KCW, ROM, SNA, UHL.

See footnotes at end of table.

Table 5-2—Continued
Organic pigments for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Organic pigments	Separate statistics ¹	Manufacturers' identification codes (according to list in table 5-3)
Toners-Continued		
Red toners-Continued	Yes	
Naphthol reds—Continued	Yes	
Pigment Red 31	No	GLX.
Pigment Red 112	No	HCL, VPC.
Pigment Red 146	No	HCL.
Pigment Red 147	No	HCL, HSH.
Pigment Red 170	No	GLX, HCL, HEU.
Pigment Red 210	No	SNA.
All other naphthol reds	Yes	BUC, FAB, GLX, MGR, ROM, (?).
Red toners, other:		
Pigment Red 1, (light)	No	HSH.
Pigment Red 3	Yes	BAS, HSH, MAX, SNA, UHL.
Pigment Red 4	No	HSH, MAX, SNA, UHL.
Pigment Red 38	Yes	FAB, HCL, HSH, SNA, VPC.
Pigment Red 41	No	VPC.
Pigment Red 48:1, (barium)	Yes	APO, BAS, CDR, HEU, HSH, MGR, SNA, UHL.
Pigment Red 48:2, (calcium)	Yes	APO, BAS, CDR, HCL, HEU, HSH, MGR, SNA, UHL, VPC.
Pigment Red 48:3, (strontium)	No	HSH.
Pigment Red 48:4, (manganese)	No	HEU, HSH, SNA.
Pigment Red 49:1, (barium)	No	BAS, IDC, MGR, SNA, UHL.
Pigment Red 49:2, (calcium)	No	CDR, IDC, MAX, MGR, SNA, UHL.
Pigment Red 52:1, (calcium)	Yes	APO, BAS, CDR, HSH, MGR, SNA, UHL.
Pigment Red 52:2, (manganese)	Yes	BAS, CDR, HSH, UHL.
Pigment Red 53:1, (barium)	Yes	APO, BAS, CDR, HSH, IDC, MAX, MGR, SNA, UHL.
Pigment Red 57:1, (calcium)	No	APO, BAS, CDR, FAB, HSH, IDC, MGR, POP, PS, SNA, UHL.
Pigment Red 63	No	HSH.
Pigment Red 81, (PMA)	Yes	BAS, MGR, SNA, UHL.
Pigment Red 81, (PTA)	No	BAS, MAX, UHL.
Pigment Red 101	No	HCL.
Pigment Red 122	No	SNA, VPC.
Pigment Red 123	No	VPC.
Pigment Red 135	No	HCL.
Pigment Red 149	No	HCL.
Pigment Red 168	No	VPC.
Pigment Red 169	No	MAX.
Pigment Red 176	No	HCL.
Pigment Red 179	No	HEU, SNA, VPC.
Pigment Red 181	No	HCL.
Pigment Red 188	No	HCL.
Pigment Red 190	No	VPC.
Pigment Red 194	No	HCL.
Pigment Red 195	No	HCL.
Pigment Red 200	No	BAS.
Pigment Red 202	No	CGY, SNA, VPC.
Pigment Red 206	No	CGY.
Pigment Red 207	No	CGY.
Pigment Red 209	No	SNA.
Pigment Red 214	No	HCL.
Pigment Red 224	No	VPC.
Pigment Red 238	No	FAB.
Pigment Red 63:1, calcium	No	SNA.
All other pigment red toners	Yes	HCL, SNA, VPC.

See footnotes at end of table.

Table 5-2—Continued
Organic pigments for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Organic pigments	Separate statistics ¹	Manufacturers' identification codes (according to list in table 5-3)
Toners-Continued		
Violet toners:		
	Yes	
Pigment Violet 1, (fugitive)	No	KCW, UHL.
Pigment Violet 1, (PMA)	No	BAS, MAX, MGR, UHL
Pigment Violet 1, (PTA)	No	MGR, SNA, UHL
Pigment Violet 3, (fugitive)	No	UHL.
Pigment Violet 3, (PMA)	No	MAX, MGR, UHL.
Pigment Violet 3, (PTA)	No	FAB, MAX, UHL.
Pigment Violet 4, (fugitive)	No	KCW.
Pigment Violet 19	No	CGY, SNA, VPC.
Pigment Violet 23	No	HCL, IPP, RMI, SNA.
Pigment Violet 27	No	MAX.
Pigment Violet 29	No	SNA, VPC.
Pigment Violet 39, (PMA)	No	BAS.
All other pigment violet toners	No	BUC, UHL, VPC.
Blue toners:		
	Yes	
Pigment Blue 1, (PMA)	No	MGR, UHL.
Pigment Blue 1, (PTA)	No	MAX.
Pigment Blue 2, (PMA)	No	UHL.
Pigment Blue 14, (PMA)	No	BAS, HSH, MGR, UHL.
Pigment Blue 15, (α form)	No	BAS, CGY, HEU, SNA.
Pigment Blue 15:1, (α form)	No	CGY, HCL, HEU, SNA, VPC.
Pigment Blue 15:2, (α form)	No	CGY, HEU, SNA, VPC.
Pigment Blue 15:3, (β form)	No	ALG, APO, BAS, BFC, CDR, CGY, HCL, HEU, IDC, IPP, MGR, POP, PS, SNA.
Pigment Blue 15:4, (β form)	No	BFC, CGY, HEU, POP, SNA, VPC.
Pigment Blue 19	No	BAS, PSG.
Pigment Blue 25	No	FAB, GLX.
Pigment Blue 61	No	BAS.
Pigment Blue 62	No	MAX.
All other pigment blue toners	No	BAS, FAB.
Green toners:		
	Yes	
Pigment Green 1, (PMA)	No	MAX, UHL.
Pigment Green 2, (PMA)	No	MAX.
Pigment Green 2, (PTA)	No	MAX.
Pigment Green 4, (PMA)	No	UHL.
Pigment Green 7	Yes	ALG, BAS, BFC, HCL, MGR, POP, SNA, VPC.
Pigment Green 10	No	HEU.
Pigment Green 36	Yes	ALG, SNA, VPC.
All other pigment green toners	Yes	UHL.
Brown toners:		
Pigment Brown 5	No	GLX.
Black toners:		
Pigment Black 7	No	HCL.
All other pigment black toners	No	UHL.
Lakes:		
	Yes	
Yellow lakes:		
(Acid Yellow 23)	No	MAX.
All other pigment yellow lakes	No	LVR.
Orange lakes:		
Pigment Orange 17	No	KCW.

See footnotes at end of table.

Table 5-2—Continued
Organic pigments for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Organic pigments	Separate statistics ¹	Manufacturers' identification codes (according to list in table 5-3)
Lakes-Continued		
Red lakes:		
(Acid Red 26)	No	KCW.
(Basic Red 81, PMA)	No	LVR.
Pigment Red 60:1	No	HSH.
Pigment Red 83	Yes	HSH, MAX, UHL.
Violet lakes:		
Violet 5:1	Yes	HSH, MAX, UHL, VPC.
Blue lakes:		
(Basic Blue 14, PMA)	No	LVR.
Green lakes:		
(Basic Green 1, PMA)	No	LVR.
(Basic Green 1, PMA)	No	LVR.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 5-3
Organic pigments: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ALG	Allegheny Chemical Corp.	IDC	Industrial Color, Inc.
APO	Apollo Colors, Inc.	IND	Indol Color Co., Inc.
BAS	BASF Corp.	IPP	Spectrachem Corp.
BFC	Baker Fine Color, Inc.	KCW	Keystone Color Works, Inc.
BUC	Synalloy Corp., Blackman Uhler Chemical Div.	LVR	C. Lever Co., Inc.
CDR	CDR Pigments & Dispersions	MAX	Max Marx Color Corp.
CGY	Ciba-Geigy Corp.	MGR	Magruder Color Co., Inc.
DUP	E.I. duPont de Nemours & Co., Inc., Chemicals and Pigments Dept.	POP	Daicolor-Pope, Inc.
FAB	Fabricolor Manufacturing Corp.	PS	CPS Corp.
GLX	Galaxie Chemical Corp.	PSG	PMC, Inc. Specialities Group, Inc.
HCL	Hoechst Celanese Corp.: Specialty Chem Group	RMI	R-M industries
HEU	Cookson Pigment, Inc.	ROM	Roma Color, Inc.
HSH	Engelhard Corporation	SNA	Sun Chemical Corp., Pigment Div.
		UHL	Paul Uhlich & Co., Inc.
		VPC	Miles, Inc.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
 Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 6 Medicinal Chemicals

Medicinal chemicals include the medicinal and feed grades of all organic chemicals having therapeutic value, whether obtained by chemical synthesis, by fermentation, by extraction from naturally occurring plant or animal substances, or by refining a technical grade product. They include antibiotics and other anti-infective agents, antihistamines, autonomic drugs, cardiovascular agents, central nervous system depressants and stimulants, hormones and synthetic substitutes, vitamins, and other therapeutic agents for human or veterinary use, and for animal feed supplements. Data for the production of these products during 1987-91 are shown in figure 6-1.

Table 6-1 shows statistics for production and sales of medicinal chemicals grouped by pharmacological class. The statistics shown are for bulk chemicals only. Finished pharmaceutical preparations and products put up in pills, capsules, tablets, or other measured doses are excluded.¹ The reported levels of production and sales reflects inventory changes, processing losses, and captive consumption of medicinal chemicals processed into ethical (i.e., available by prescription) and proprietary pharmaceutical products by the primary manufacturer. In some instances, the difference may also include quantities for medicinal grade products used as intermediates; for example, penicillin V used

as an intermediate in the manufacture of other antibiotics. All quantities are given in terms of 100 percent content of the pure bulk drug. Table 6-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 6-3.

Total U.S. production of bulk medicinal chemicals in 1991 amounted to 183.9 million kilograms. Total sales of bulk medicinal chemicals in 1991 amounted to 133.1 million kilograms, valued at \$2,376.4 million. Beginning in 1980, methionine and most other amino acids and their salts are reported in the section on Miscellaneous End-Use Chemicals and Chemical Products. Section totals are not, therefore, comparable with years prior to 1980.

Production of the larger groups of medicinal chemicals in 1991 was as follows (see table 6-1): Antibiotics, 23.2 million kilograms, 6 percent lower than in 1990; anti-infective agents other than antibiotics, 11.4 million kilograms, 39.6 percent higher than in 1990; central nervous system depressants and stimulants, 39.0 million kilograms, 3.3 percent lower than in 1990; gastrointestinal agents and therapeutic nutrients, 47.1 million kilograms, 88.6 percent higher than in 1990; and vitamins, 40.2 million kilograms, 6.9 percent higher than in 1990.

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202-205-3355

Figure 6-1
Medicinal Chemicals: U.S. production, 1987-91



¹ Complementary statistics on the dollar value of manufacturers' shipments of finished pharmaceutical preparations, except biologicals, are published annually by the U.S. Department of Commerce, Bureau of the Census, in Current Industrial Reports, Series MA-28G. Many pharmaceutical manufacturers that report to the Bureau of the Census are excluded from the U.S. International Trade Commission report because they are not primary producers of medicinal chemicals; that is, they do not themselves produce the bulk drugs which go into their pharmaceutical products, but purchase their drug requirements from domestic or foreign producers.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 6-1
Medicinal chemicals: U.S. production and sales, 1991

Medicinal chemicals	Production ¹	Sales		Average Unit value ²
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Grand total	183,905	133,063	2,376,403	\$17.86
Antibiotics	23,231	6,863	644,876	93.96
Antihistamines	135	90	24,297	269.97
Anti-infective agents (except antibiotics), total	11,414	6,462	52,065	8.06
Anthelmintics	6,961	(³)	(³)	(³)
All other anti-infective agents (except antibiotics) ⁴	4,453	6,462	52,065	8.06
Central depressants and stimulants, total	39,019	29,043	501,417	17.26
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents, total	35,409	26,568	212,044	7.98
All other central depressants and stimulants ⁵	3,610	2,475	289,373	116.92
Expectorants and mucolytic agents	933	824	11,346	13.77
Gastrointestinal agents and therapeutic nutrients ⁶	47,072	63,907	88,120	1.38
Vitamins ⁷	40,179	17,556	189,916	10.82
Miscellaneous medicinal chemicals ⁸	21,922	8,318	864,366	103.92

¹ The data on production and sales are for bulk medicinal chemicals only. Methionine and most other amino acids and their salts are now reported in the section on Miscellaneous End-Use Chemicals and Chemical Products. Section totals are not, therefore, comparable with years prior to 1980.

² Calculated from rounded figures.

³ Reported data were accepted in confidence and may not be published, or no data were reported.

⁴ Includes production and sales of antiprotozoan agents, sulfonamides, and urinary antiseptics; includes sale of anthelmintics; does not include production of sulfaguanidine used as an intermediate in the production of anti-infective sulfonamides.

⁵ Includes production and sales of amphetamines; general anesthetics; respiratory and cerebral stimulants; skeletal muscle relaxants; tranquilizers; anticonvulsants, hypnotics, and sedatives; aspirin; antidepressant; and antitussives.

⁶ Methionine and its salts are reported in the section in Miscellaneous End-Use Chemicals and Chemical Products under amino acids.

⁷ Includes production and sales of vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, and vitamin K.

⁸ Includes production and sales of antineoplastic agents, cardiovascular agents, diagnostic agents, hematological agents, renal-acting and edema-reducing agents, autonomic drugs, dermatological agents and unclassified medicinal chemicals. Also includes production and sales of local anesthetics, smooth muscle relaxants (including theophylline derivatives), and hormones and synthetic substitutes.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 6-2
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' Identification codes (according to list in table 6-3)
Antibiotics:	Yes	
Cephalosporins:	No	
Cefaclor	No	LIL.
Cefamandole	No	LIL.
Cefazolin, sodium	No	LIL.
Cefoxitin	No	MRK.
Cephalexin	No	KAN, LIL.
Cephalothin, sodium	No	LIL.
Cephradine	No	BRS, KAN.
Penicillins, semisynthetic:	No	
Amoxicillin:	No	
Amoxicillin (trihydrate)	No	BEE, BOC, KAN.
Amoxicillin (anhydrous)	No	BEE, BRS.
Ampicillin:	No	
Ampicillin (anhydrous)	No	BRS, KAN.
Ampicillin (trihydrate)	No	BOC, KAN.
Other semisynthetic penicillins:	No	
Ampicillin, sodium	No	WYT.
Cloxacillin, sodium	No	BEE, BOC, KAN.
Dicloxacillin, sodium	No	BEE, BOC.
Hetacillin, potassium	No	BRS.
Methicillin, sodium	No	WYT.
Nafcillin, sodium	No	BEE.
Oxacillin, sodium	No	BEE, BOC.
Piperacillin	No	BRS.
Ticarcillin, disodium	No	BEE.
All other semisynthetic penicillins	No	BEE.
Penicillins (except semisynthetic):	No	
For medicinal use:	No	
Penicillin V	No	BRS.
Penicillin G, benzathine	No	WYT.
Penicillin G, potassium	No	PFZ.
Penicillin V, potassium	No	BRS.
Penicillin G, procaine (medicinal grade)	No	WYT.
For nonmedicinal uses:	No	
Penicillin G, procaine (animal feed grade)	No	PFZ.
Tetracyclines:	No	
For medicinal use:	No	
Chlortetracycline (medicinal grade)	No	ACY.
Minocycline	No	ACY.
Tetracycline	No	ACY.
For nonmedicinal uses:	No	
Chlortetracycline (animal feed grade)	No	ACY, PFZ.
Oxytetracycline (animal feed grade)	No	PFZ.
Other antibiotics:	No	
For medicinal use:	No	No
Antifungal antibiotics:	No	
Amphotericin B	No	BRS, PEN.
Nystatin (medicinal grade)	No	ACY, BRS.
Antitubercular antibiotics:	No	
Cycloserine	No	LIL.
Dihydrostreptomycin	No	PFZ.
Other antibiotics for medicinal use:	No	
Apramycin	No	PFZ.
Aztreonam	No	BRS.
Cefonicid	No	SK.
Ceftiofur	No	UPJ.
Cefuroxime	No	LIL.

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Antibiotics—Continued		
Other antibiotics—Continued		
For medicinal use—Continued		
Clindamycin	No	ABB, UPJ.
Erythromycin	No	ABB, UPJ.
Erythromycin estolate	No	UPJ.
Gentamycin	No	SCH.
Kanamycin	No	BRS.
Lincomycin (medicinal grade)	No	UPJ.
Moxalactam	No	LIL.
Neomycin (medicinal grade)	No	UPJ.
Netilmicin	No	SCH.
Novobiocin, sodium	No	UPJ.
Polymyxin B	No	PFZ, WYK.
Sisomicin	No	SCH.
Spectinomycin (medicinal grade)	No	ABB, UPJ.
Thiostrepton	No	BRS.
Vancomycin	No	ABB, ACY, LIL.
All other antibiotics, for medicinal use	No	ABB, MRK.
For nonmedicinal uses:		
Bacitracin (animal feed grade)	No	IMC.
Cycloheximide	No	UPJ.
Hygromycin B	No	LIL.
Lasalocid, sodium	No	HOF.
Lincomycin (animal feed grade)	No	UPJ.
Monesin	No	LIL.
Neomycin (animal feed grade)	No	PFZ, UPJ.
Spectinomycin (animal feed grade)	No	UPJ.
Streptomycin	No	PFZ.
Tylosin	No	LIL.
All other antibiotics, for nonmedicinal uses	No	LLI.
Antihistamines:	Yes	
Antinauseants:		
Dimenhydrinate	No	GAN.
Diphenidol	No	SK.
Diphenidol hydrochloride	No	SK.
Mecizine hydrochloride	No	PFZ.
Metoclopramide hydrochloride	No	LLI.
Other antihistamines		
Brompheniramine maleate	No	LLI.
Chlorpheniramine	No	SK, UPJ.
Chlorpheniramine maleate	No	SK.
Cyproheptadine hydrochloride	No	MRK.
Dexbrompheniramine maleate	No	(?), (?).
Dimethindene maleate	No	CGY.
Diphenhydramine citrate	No	WYK.
Diphenhydramine hydrochloride	No	PD, WYK.
Diphenylpyraline hydrochloride	No	SK.
Phenyltoloxamine citrate	No	GAN.
Terfenadine	No	GAN.
Trimeprazine	No	SK.
Tripelennamine	No	CGY.
Tripelennamine hydrochloride	No	CGY.
Triprolidine hydrochloride	No	AMD, BUR.
Triprolidine oxalate	No	AMD.

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Anti-infective agents (except antibiotics):	Yes	
Anthelmintics:	Yes	
Diethylcarbamazine citrate	No	SK.
Piperazine	No	TX, UCC.
Piperazine dihydrochloride	No	FLM.
Piperazine hydrochloride	No	FLM.
Piperazine sulfate	No	FLM.
Thiabendazole	No	MRK.
All other anthelmintic agents	No	MRK.
Antiprotozoan agents:	No	
Arsenic and bismuth compounds		No
Arsanilic acid	No	FLM.
Nitarsons	No	SAL.
Roxarsone	No	SAL.
Roxarsone, sodium	No	SAL.
Other antiprotozoan agents	No	
Amprolium	No	MRK.
Dinitolmide	No	SAL.
Ethopabate	No	MRK.
Hydroxychloroquine sulfate	No	SD.
Iodochlorhydroxyquin	No	CGY.
Metronidazole	No	SRL.
Sulfonamides	No	
Mafenide acetate	No	SDW.
Sulfacetamide, sodium	No	SCH.
Sulfadiazine, silver	No	BOT, LEM.
Sulfamethizole	No	ACY.
Sulfamethoxazole	No	HOF.
Sulfapyridine	No	ACY.
Sulfasalazine	No	SAL.
Sulfisoxazole, acetyl	No	HOF.
Urinary antiseptics:	No	
Methenamine	No	ARN.
Methenamine mandelate	No	ARN, PD.
Other anti-infective agents	Yes	
Antifungal agents:	No	
Benzoic acid	No	KLM.
Calcium undecylenate	No	WTL.
Fluconazole	No	PFZ.
Flucytosine	No	HOF.
Sodium caprylate	No	LEM.
Zinc undecylenate	No	PAS, WTL.
All other antifungal agents	No	ARN.
Antileprotic and antitubercular agents:	No	
Aminosalicylic acid	No	HXL.
Sulfoxone, sodium	No	ABB.
Antiviral agents:	No	
Acyclovir	No	(2).
Azidothymidine	No	BUR.
General antiseptics and antibacterial agents	No	
Bismuth formic iodide	No	RSA.
Ceftazidime	No	LIL.
Ceftazidime dihydrochloride	No	SK.
Cetylpyridinium chloride	No	HXL.
Cinoxacin	No	LIL.
Iodoform	No	MAL.
Magnesium salicylate	No	ARN.
Mitotane	No	(2).
Ormetoprim	No	HOF.
Oxyquinoline benzoate (benoxiquine)	No	LEM.
Oxyquinoline citrate	No	LEM.
Oxyquinoline sulfate	No	LEM.
Pentamidine isethionate	No	MRX.

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Anti-infective agents (except antibiotics)-Continued		
Other anti-infective agents-Continued		
General antiseptics and antibacterial agents-Continued		
Povidone - iodine	No	GAF.
Resorcinol	No	ISP.
Trimethoprim	No	BUR.
Autonomic drugs:		
Sympathomimetic agents		
Albuterol sulfate	No	SCH.
Dobutamine	No	LIL.
Naphazoline hydrochloride	No	CGY.
Phenylephrine bitartrate	No	GAN.
Phenylephrine hydrochloride	No	GAN, SDW.
Phenylpropanolamine bitartrate	No	ARS.
Phenylpropanolamine hydrochloride	No	ARS, ORT.
Propylhexedrine	No	SK.
Pseudoephedrine hydrochloride	No	GAN, WYK.
Pseudoephedrine sulfate	No	GAN, WYK.
Terbutaline sulfate	No	CGY.
Tetrahydrozoline hydrochloride	No	PFZ.
Other autonomic drugs:		
Parasympatholytic quaternary ammonium compounds (except tropane derivatives):		
Glycopyrrolate	No	LLI.
Parasympatholytic tertiary amines (except tropane derivatives):		
Oxybutynin chloride	No	ABB.
Parasympathomimetic agents:		
Bethanechol chloride	No	GAN.
Pyridostigmine bromide	No	HOF.
Sympatholytic agents:		
Timolol maleate	No	MRK.
Central depressants and stimulants:		
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents:		
Acetaminophen	Yes	
Aspirin	No	MAL, SDW, SK.
Butorphanol tartrate	No	DOW, NOR.
Choline magnesium salicylate	No	BRS.
Diffunisal	No	ARN, LEM.
Fenoprofen	No	MRK.
Fentanyl citrate	No	LIL, (2).
Flunixin meglumine	No	MRX.
Hydromorphone hydrochloride	No	(2).
Ibuprofen	No	PEN.
Indomethacin	No	TNA.
Ketoprofen	No	MRK.
Meclofenamate, sodium	No	WYK.
Meclofenamic acid	No	PD, WYK.
Mefenamic acid	No	PD.
Meperidine hydrochloride	No	PD.
Mesalamine	No	PEN, SDW.
Methadone hydrochloride	No	SAL.
Morphine sulfate	No	MAL.
Oxycodone hydrochloride	No	MAL.
Oxycodone terephthalate	No	MAL, PEN.
Pentazocine	No	PEN.
Pentazocine hydrochloride	No	SD.
Piroxicam	No	SD.
Potassium salicylate	No	PFZ.
Propoxyphene hydrochloride	No	KLM.
		GAN.

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Central depressants and stimulants—Continued		
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents—Continued		
Propoxyphene napsylate	No	ABB, GAN.
Salsalate	No	(?).
Sodium salicylate	No	KLM.
Sufentanil citrate	No	MRX.
Sulindac	No	MRK.
Anticonvulsants, hypnotics, and sedatives:		
Anticonvulsants (except barbiturates):	No	
Ethosuximide	No	PD.
Ethotoin	No	ABB.
Methsuximide	No	PD.
Phensuximide	No	PD.
Phenytoin	No	PD.
Phenytoin, sodium	No	PD.
Valproic acid	No	ABB.
Barbiturates:		
Amobarbital, sodium	No	GAN.
Butobarbital	No	GAN.
Butalbital	No	GAN.
Pentobarbital	No	GAN.
Phenobarbital	No	GAN.
Phenobarbital, sodium	No	GAN.
Poly(oxy-1,2-ethanediyl)- α -carboxymethyl, omega-(tridecyloxy), potassium salt	No	GAN.
Secobarbital, sodium	No	GAN.
Thiamylal, sodium	No	PD.
Thiopental, sodium	No	ABB.
All other barbiturates	No	(?).
Hypnotics and sedatives (except barbiturates):		
Alprazolam	No	UPJ, (?).
Dichloralphenazone	No	ARN.
Ethchlorvynol	No	ABB.
Glutethimide	No	GAN.
Antidepressants:		
Amitriptyline hydrochloride	No	GAN, MRK.
Bupropion	No	BUR.
Doxepin hydrochloride	No	PFZ, SK.
Imipramine hydrochloride	No	CGY.
Maprotiline hydrochloride	No	ABB.
Nortriptyline hydrochloride	No	LIL, WYK.
Sertraline	No	PFZ.
Antitussives		
Benzonatate	No	CGY, WYK.
Caramiphen edisylate	No	SK.
Codeine	No	MAL, PEN.
Dextromethorphan hydrobromide	No	AMD, HOF.
Hydrocodone bitartrate	No	MAL, PEN.
Noscapine	No	MAL, PEN.
Thebaine	No	MAL, PEN.
Tranquilizers:		
Phenothiazine derivatives:		
Chlorpromazine	No	SK.
Chlorpromazine hydrochloride	No	SK.
Fluphenazine hydrochloride	No	BRS.
Prochlorperazine	No	SK.
Prochlorperazine edisylate	No	SK.
Prochlorperazine maleate	No	SK.

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Central depressants and stimulants-Continued		
Tranquillizers-Continued		
Other tranquilizers:		
Chlorprothixene	No	HOF.
Halazepam	No	SCH.
Hydroxyzine pamoate	No	LEM.
Molindone hydrochloride	No	PD.
Other central depressants and stimulants: Yes		
Amphetamines		
Amphetamine	No	ARN, SK.
Amphetamine sulfate	No	AMD.
Dextroamphetamine	No	ARN, SK.
Dextroamphetamine sulfate	No	ARN, SK.
Methamphetamine	No	ARN.
Methamphetamine hydrochloride	No	ARN.
Tranylcypromine	No	SK.
All other amphetamines	No	ARN.
General anesthetics:		
Enflurane	No	OH.
Isoflurane	No	OH.
Ketamine hydrochloride	No	PD.
Respiratory and cerebral stimulants:		
Caffeine (natural and synthetic):		
Caffeine, natural	No	GNF.
Caffeine, synthetic	No	AMB, PFZ.
Other respiratory and cerebral stimulants:		
Doxapram hydrochloride	No	LLI.
Methylphenidate hydrochloride	No	CGY.
Pemoline	No	ABB.
Phentermine	No	GAN, SDW.
Skeletal muscle relaxants:		
Chlorphenesin carbamate	No	UPJ.
Cyclobenzaprine hydrochloride	No	MRK.
Methocarbamol	No	LLI.
Orphenadrine citrate	No	WYK.
Succinylcholine chloride	No	ABB, BUR.
Tubocurarine	No	ABB.
Dermatological agents:		
Ammonium phenolsulfonate	No	SAL.
Salicylic acid	No	DOW, KLM.
Zinc phenolsulfonate	No	MAL.
Expectorants and mucolytic agents: Yes		
Ethylenediamine dihydriodide	No	AJY, DPW.
Guaifenesin	No	LLI.
Iodinated glycerol	No	(²).
Gastrointestinal agents and therapeutic nutrients: Yes		
Gastrointestinal agents:		
Choline chloride (all grades):		
Choline chloride (animal feed grade)	No	CHO, HFT, NUT, TMH.
Choline chloride (medicinal grade)	No	CHO, HFT.
Other gastrointestinal agents:		
Betaine hydrochloride	No	CHO, HFT.
Calcium polycarbophil	No	LLI.
Choleretics and hydrocholeretics	No	UPJ.
Choline	No	HFT, RSA.
Choline bicarbonate	No	CHO, HFT.
Choline bitartrate	No	CHO, HFT.
Choline citrate	No	CHO, HFT.
Choline dihydrogen citrate	No	CHO, HFT.
Colestipol hydrochloride	No	UPJ.
Dihydroxyaluminum aminoacetate	No	CHT.
Diphenoxylate	No	MAL.
Docusate, potassium	No	ACY.

See footnotes at end of table.

Table 6-2—Continued
 Medicinal chemicals for which U.S. production and/or sales were reported, identified by
 manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Central depressants and stimulants-Continued		
Gastrointestinal agents and therapeutic nutrients-Continued		
Other gastrointestinal agents-Continued:		
Docusate, sodium	No	ACY, MAL.
Famotidine	No	MRK.
Gemfibrozil	No	PD.
Methscopolamine bromide	No	UPJ.
Nizatidine	No	LIL.
Sitosterols	No	UPJ.
Sucralfate	No	SK.
All other gastrointestinal agents	No	MRK.
Therapeutic nutrients	No	
Calcium gluceptate	No	PFN.
Zinc gluceptate	No	PFN.
Hormones and synthetic substitutes:	No	
Anabolic agents and androgens:		
Fluoxymesterone	No	UPJ.
Methyltestosterone	No	UPJ.
Stanozolol	No	SD.
Testosterone	No	UPJ.
Testosterone cypionate	No	UPJ.
Testosterone propionate	No	UPJ.
Zeranol	No	IMC.
Corticosteroids:		
Aclomethasone	No	SCH.
Betamethasone	No	SCH.
Betamethasone dipropionate	No	SCH, (2).
Betamethasone sodium phosphate	No	SCH, (2).
Betamethasone valerate	No	SCH, (2).
Cortisone acetate	No	MRK, UPJ.
Dexamethasone	No	MRK, SCH, (2).
Dexamethasone sodium phosphate	No	MRK, (2).
Diflorasone diacetate	No	UPJ.
Fludrocortisone acetate	No	UPJ.
Fluorometholone	No	UPJ.
Halcinonide	No	BRS.
Hydrocortisone	No	UPJ.
Hydrocortisone acetate	No	UPJ.
Isoflupredone, acetate	No	UPJ.
Medrysone	No	UPJ.
Methylprednisolone	No	ABB, SCH, UPJ.
Mometasone	No	SCH.
Prednisolone	No	MRK, UPJ.
Prednisolone acetate	No	UPJ.
Prednisone	No	UPJ.
Triamcinolone	No	BRS, (2).
Triamcinolone acetonide	No	BRS, (2).
Triamcinolone diacetate	No	BRS, (2).
Triamcinolone hexacetonide	No	BRS.
Estrogens and progestogens:		
Estrogens:		
Estradiol cypionate	No	UPJ.
Estrogens, conjugated	No	ORG.
Estrogens, esterified	No	ORG.
All other estrogens	No	ORG.
Progestogens:		
Alprostadiol	No	(2).
Dinoprostone	No	UPJ.
Hydroxyprogesterone	No	CWN.
Hydroxyprogesterone caproate	No	UPJ.
Medroxyprogesterone acetate	No	(2).
Megestrol acetate	No	UPJ.
Melengestrol acetate	No	(2).

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' Identification codes (according to list in table 6-3)
Hormones and synthetic substitutes-Continued		
Progestogens-Continued		
Progesterone	No	UPJ.
All other progestins	No	UPJ.
Synthetic hypoglycemic agents:		
Acetohexamide	No	LIL.
Glipizide	No	PFZ.
Tolazamide	No	UPJ.
Tolbutamide	No	UPJ.
Thyroid hormone and antithyroid agents:		
Levothyroxine, sodium	No	BOT.
Methimazole	No	LIL.
Thyroglobulin	No	NEP.
Thyroid	No	ARP.
Other hormones and synthetic substitutes:		
Calcitonin	No	ARP.
Corticotropin	No	ARP, ORG.
Danazol	No	SD.
Glucagon	No	LIL.
Gonadorelin, acetate	No	ABB.
Humatrope	No	LIL.
Insulin	No	LIL.
Local anesthetics:		
Benzocaine	No	WYK.
Butacaine hydrochloride	No	HOF.
Butamben	No	ABB, WYK.
Butamben picrate	No	HOF.
Cocaine	No	MAL.
Dibucaine	No	CGY.
Lidocaine	No	LEM, WYK.
Lidocaine hydrochloride	No	LEM, WYK.
Pramoxine hydrochloride	No	ABB.
Prilocaine hydrochloride	No	WYK.
Tetracaine hydrochloride	No	WYK.
All other local anesthetics	No	EK, (2).
Renal-acting and edema-reducing agents:		
Benzothiadiazine derivatives:		
Chlorothiazide	No	MRK.
Cyclothiazide	No	(2).
Hydrochlorothiazide	No	CGY, MRK.
Methyclothiazide	No	ABB.
Trichlormethiazide	No	SCH.
Other renal-acting and edema-reducing agents:		
Amiloride hydrochloride	No	MRK.
Canrenoate, potassium	No	SRL.
Dichlorphenamide	No	MRK.
Ethacrynic acid	No	MRK.
Metolazone	No	EK.
Probenecid	No	MRK, SAL.
Spirolactone	No	SRL.
Triamterene	No	SK.
Smooth muscle relaxants:		
Atracurium besylate	No	BUR.
Flavoxate hydrochloride	No	SK.
Oxtriphylline	No	PD.
Papaverine hydrochloride	No	CHT.
Theophylline	No	AMB.
Vitamins:		
Vitamin A:		
Beta carotene (provitamin A)	No	(2).
Vitamin A alcohol	No	HOF.
Vitamin A palmitate (medicinal grade)	No	HOF.
All other vitamin A	No	EK.

See footnotes at end of table.

Table 6-2—Continued

Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Vitamins-Continued		
Vitamin B-complex:	No	
Niacin and derivatives	No	
Niacin (medicinal grade)	No	RIL.
Niacinamide (medicinal grade)	No	HOF, NEP, RIL.
Pantothenic acid derivatives	No	
Dexpanthenol	No	HOF.
Panthenol	No	HOF.
Other B-complex vitamins:	No	
Biotin	No	AMD.
Cyanocobalamin (medicinal grade)	No	MRK.
Pyridoxine	No	HOF.
Riboflavin (animal feed grade)	No	ZGN.
Thiamine hydrochloride	No	HOF.
Thiamine mononitrate	No	TKD.
All other vitamin B-complex	No	HOF.
Vitamin C:	No	
Ascorbic acid	No	TKD.
Calcium ascorbate	No	HOF.
Sodium ascorbate	No	(²).
Vitamin D:	No	
Cholecalciferol (vitamin D ₃)	No	VTM.
Ergocalciferol (vitamin D ₂)	No	VTM.
Vitamin E:	No	
Dl-alpha tocopheryl acetate (all grades):	No	
dl-α Tocopheryl acetate (animal feed grade)	No	BAS, (²).
dl-α Tocopheryl acetate (medicinal grade)	No	BAS, (²).
Other vitamin e:		
d-α Tocopherol	No	EKT, SCP.
d-α Tocopheryl acetate	No	EKT, SCP.
d-α Tocopheryl acid succinate	No	EKT, SCP.
Miscellaneous medicinal chemicals:	Yes	
Antineoplastic agents:	No	
Azathioprine	No	BUR.
Carboplatin	No	MRX.
Carmustine	No	MRX.
Cisplatin	No	MRX.
Cytarabine	No	PFN, UPJ.
Gallium nitrate	No	MRX.
Leuprolide acetate	No	ABB.
Ormaplatin	No	MRX.
Streptozocin	No	PFN.
Cardiovascular agents:	No	
Antihypertensive agents:	No	
Captopril	No	BRS.
Guanethidine sulfate	No	CGY.
Hydralazine hydrochloride	No	CGY.
Lisinopril	No	MRK.
Methyldopa	No	CGY, MRK.
Minoxidil	No	UPJ.
Nadolol	No	BRS.
Phenoxybenzamine	No	SK.
Prazosin	No	ABB.
Sodium nitroprusside	No	ABB.
Terazosin	No	ABB.
Enalapril maleate	No	MRK.
Vasodilators:	No	
Amlodipine	No	PFZ.
Nifedipine	No	PFZ.
Lovastatin	No	MRK.
Other cardiovascular agents:	No	
Acecainide	No	ARN.
Disopyramide phosphate	No	SRL.
Procainamide hydrochloride	No	PD, WYK.

See footnotes at end of table.

Table 6-2—Continued
Medicinal chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Medicinal chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 6-3)
Miscellaneous medicinal chemicals;	Yes	
Other cardiovascular agents:	No	
Propranolol hydrochloride	No	WYK.
Simvastatin	No	MRK.
Sodium tetradecyl sulfate	No	MRX.
All other cardiovascular agents	No	MRK.
Diagnostic agents:	No	
Roentgenographic contrast media:	No	
Diatrizoate, sodium	No	SDW.
Iohexol	No	SD.
Iothalamate, meglumine	No	MAL.
Other diagnostic agents:	No	
Albumin	No	SPR.
Aminohippuric acid	No	WYK.
Edrophonium chloride	No	MRX.
Metyrapone	No	CGY.
Xylose (intestinal malabsorption test)	No	PFN.
All other diagnostic agents, other than roentgenographic contrast media	No	PFZ.
Hematological agents:	No	
Anticoagulants:	No	
Ammonium heparin	No	SPR.
Benzalkonium heparin	No	RIK.
Lithium heparin	No	SPR.
Potassium warfarin	No	(2).
Sodium heparin	No	SPR.
Other hematological agents:	No	
Cellulose, oxidized	No	EKT.
Dextran	No	PHR.
Unclassified medicinal chemicals:	No	
Allopurinol	No	BUR.
Aminobenzoic acid, potassium salt	No	WYK.
Carbidopa	No	MRK.
Copper glycinate	No	ARN.
Deferoxamine mesylate	No	(2).
Deprenyl hydrochloride	No	ARN.
Disulfuram	No	ABB.
Etidronate, disodium	No	NOR.
Levodopa	No	SRL.
Melatonin	No	REG.
Nicotine polacrilex	No	WYK.
Selegiline hydrochloride	No	WYK.
Tacrine	No	PD.
Trioxsalen	No	REG.
All other medicinal chemicals	No	ABB, BIB.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 6-3
Medicinal chemicals: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ABB	Abbott Laboratories	NEP	Nepera Inc.
ACY	American Cyanamid Co.	NOR	Norwich Eaton Pharmaceutical, Inc.
AJY	Ajay Chemicals, Inc.	NUT	Bioproducts, Inc.
AMB	American Bio-Synthetics Corp.	OH	Anaquest
AMD	Cyclo Products, Inc.	ORG	Organics/LaGrange, Inc.
ARN	Arend Chemical Corp.	ORT	Roehr Chemicals, Inc., Div. of Aceto Corp.
ARP	Armour Pharmaceutical Co.	PAS	ELF Atochem North America, Inc.
ARS	Arsynco, Inc., Sub. Div. of Aceto Corp.	PD	Parke-Davis Div. of Warner-Lambert Co.
BAS	BASF Corp.	PEN	Penick Corp.
BEE	SmithKline Beecham Pharmaceuticals	PFN	Pfanstiehl Laboratories, Inc.
BIB	Beckman Instruments, Inc.	PFZ	Pfizer, Inc. & Pfizer Pharmaceuticals, Inc.
BOC	Biocraft Laboratories, Inc.	PHR	Pharmachem Corp.
BOT	Boots Pharmaceuticals, Inc.	REG	Regis Chemical Co.
BRS	Bristol-Myers Squibb Co.	RIK	Riker Laboratories, Inc., Sub. of 3M Co.
BUR	Burroughs Wellcome Co.	RIL	Reilly Industries, Inc.
CGY	Ciba-Geigy Corp.	RSA	R.S.A. Corp.
CHO	Ducon	SAL	Salsbury Chemicals, Inc.
CHT	Chattem, Inc.	SCH	Schering Corp.
CWN	Upjohn Co., Fine Chemicals	SCP	Henkel Corp.
DOW	Dow Chemical Co.	SD	Sterling Drug, Inc.:
DPW	Deepwater, Inc.	SDW	Sterling Organics Div.
EK	Eastman Kodak Co.:	SK	SmithKline Beecham Chemicals
EKT	Tennessee Eastman Co. Div.	SPR	Scientific Protein Laboratories
FLM	Fleming Laboratories, Inc.	SRL	G.D. Searle & Co.
GAF	ISP Chemicals, Inc.	TKD	Takeda Chemical Product USA, Inc.
GAN	Ganes Chemicals, Inc.	TMH	Harcros Chemicals, Inc.
GNF	Maxwell House Coffee Co.	TNA	Ethyl Corp.
HFT	Syntex Agribusiness, Inc.	TX	Texaco Chemical Co.
HOF	Hoffmann-LaRoche, Inc.	UCC	Union Carbide Corp., Industrial Chemical Div.
HXL	Hexcel Corp., Hexcel Chemical Products	UPJ	Upjohn Co.
IMC	IMC Pitman-Moore, Inc.	VTM	Vitamins, Inc.
ISP	Inspec Chemical Corp.	WTL	ELF Atochem North America, Inc., Organic Peroxides Div.
KAN	Kanasco, LTD	WYK	Wyckoff Chemical Co., Inc.
KLM	Kalama Chemical, Inc.	WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
LEM	Napp Chemicals, Inc.		
LIL	Eli Lilly & Co.		
LLI	Lee Laboratories, Inc.		
MAL	Mallinckrodt, Inc.		
MRK	Merck & Co., Inc.		
MRX	Johnson Matthey, Materials Technology Div.		

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 7 Flavor and Perfume Materials

Flavor and perfume materials are organic chemicals used to impart flavors and aromas to foods, beverages, cosmetics, and soaps. These aroma chemicals are also utilized to neutralize or mask unpleasant odors in industrial processes and products, as well as in consumer products.

Total domestic production of flavor and perfume materials in 1991 amounted to 68.8 million kilograms (see figure 7-1). Sales of these materials in 1991 amounted to 38.7 million kilograms, valued at \$925.5 million, compared with 36.5 million kilograms, valued at \$991.6 million, in 1990. U.S. production of flavor and perfume materials in 1991 increased by 14.9 percent from the level in 1990 while the value of sales decreased by 6.7 percent.

Production of cyclic flavor and perfume materials in 1991 amounted to 42.3 million kilograms; sales

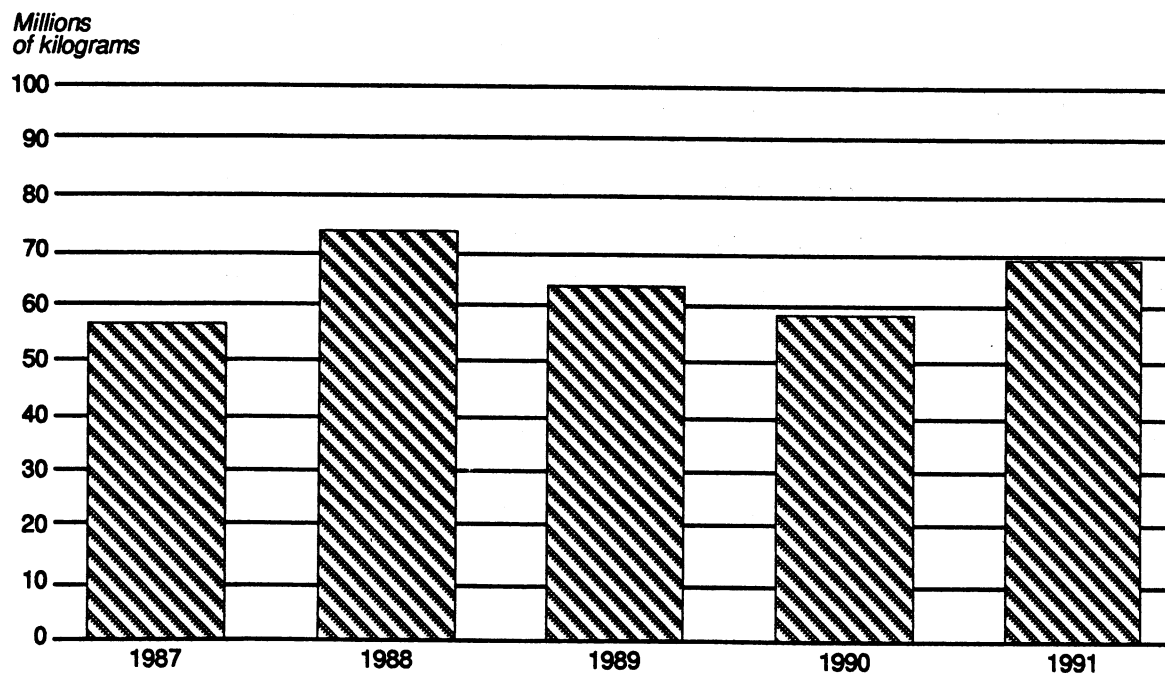
amounted to 27.9 million kilograms, valued at \$826.6 million. Individual publishable chemicals in the cyclic group produced in the greatest volume in 1991 were anethole (1.6 million kilograms), and α -terpineol (1.1 million kilograms).

U.S. output of acyclic flavor and perfume materials in 1991 amounted to 26.6 million kilograms; sales of these materials amounted to 10.8 million kilograms, valued at \$98.9 million. Individual publishable acyclic flavor and perfume chemicals produced in the greatest volume in 1991 were citronellol (1.5 million kilograms), tetrahydrogeraniol (222,000 kilograms) and geranyl acetate (106,000 kilograms).

Table 7-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 7-3.

Eric Land
202-205-3349

Figure 7-1
Flavor and perfume materials: U.S. production, 1986-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 7

Table 7-1

Flavor and perfume materials: U.S. production and sales, 1991

Flavor and perfume materials	Production	Sales		Average Unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Grand total	68,843	38,694	925,478	\$23.92
Cyclic				
Total	42,291	27,881	826,627	29.65
Benzenoid and Naphthalenoid				
Total	30,116	21,736	751,809	34.59
4-Allyl-2-methoxyphenol (Eugenol)	9	9	89	9.88
Benzyl benzoate	287	311	913	2.94
Phenethyl isobutyrate	17	(²)	(²)	(²)
p-Propenylanisole (Anethole)	1,641	1,105	7,673	6.94
All other benzenoid and naphthalenoid materials	28,162	20,311	743,134	36.59
Terpenoid, Heterocyclic, and Alicyclic				
Total	12,175	6,145	74,818	12.18
Cedryl acetate	92	49	587	12.04
γ-Methylionone	749	394	8,281	21.01
α-Terpineol	1,088	714	1,420	1.99
All other terpenoid, heterocyclic, and alicyclic materials	10,246	4,988	64,530	12.94
Acyclic				
Total	26,552	10,813	98,851	9.14
Citronellyl acetate	51	38	54	14.18
Citronellyl formate	11	4	121	27.76
3,7-Dimethyl-cis-2,6-octadienol, acetate (Neryl acetate)	14	11	128	11.63
3,7-Dimethyloctanol-1 (Tetrahydrogeraniol)	222	45	416	9.14
3,7-Dimethyl-6-octen-1-ol (Citronellol)	1,542			
Geranyl acetate	106	90	911	10.11
All other acyclic materials	24,606	10,625	97,221	9.15

¹ Calculated from unrounded figures.² Reported data are accepted in confidence and may not be published, or no data were reported.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 7-2
Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' Identification codes (according to list in table 7-3)
Cyclic:		
Benzenoid and naphthalenoid:		
2'-Acetonaphthone (β -Methyl naphthyl ketone)	No	GIV.
1-Acetoxy-2-sec-butyl-1-ethenylcyclohexane	No	GIV.
p-Allylanisole	No	NCI, SCM.
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)	No	CI.
4-Allyl-2-methoxyphenol (Eugenol)	Yes	BDS, CI, ELN, GIV.
α -Amyl cinnamic aldehyde	No	KLM.
Amyl cinnamyl alcohol	No	IFF.
Anisyl acetate	No	ELN, GIV.
Benzaldehyde glyceryl acetal	No	GIV.
Benzophenone	No	CWN, PD.
Benzyl acetate	No	HAR.
Benzyl benzoate	Yes	HAR, KLM, MRF.
Benzyl butyrate	No	ELN.
Benzyl isobutyrate	No	ELN.
Benzyl isopentyl ether	No	GIV.
Benzyl isovalerate	No	ELN.
1-(Benzyloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether)	No	GIV.
Benzyl phenylacetate	No	ELN, GIV.
Benzyl propionate	No	ELN.
Benzyl salicylate	No	HAR.
p-tert-Butyl- α -methylhydrocinnamalehyde	No	GIV.
N-(3-(p-tert-butylphenyl)-2-methylpropylidene)- anthranilic acid, methyl ester	No	GIV.
Carvacrol	No	GIV.
Cineole [eucalyptol]	No	SCM.
Cinnamaldehyde	No	ELN, KLM.
Cinnamyl acetate	No	ELN.
Cinnamyl butyrate	No	ELN.
Cinnamyl nitrile	No	IFF.
Cinnamyl propionate	No	ELN.
Cumyl acetate	No	IFF.
trans-Decahydro- β -naphthol	No	IFF.
Dihydrocoumarin	No	ARS.
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrole)	No	CI.
β ,4-Dimethyl-3-cyclohexene-1-propanal	No	CI.
3,7-Dimethyl-1,6-octadien-3-yl formate	No	GIV.
3,7-Dimethyl-2,6-octadienyl phenylacetate (Geranyl phenylacetate)	No	GIV.
α , α -Dimethylphenethyl acetate	No	IFF.
2-Ethoxynaphthalene	No	GIV.
Ethyl anthranilate	No	AMB.
Ethyl cinnamate	No	ELN.
Ethyl- α , β -epoxy- β -methylhydrocinnamate	No	ELN.
2-Ethylhexyl-p-methoxy cinnamate	No	IV.
2-Ethyl hexyl salicylate	No	HAR.
Ethyl phenylacetate	No	ELN.
cis-3-Hexenyl salicylate	No	BDS, IFF.
Hydratropaldehyde,dimethyl acetal	No	IFF.
Hydrocinnamic acid	No	ELN.
Hydrocoumarin	No	ELN, GIV.
α -Hexylcinnamaldehyde	No	CI, KLM.

See footnotes at end of table.

Table 7-2—Continued

Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 7-3)
Cyclic—Continued:		
Benzenoid and naphthalenoid:		
Hydroxycitronellal methyl anthranilate	No	GIV, IFF.
4-Hydroxy-3-methoxybenzaldehyde [Vanillin]	No	RAY.
4(4-Hydroxy-3-methoxyphenyl)-2-butanone (Vanillyacetone)	No	GIV.
p-Hydroxy phenylbutanone	No	GIV.
Isoamyl phenylacetate	No	ELN.
Isobutylquinoline	No	ELN, IFF.
Isohexenyl tetrahydrobenzaldehyde (Myrac aldehyde)	No	IFF.
Isopentyl benzoate	No	GIV.
l-Limonene	No	SCM.
p-Mentha-1,8-diene (Limonene)	No	IFF.
4,7-Methano-1H-indene-2-methanol octahydro acetate	No	CI.
o-Methoxy benzaldehyde	No	CI.
p-Methoxybenzyl alcohol (Anisyl alcohol)	No	ELN.
3-(4-Methoxyphenyl)-2-methyl propanal	No	CI.
1-p-Methoxyphenyl penten-1-one-3 (α -Methylanisalacetone)	No	GIV.
3-(2-Methoxyphenyl)-2-propenal	No	CI.
2-Methoxy-4-propenylphenol (Isoeugenol)	No	CI.
2-Methoxy-4-propenylphenol, acetate	No	ELN.
2-Methoxy-4-propylphenol	No	CI.
4'-Methylacetophenone	No	CWN.
p-Methylanisole	No	GIV.
Methyl anthranilate	No	PSG.
α -Methylbenzene propanal	No	CI.
Methyl benzoate	No	HCF, MRF.
α -Methylbenzyl acetate (Styralyl acetate)	No	IFF.
α -Methylcinnamaldehyde	No	IFF.
1,2-Methylenedioxy-4-propylene benzene (isoSafrole)	No	AMB.
Methyl N-methylantranilate	No	AMB.
α -methyl-3,4-methylene dioxyhydrocinnamaldehyde	No	GIV.
Methyl phenylacetate	No	GIV.
3-Methyl-5-phenyl-1-pentanol	No	IFF.
Methyl salicylate	No	KLM.
Octahydro-5-methoxy-4,7-methano-1H-indene, 2-carboxaldehyde	No	CI.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan (Moskene)	No	GIV.
α -Pentylcinnamaldehyde	No	CI.
Phenethyl acetate	No	BDS, IFF.
Phenethyl alcohol	No	ATR, IFF.
Phenethyl formate	No	ELN, IFF.
Phenethyl isobutyrate	Yes	ELN, GIV, IFF.
Phenethyl isovalerate	No	ELN.
2-Phenethyl phenylacetate	No	BDS, ELN, IFF.
Phenethyl propionate	No	ELN.
2-Phenoxyethyl isobutyrate	No	IFF.
Phenylacetaldehyde	No	GIV, (?).
Phenylacetaldehyde, dimethyl acetal	No	CI, ELN, GIV.

See footnotes at end of table.

Table 7-2—Continued

Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 7-3)
Cyclic—Continued:		
Benzenoid and naphthalenoid:		
Phenylethyl 2-methyl butyrate	No	SCM.
3-Phenylpropyl acetate	No	ELN, GIV.
Piperonal (Heliotropin)	No	AMB.
p-Propenylanisole (Anethole)	Yes	ARZ, HPC, NCI, SCM.
p-Propylanisole (Dihydroanethole)	No	GIV.
Phenylethyl benzoate	No	IFF.
p-Tolyl acetate	No	ELN.
p-Tolyl isobutyrate	No	IFF.
p-Tolyl octanoate	No	IFF.
p-Tolylphenylacetate	No	GIV.
α-(Trichloromethyl)benzyl acetate (Rosetone)	No	ARS.
Trimethyl benzyl dioxane	No	IFF.
Trimethylcyclohexyl salicylate	No	ARS.
Sweeteners, synthetic:		
Cyclohexanesulfamic acid (Cyclamic acid)	No	ABB.
Cyclohexanesulfamic acid, sodium salt (Sodium cyclamate)	No	ABB.
Saccharin (1,2-Benzisothiazolin-3-one,-1,1-dioxide)	No	PSG.
Saccharin, sodium salt	No	PSG.
Tetramethyl, octahydro acetophenone	No	IFF.
Tetramethyl octahydro acetyl naphthalene	No	IFF.
All other synthetic sweetener material	No	NSW.
All other benzenoid or naphthalenoid chemicals	No	CI, IFF, PFZ.
Terpenoid, heterocyclic, and alicyclic:		
Acetyl cedrene (Vertoflex)	No	BDS.
Allo-ocimene	No	SCM, (?).
Allyl cyclohexyl propionate	No	GIV.
Amyl cyclohexyl acetate	No	IFF.
Amyris acetate	No	GIV.
Beta methyl ionone coevr	No	IFF.
2-tert-Butyl cyclohexanol	No	IFF.
2-sec-Butylcyclohexanone	No	GIV.
o-tert-Butylcyclohexyl acetate	No	CI, IFF.
Cadinene	No	GIV.
α-Campholenic aldehyde	No	SCM.
Canrenoate, potassium	No	IFF.
l-Carvone	No	SCM.
β-Caryophyllene	No	BDS, GIV.
α-Cedrene epoxide (Andrane)	No	BDS.
Cedrenol	No	BDS, ELN, IFF.
Cedrol	No	ELN, IFF.
Cedryl acetate	No	BDS, ELN, IFF.
Cedryl formate	Yes	IFF.
Cyclohexyl ethyl acetate	No	IFF.
p-Cymene	No	SCM.
Dihydronordicyclopentadienyl acetate (Cyclacet)	No	CI.
Dihydronordicyclopentadienyl propionate (Cyclaprop) (Verdyll propionate extra)	No	CI.
Dihydro terpineol	No	SCM.
Dimethyl cyclohexane methanol	No	IFF.
2, 6-Dimethylheptan-2-ol	No	GIV.

See footnotes at end of table.

Table 7-2—Continued
Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 7-3)
Cyclic—Continued:		
Benzenoid and naphthalenoid:		
Dimethyl-3-oxo-2-pentylcyclopentane propanedioate	No	(²).
Ethyl furoate	No	IFF, SCM.
Galaxolide (1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl-cyclopenta- γ -2-benzopyran)	No	IFF.
Guaiacwood acetate	No	ELN.
2-Heptylcyclopentanone	No	IFF.
Hexadecanolide	No	IFF.
3-Hydroxy-2-ethyl-4-pyrone (Ethylmaltol)	No	PFZ.
4-(4-Hydroxy-4-methyl pentyl)-3-cyclohexene-10-carboxaldehyde (Lyrall)	No	IFF.
3-Hydroxy-2-methyl-4-pyrone (Maltol)	No	PFZ.
4-Hydroxynonanonic acid, γ -lactone (γ -Nonalactone) ...	No	ELN.
2-(1-Hydroxypentyl)-cyclopentanone	No	(²).
4-Hydroxyundecanoic acid, γ -lactone (γ -Undecalactone)	No	ELN.
Ionone(α - and β -)	No	ELN, GIV, NCI, SCM.
α -Ionone	No	GIV, IFF, SCM.
Isobornyl acetate	No	SCM.
Isobornyl methyl ether	No	SCM.
Isobornyl propionate	No	ELN.
Isolongifolene epoxide	No	GIV.
Isomenthone	No	GIV.
2-Isopropylcyclohexanol	No	GIV.
6-Isopropyldecalone	No	GIV.
Isopulegyl acetate	No	GIV.
p-Mentha-1,3-diene (α -Terpinene)	No	SCM.
p-Mentha-1,4-diene (γ -Terpinene)	No	SCM.
p-Menth-8-en-3-ol (Isopulegol)	No	GIV.
p-Menth-1-en-3-one (Piperitone)	No	GIV.
p-Menth-4-(8)-en-3-one (Pulegone)	No	GIV.
dl-Menthol, synthetic	No	HAR, NCI, SCM.
l-Menthol, synthetic	No	HAR.
Menthyl acetate	No	SCM.
Methylionone(α - and β -)	No	BDS, GIV, IFF, NCI.
γ -Methylionone	No	GIV, IFF, NCI.
6-Methyl- α -ionone	No	BDS, GIV.
Methyl-3-oxo-2-pentane acetate	No	CI.
Nopyl acetate	No	NCI.
3-Oxo-2-pentylcyclopropane acetic acid	No	(²).
2-Pentyl-cyclopenten-1-one	No	(²).
α -Pinene oxide	No	SCM.
Plinol	No	SCM.
Rose oxide	No	GIV.
Terpinene-ol	No	SCM.
α -Terpineol	Yes	HPC, NCI, SCM.
α -Terpinyl acetate	No	NCI, SCM.
α -Terpinyl propionate	No	ELN.
3,3,5-Trimethyl cyclohexanol (m-Homomenthol)	No	ARS.
Trimethyl cyclohexenyl butenone	No	IFF.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl- α -ionone)	No	IFF.
Trimethyl norbornane methanol	No	IFF.

See footnotes at end of table.

Table 7-2—Continued
Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 7-3)
Cyclic—Continued:		
Benzenoid and naphthalenoid:		
5-(2,2,3-Trimethyl(cyclopent-3-en-1-yl)-3-methylpentan-2-ol	No	GIV.
Vetivenol	No	GIV.
Vetiveryl acetate	No	BDS, ELN, GIV, IFF.
All other terpenoid, heterocyclic, or alicyclic flavor and perfume chemicals	No	CI, GIV, IFF, SCM.
Acyclic:		
Allyl disulfide	No	IFF.
Allyl heptanoate	No	ELN.
Allyl hexanoate	No	ELN.
Ammonium isovalerate	No	RSA.
Butanoic acid, 1-cyclohexylethyl ester	No	(²).
Butyl butyl lactate	No	ELN.
Citral dimethyl acetal	No	IFF.
Citronellyl acetate	Yes	BDS, ELN, GIV, IFF, SCM.
Citronellyl formate	Yes	BDS, ELN, GIV, IFF.
Citronellyl isobutyrate	No	ELN, GIV, IFF.
Citronellyl nitrile	No	SCM.
Citronellyl propionate	No	IFF.
Decanal (Capraldehyde)	No	CI.
Decyl acetate	No	GIV.
Diethyl sebacate	No	ELN.
Diethyl succinate	No	MRF.
Dihydrocarvone	No	SCM.
Dihydrolinalool	No	SCM.
Dihydro myrcenol	No	SCM.
Dihydro pentamethyl indanone	No	IFF.
Dihydroterpinyl acetate	No	IFF, NCI.
1,1-Dimethoxy octane	No	IFF.
Dimethyl hexanediol	No	(²).
2,5-Dimethyl-3-hexyne-2,5-diol	No	(²).
3,7-Dimethyl-cis-2,6-octadienal (Citral B) (Neral	No	NCI.
3,7-Dimethyl-trans-2,6-octadienal (Citral A, geranial)	No	BDS, NCI.
3,7-Dimethyl-2,6-octadienal (Citral a & b)	No	SCM.
3,7-Dimethyl-2,6-octadienenitrile	No	CI.
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol	No	GIV, NCI, SCM.
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)	No	ELN, GIV, NCI, SCM.
3,7-Dimethyl-1,6-octadien-3-ol (Linalool) (Linalyl alcohol)	No	ELN, IFF, SCM.
3,7-Dimethyl-cis-2,6-octadienol, acetate (Neryl acetate)	Yes	ELN, GIV, IFF, SCM.
3,7-Dimethyl-1,6-octadien-3-ol, acetate (Linalyl acetate)	No	GIV, SCM.
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate)	No	GIV.
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate)	No	GIV.
3,7-Dimethyloctanol-1 (Tetrahydrogeraniol)	Yes	GIV, IFF, SCM, (²).
3,7-Dimethyl-3-octanol	No	NCI, SCM.
Dimethyloctanyl acetate	No	GIV.
3,7-Dimethyl-6-octen-1-al (Citronellal)	No	GIV, SCM.

See footnotes at end of table.

Table 7-2—Continued
Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 7-3)
Acyclic—Continued:		
3,7-Dimethyl-6-octen-1-ol (Citronellol)	No	ELN, GIV, IFF, NCI, SCM.
3,7-Dimethyl-7-octenol 70%, 6-octenol isomer 30%	No	GIV.
Ethyl butyrate	No	ELN, HPC, NW.
Ethyl heptanoate	No	ELN.
Ethyl hexanoate	No	ELN, NW.
Ethyl isovalerate	No	ELN.
Ethyl laurate	No	ELN.
Ethyl-2-methyl butyrate	No	SCM.
Ethyl myristate	No	ELN.
Ethyl propionate	No	NW.
Ethyl trimethyl cyclopentenyl buterol	No	IFF.
Ethyl valerate	No	ELN.
Geranyl acetate	No	BDS, CI, ELN, GIV, IFF, NCI, NW, SCM.
Geranyl butyrate	Yes	ELN.
Geranyl formate	No	BDS, ELN, GIV.
Geranyl isobutyrate	No	IFF.
Geranyl nitrile (Citralva)	No	IFF, SCM.
Geranyl propionate	No	ELN.
N-Hexanal	No	CI.
2-Hexenal	No	GIV.
cis-3-Hexen-1-yl acetate	No	BDS.
cis-3-Hexenyl butyrate	No	SCM.
cis-3-Hexenyl methyl carbonate	No	IFF.
cis-3-Hexenyl tiglate	No	BDS.
Hexyl 2-methylbutyrate	No	SCM.
Hydroxycitronellol	No	SCM.
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronella)	No	GIV, IFF, SCM.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronella, dimethyl acetal)	No	GIV.
Isobutyl acetate	No	NW.
Isopentyl acetate (Isoamyl acetate)	No	ELN, NW.
Isopentyl butyrate	No	ELN, GIV, NW.
Isopentyl formate	No	ELN.
Isopentyl isovalerate	No	ELN.
3-Methyl-2-butenyl acetate	No	IFF.
2-Methylbutyl isovalerate	No	SCM.
Methyl butynol	No	(?).
2-Methylene undecanal	No	(?).
Methyl hexyl ether	No	SCM.
Methyl isobutyrate	No	HPC.
Methyl-2-methyl butyrate	No	SCM.
3-Methyl-2-[and 3]nonene nitrile	No	GIV.
Methyl-2-nonenoate	No	HPC.
Methyl pentyol	No	(?).
2-Methylundecanal	No	CI, GIV.
Myrcenyl acetate	No	IFF.
Myristaldehyde	No	GIV.
Nonanal	No	CI.
1,3-Nonanediol acetate	No	ELN, GIV.
Ocimene	No	IFF.
Ocimenyl acetate	No	IFF.
Octanal	No	CI.
N-Octyl acetate	No	SCM.

See footnotes at end of table.

Table 7-2—Continued
Flavor and perfume materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Flavor and perfume materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 7-3)
Acyclic—Continued:		
Octyl isovalerate	No	GIV.
Pseudo linalyl acetate (Neobergamate)	No	IFF.
Rhodinol	No	GIV, IFF.
Tepyl acetate	No	ELN.
Tetrahydrolinalyl acetate	No	SCM.
Tetrahydromyrcenol	No	SCM.
2,4,6,8-Tetramethylnonan-1-yl acetate	No	CI.
Trimethyl-cyclododeca-trienyl ethanone	No	IFF.
3,5,5-Trimethyl hexanal	No	IFF.
Undecanal	No	CI, GIV.
All other acyclic flavor and perfume materials	No	IFF, SCM.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 7-3
Flavor and perfume materials: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ABB	Abbott Laboratories	IFF	International Flavors & Fragrances, Inc.
AMB	American Bio-Synthetics Corp.	KLM	Kalama Chemical, Inc.
ARS	Arsynco, Inc., Sub. Div., of Aceto Corp.	MRF	Morflex Inc.
ARZ	Arizona Chemical Co.	NCI	Union Camp Corp., BBA Div.
ATR	Atlantic Richfield Co., ARCO Chemical Co.	NSW	Nutrasweet Co.
BDS	Fragrance Resources, Inc.	NW	Northwestern Flavors, Inc.
CI	Firmenich, Inc.	PD	Parke-Davis, Div. of Warner-Lambert Co.
CWN	Upjohn Co., Fine Chemicals	PFZ	Pfizer, Inc.
ELN	Elan Chemical Co.	PSG	PMC Inc., Specialities Group, Inc.
GIV	Givaudan Corp.	RAY	ITT Rayonier Liguin Products, Inc.
HAR	Haarmann & Reimer Corp.	RSA	R.S.A. Corp.
HCF	Cape Industries	SCM	SCM Corp., Glidco Organics
HPC	Hercules, Inc.		

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
 Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 8 Plastics and Resin Materials

Plastics and resin materials are high molecular weight polymers which, at some stage in their manufacture, exist in such physical condition that they can be shaped or otherwise processed by the application of heat and pressure. The terms "plastics," "resin," and "polymers," can be (and often are) used interchangeably by the trade. Depending on the chemical composition, manufacturing process, or intended use, the commercial products may contain plasticizers, fillers, extenders, stabilizers, coloring agents, or other additives. There are about 40 to 50 basic plastics and resins which are available commercially. These basic materials are available in literally thousands of individual compounds each with its distinct properties depending on the molecular weight of the resin, chemical structure, and the types and amounts of the additives present. Plastics materials may be molded, cast, or extruded into semifinished or finished solid forms. Resin materials may be in the form of solutions, pastes, or emulsions for applications such as protective coatings, adhesives, or paper and textile treatment.

Statistics on U.S. production and sales of synthetic plastics and resin materials for 1991 are given in table 8-1. U.S. production of plastics and resin materials in 1991 totaled 28,253 million kilograms, or 6 percent less than the 30,053 million kilograms produced in 1990. From 1987-91, the production of plastics and resin materials increased irregularly from 26,980 million kilograms in 1987 to 28,253 million kilograms in 1991, or at an average, annual rate of growth of 1 percent (see figure 8-1). Sales in 1991 totaled 24,787 million kilograms, valued at \$28,141 million,

compared with 25,729 million kilograms, valued at \$30,529 million, in 1990.

Thermosetting materials are those which harden in composition in the final treatment so that in their final state they are substantially infusible and insoluble; that is, they cannot again be softened by heat or solvents. U.S. production of thermosetting materials totaled 4,542 million kilograms in 1991 compared with 4,309 million kilograms in 1990. Production of the most important products in 1991 included phenolic (1,201 million kilograms); amino (urea and melamine) resins (1,262 million kilograms); polyester resins, unsaturated (513 million kilograms); and alkyd resins (356 million kilograms).

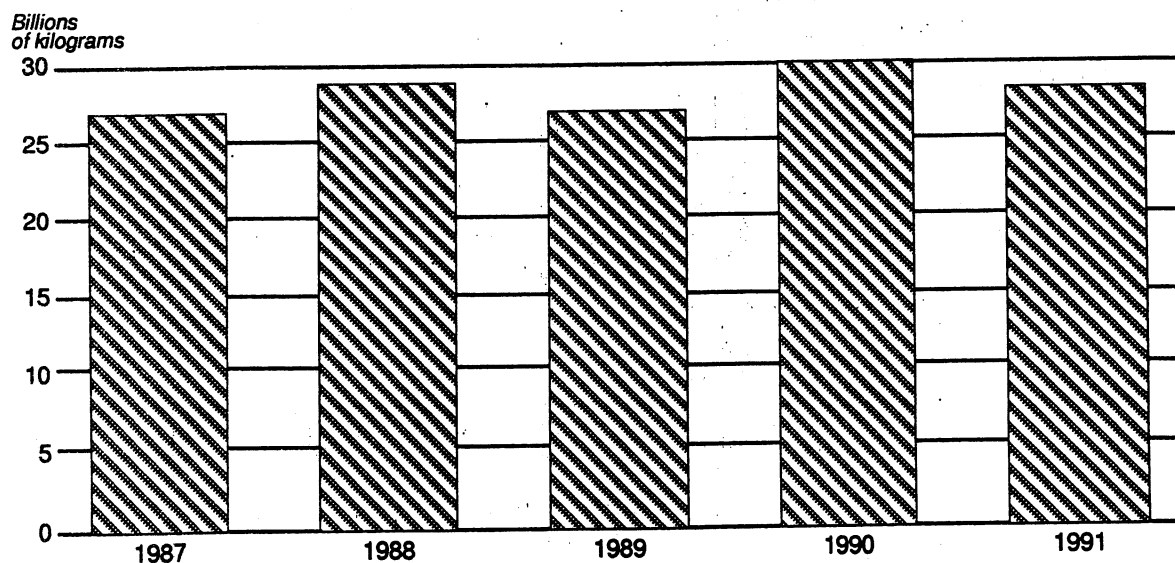
Thermoplastic materials are those which in their final state can be repeatedly softened by heat and hardened by a decrease in temperature. U.S. production of thermoplastic materials totaled 23,711 million kilograms in 1991 (or 84 percent of the total plastics and resin materials output for 1991), compared with 25,743 million kilograms in 1990. Production of the most important products in 1991 included polyethylene (9,429 million kilograms), polypropylene (2,664 million kilograms), vinyl resins (4,231 million kilograms), and styrene type materials (3,310 million kilograms). In 1991, production of saturated polyester resins reached 1,689 million kilograms (polyethylene terephthalate alone reached 1,442 million kilograms). Production of engineering plastics, in the aggregate, amounted to 488 million kilograms in 1991.

Table 8-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 8-3.

Denby L. Misurelli

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Figure 8-1
Plastics and resin materials: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 8-1
Plastics and resin materials: U.S. Production and sales, 1991

Plastics and resin materials	Production	Sales		Average Unit value ¹
		Quantity	Value	
	<i>1,000 kilograms dry basis²</i>	<i>1,000 kilograms dry basis²</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Grand total	28,252,551	24,786,936	28,140,829	\$1.14
Thermosetting resins				
Total	4,541,889	3,142,434	3,928,123	1.25
Alkyd resins, total	355,636	279,546	334,921	1.20
Alkyd-acrylate copolymer resins	5,605	2,699	6,327	2.34
Phthalic anhydride type	313,918	250,962	274,303	1.09
Polybasic acid type	7,098	4,114	6,997	1.70
Styrenated-alkyds or copolymer alkyds	6,448	1,737	4,828	2.78
Vinyl toluene alkyds	12,374	11,747	20,529	1.75
All other alkyd resins	10,193	8,287	21,937	2.65
Dicyandiamide resins (an amino resin)	1,281	1,267	2,564	2.02
Epoxy resins, total ^{3 4}				
Unmodified	254,467	180,443	528,610	2.93
Advanced	(121,031)	(69,507)	(203,326)	(2.97)
Melamine-formaldehyde resins (an amino resin)	115,523	95,238	223,990	2.35
Phenolic and other tar acid resins	1,200,624	552,008	593,052	1.07
Polyester resins, unsaturated ⁵	512,608	453,562	643,865	1.42
Polyether and polyester polyols for urethanes ⁶	789,059	690,152	848,265	1.23
Polyurethane elastomers and plastics products, total	95,127	80,577	323,700	4.02
Elastomers ⁷	66,667	53,079	240,464	4.53
Plastics	28,460	27,498	83,236	3.03
Urea-formaldehyde resins (an amino resin) ⁸	1,146,510	756,183	268,180	.35
All other thermosetting resins ⁹	71,054	53,458	160,976	3.01
Thermoplastic resins				
Total	23,710,662	21,644,502	24,212,706	1.12
Acrylic resins, total ¹⁰	743,366	622,002	1,553,033	2.50
Homopolymer resins, except PMMA, of acrylic or methacrylic acid esters	23,251	19,268	55,795	2.90
Polymethyl methacrylate (PMMA) resins	280,833	177,086	413,862	2.34
Thermosetting acrylic resins	40,821	27,420	84,143	3.07
All other acrylic resins	398,461	398,228	999,233	2.51
Engineering plastics, total ¹¹	488,495	350,749	1,295,014	3.69
Polyimides and amide-imide polymers	8,778	5,466	124,318	22.74
All other engineering plastics	479,717	345,283	1,170,696	3.39
Fluorocarbon resins	23,180	(¹²)	(¹²)	(¹²)
Petroleum hydrocarbon resins	174,224	163,716	183,464	1.12
Polyamide resins, total	316,144	323,765	974,026	3.01
Nylon type ^{10 13}	272,414	280,646	902,080	3.21
Non-nylon type	43,730	43,119	71,946	1.67
Polyester resins, saturated, total ^{10 14}	1,688,506	1,161,988	2,048,364	1.76
Polyethylene terephthalate (PET)	1,441,972	971,425	1,496,722	1.54
All other saturated polyesters, including polybutylene terephthalate, (PBT) resins	246,534	190,563	551,642	2.90

See footnotes at end of table.

Table 8-1—Continued
Plastics and resin materials: U.S. Production and sales, 1991

Plastics and resin materials	Production	Sales		Average Unit value ¹
		Quantity	Value	
	1,000 kilograms dry basis ²	1,000 kilograms dry basis ²	1,000 dollars	Per kilogram
Thermoplastic resins—Continued				
Polyethylene resins, total	9,429,407	9,387,443	7,284,639	\$.78
Ethylene-vinyl acetate (EVA) resins	242,056	226,710	239,170	1.05
Specific gravity 0.940 and below, total	5,236,044	5,193,087	3,964,623	.76
Low density polyethylene (LDPE) resins	3,006,174	2,923,696	2,322,145	.79
Linear low density polyethylene (LLDPE) resins	2,229,870	2,269,391	1,642,478	.72
Specific gravity over 0.940	3,850,976	3,881,484	2,949,937	.76
All other ethylene copolymers	100,331	86,162	130,909	1.52
Polypropylene resins	2,664,063	2,403,391	1,792,668	.75
Rosin modifications, total	(¹²)	163,142	218,999	1.34
Modified rosin (unesterified)	(¹²)	49,570	62,427	1.26
Modified rosin esters	75,051	80,497	111,939	1.39
Rosin esters, unmodified (Ester gums)	33,856	33,075	44,633	1.35
Styrene plastics materials, total	3,310,464	2,978,314	3,795,324	1.27
Acrylonitrile-butadiene-styrene terpolymer (ABS) resins	487,596	439,396	858,733	1.95
Polystyrene homopolymers, total	2,189,752	1,898,378	1,883,640	.99
Expandable polystyrene beads	313,902	229,074	251,565	1.10
Rubber modified polystyrene	807,956	770,442	790,028	1.03
Straight polystyrene	1,067,894	898,862	842,047	.94
Styrene latexes, total	303,227	335,008	428,599	1.28
Styrene-butadiene latexes	281,681	314,667	396,154	1.26
All other styrene latexes	21,546	20,341	32,445	1.60
Methyl methacrylate-butadiene styrene (MBS)	51,336	44,907	102,678	2.29
All other styrene plastics materials ¹⁵	278,553	260,625	521,674	2.00
Vinyl resins, total ¹⁶	4,230,895	3,827,554	3,433,149	.90
Polyvinyl acetate ¹⁷	243,905	191,918	314,197	1.64
Polyvinyl chloride homopolymers	3,455,220	3,273,328	2,361,277	.72
Polyvinyl chloride copolymers	90,487	83,798	158,757	1.89
Vinyl acetate-acrylate copolymers	261,338	138,124	264,000	1.91
Polyvinylidene chloride, latex and solid types	37,423	24,839	60,409	2.43
All other vinyl resins ¹⁸	142,522	115,547	274,509	2.38
All other thermoplastic resins ¹⁹	533,011	262,438	1,634,026	6.23

¹ Calculated from unrounded figures.

² Dry weight basis unless otherwise specified. Dry weight basis is the total weight of the materials including resin and coloring agents, extenders, fillers, plasticizers, and other additives, but excluding water and other liquid diluents unless they are an integral part of the materials.

³ Includes reactive diluents which are an integral part of the resin. Excludes the weight of hardeners sold in association with the resin as part of a two-component system.

⁴ Data shown for advanced epoxy resins are that part of the unmodified epoxy resins which is further processed; therefore, the total in parentheses are not included in the grand total.

⁵ Polyester resins are unsaturated alkyd resins, later to be copolymerized with a monomer (Such as styrene or methyl methacrylate), and polyallyl resins (such as diallyl phthalate and diglycol carbonate). Data are on an "as sold" basis, including monomer if part of the resin system.

⁶ In addition to the polyols, the other principal starting materials used in the production of urethane products are the isocyanic acid derivatives, mainly the 80/20 mixture of toluene-2,4- and 2,6-diisocyanate.

Statistics for the isocyanic acid derivatives are reported in the "Cyclic Intermediates" section of the Synthetic Organic Chemicals report.

Footnotes for table 8-1—Continued

⁷ The data on urethane elastomers are believed to be not fully representative of the total urethane market in view of the very large number of urethane elastomer producers. The commission has begun reporting statistics for urethane elastomers in two sections, section VIII, Plastics and resin materials, and section X, Elastomers (synthetic rubber). Henceforth those polyurethane products classified as "thermoplastic" urethane elastomers will be reported in SOC section X; all other urethane elastomers will remain in SOC section VIII.

⁸ Includes thiourea resins.

⁹ Includes acetone-formaldehyde resins, glyoxal-formaldehyde resins, furfuryl resins, polybutadiene resins, silicone resins, and certain other thermosetting resins.

¹⁰ Does not include production or sales for fiber use.

¹¹ Engineering plastics: Includes acetal, polycarbonate, polyetheretherketone (PEEK) resins, polyphenylene oxide, polyphenylene sulfide, and polysulfone. Engineering plastics are defined in *Whittington's Dictionary of Plastics*, as "All plastics, with or without fillers or reinforcements, which have mechanical, chemical and thermal properties suitable for use in construction, machine components and chemical processing equipment." The above list of plastics (all of which are thermoplastic) was selected from a larger group in this source. Certain other plastics named in *Whittington's Dictionary* as engineering plastics, such as ABS resins, acrylic resins, and nylon resins, are not included in the above list as they are published separately.

¹² Reported data did not meet the disclosure criteria.

¹³ Statistics for nylon 6 and nylon 6/6 which are used in plastics applications (e.g., molding, etc.) are included here.

¹⁴ Statistics are included here for polyethylene terephthalate used in plastics applications (e.g., molding, etc.) Statistics also are included here for production only when the starting materials are converted directly to a finished product (i.e., "in situ" production); polyester film and tape are examples of such a conversion.

¹⁵ Includes data for α -methyl styrene polymers, styrene acrylonitrile (SAN) copolymer resins, styrene-allyl alcohol copolymer resins, styrene-divinylbenzene copolymer resins, styrene-maleic anhydride copolymer resins, styrene-methyl methacrylate copolymer resins, and other styrene resins.

¹⁶ Data are reported on the basis of dry resin content, excluding the weight of plasticizers, extenders, fillers coloring agents, stabilizers, or impact modifiers, unless otherwise noted.

¹⁷ Data for polyvinyl acetate produced and sold in latex form includes the weight of any protective colloids which are used as emulsion stabilizers and form an integral part of the resin system. Production and sales do not include polyvinyl acetate used as a reactive intermediate for polyvinyl alcohol or other vinyl resins.

¹⁸ Includes polyvinyl alcohol, polyvinyl butyral, polyvinyl formal, polyvinylidene chloride, and other vinyl resins.

¹⁹ Includes cellulose plastics, coumarone-indene resins, phenoxy resins, polybutylene type resins, polyphenyl aromatic ester resins, polyterpene phenol, chlorinated polyolefins, acrylonitrile modified rosin (unesterified) (production only); fluorocarbon resins (sales only) and certain other thermoplastic materials.

Note.—Data reported to the U.S. International Trade Commission do not necessarily coincide with that reported to the Society of the Plastics Industry (SPI) because of differences in both the reporting instructions and in the coverage of certain resins.

Source: Compiled from data received in response to questionnaires of the U.S International Trade Commission.

Table 8-2

Plastics and resin materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plastics and resin materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 8-3)
Thermosetting resins:		
Acetone-formaldehyde resins	No	BAS, FLH, GP.
Alkyd resins:	Yes	
Acrylate-alkyd copolymer resins	Yes	CKC, CPV, DRR, MNP, PPG, REL, (?).
Phthalic anhydride type alkyd resins	Yes	ACO, AKZ, BAS, BLC, CGL, CJO, CKC, BRU, JOB, CPV, DRC, DUP, ECC, EW, FOC, GLD, GRG, GRV, IMI, LIC, MMM, MNP, NCP, PPG, PRT, QCP, RCI, REL, REZ, SRY, TCC, UNO, USP, (?), (?).
Polybasic acid type alkyd resins	Yes	CJO, CKC, EW, FOC, GLD, IMI, IOV, MID, PPG, REL, SCN, (?).
Styrenated-alkyds, or copolymer alkyds	Yes	CJO, CKC, CPV, EW, IMI, MNP, MRT, REL, SCN, (?).
Vinyl toluene alkyds	Yes	BLC, CGL, CKC, CPV, GLD, GRV, IMI, JOB, MNP, REL, (?).
All other alkyd copolymers	Yes	BLC, CGL, CJO, DUP, MNP.
Amino resins:		
Melamine-formaldehyde resins	Yes	ACY, AUX, BOR, CBD, CGL, CKC, DGO, DRC, GP, GRG, HCL, MID, MNP, MON, PLS, PMC, PPL, PST, RCI, REL, REZ, RSN, SQA, TCC, WRD.
Urea-formaldehyde resins	Yes	ACY, AUX, BOR, CBD, CGL, CKC, CPV, GP, MMM, MNP, PMC, PPL, PST, REL, REZ, SAC, SPU, SQA, SYT, SOR, WCL.
Dicyandiamide resins	Yes	ECC, HCL, S, SYT, TCC.
Epoxy resins:	Yes	
Epoxy resins, advanced	Yes	AIP, AKZ, CNI, BAS, CGL, CGY, CJO, CKC, CPV, DOW, EW, GE, GLD, GRG, GRV, HXL, MID, MIL, MMM, MRT, OCF, PPG, RCI, REZ, SMO, (?).
Epoxy resins, unmodified	Yes	ASH, BAS, CGY, CKC, CLU, CMS, CPV, DAN, DOW, HYA, MNP, PRT, RCI, REZ, SHC, UCC, (?).
Furfuryl type resins	No	CLU, DRR, HVG, UNO.
Glyoxal-formaldehyde resins	No	AUX, HCL, SQA, TCC, WPG.
Phenolic and other tar acid resins	Yes	ADC, ASH, BAS, BME, BOR, BSC, BTL, CBD, CKC, DRR, EW, GP, GRV, HCL, HER, HKP, HPC, HVG, IRI, ISP, LII, MCA, MID, MMM, OCF, PLS, PSG, PSL, RH, SCN, SPL, UCC, UNO, USR, VSV, WPG, WTH, (?), (?), (?), (?).
Polybutadiene resins	No	CCS, CNI, PAS, LC.
Polyester resins, unsaturated, and allyl resins:	Yes	
Allyl resins	No	ATR, CMS, IMI.
Diallyl isophthalate	No	CMS.
Polyester resins, unsaturated	No	ADC, APH, ART, ASH, BAS, CGL, CKC, CMS, EW, GLD, GRG, IMI, IPC, JOB, LII, MID, MMM, MRT, NCP, OCF, PPG, PPL, RCI, SCN, SIC.
Polyether and polyester polyols for urethanes	Yes	ATR, BAS, BMC, BPT, CHC, CXI, DOW, GRG, HCF, ICI, MRT, OMC, PPG, PPL, RCI, RUO, SLC, SYT, UCC, WM, (?).
Polyurethane elastomer and plastic products:	Yes	
Polyurethane elastomers	Yes	ACY, ADC, ARO, BAS, BPT, CAS, CGY, CNI, DNS, HXL, HYC, INP, MRT, PPG, PRC, QUN, RSN, RUO, SCN, SLC, SMO, SYT, USM, USR.
Polyurethane resins	Yes	CGL, DUP, EW, GLD, GRD, HVG, HYC, INP, JOB, LC, OMC, PEL, SHX, SIF, (?).

See footnotes at end of table.

Table 8-2—Continued

Plastics and resin materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plastics and resin materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 8-3)
Thermosetting resins—Continued:		
Silicone resins	No	GJO, DCC, MID, PEL, SPD.
All other thermosetting resins, benzenoid	Yes	ACY, AKZ, BAS, GLD, GRV, PRC, GRV, PRC, MID, REL, RTC, RUO, S, TCC, WPG, (2), (2), (2), (2).
Thermoplastic resins:		
Acrylic resins:	Yes	
Copolymer resins of acrylic and/or methacrylic acid resins:		
Butyl acrylate ethyl acrylate copolymer resins	No	AIP, BFG, ICI, MIL, RH, TCC, UOC.
Butyl methacrylate-ethyl methacrylate copolymer resins	No	UOC.
2-Ethylhexyl acrylate-methyl acrylate copolymer resins	No	UOC, AIP.
Other copolymer resins of acrylic and/or methacrylic acid esters	Yes	ACO, AIP, BAS, CHP, CKC, CPV, DRB, DRC, ESS, FLH, GGI, GLD, ICI, JNS, KMP, MON, NES, NSC, PPG, PRA, PYI, RAS, RCI, RH, SCN, SYT, TCC, UCC, (2), (2).
Thermosetting acrylic resins	Yes	AIP, AKZ, BAS, CGY, CKC, CPV, DRC, DUP, GRV, MID, MNP, PPG, PRA, REL, REZ, SCP, SM.
Homopolymer resins of acrylic and/or methacrylic acid resins:		
Other homopolymer resins of acrylic and/or methacrylic acid esters	Yes	AIP, CKC, CPV, DUP, RH, SAR, SCP, UOC, (2).
Polymethyl methacrylate (PMMA)	Yes	ART, DUP, ICI, JOB, MRT, PKL, PYI, RH, CYR, SAR, SQA, TCC.
Cellulose plastics and resins:		
Cellulose acetate	No	EKT, MIL.
Cellulose acetate butyrate	No	EKT.
Cellulose acetate propionate	No	EKT.
Ethyl cellulose	No	AQU, (2).
Chlorinated polyolefins, thermoplastic	No	EKT.
Coumarone-indene resins	No	CKC.
Acrylonitrile resin	No	(2).
Engineering plastics:		
Acetal resins	Yes	
Polycarbonate resins	Yes	DUP, HCL, PRT, UTF, WPG.
Polyimides and amide-imide polymers	No	DOW, GE, SQA.
Polyimides and amide-imide polymers	Yes	DUP, EW, GE, GRG, PDI, SCN.
Polyphenylene oxide type resins	No	GE.
Polyphenylene sulfide resins	No	HCL, PLC.
Fluorocarbon resins:		
Ethylene/chlorotrifluoro ethylene copolymer	Yes	
Polytetrafluoroethylene (PTFE)	No	AUS.
Polyvinyl fluoride	No	AUS, DUP, ICI.
Polyvinylidene fluoride	No	DUP.
All other fluorocarbon resins	No	AUS, PAS.
Nylon 6,6-acrylonitrile-butadiene-styrene	No	DUP.
Petroleum hydrocarbon resins	No	MON.
Phenol polymers	Yes	ARZ, BAS, CFX, CXI, EKK, ENJ, GYR, HPC, LII, NEV, (2), (2).
Phenoxy (R) resin (other than for coating and adhesives)	Yes	ARZ.
	No	NEV, UCC.

See footnotes at end of table.

Table 8-2—Continued

Plastics and resin materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plastics and resin materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 8-3)
Thermoplastic resins—Continued:		
Polyamide resins:	Yes	
Non-nylon type, polyamide resins	Yes	ARZ, COO, DXA, EFH, GP, LII, S, SCP, SQA, USM, WTH.
Nylon type, polyamide resins	Yes	ACS, AGI, BAS, BCM, CTR, DGO, DUP, GRG, HCL, MON, NYL, PAS, RSN, SCP, SKP, USM.
Polybutylene type resins	No	AMO, ENJ, SHC.
Polyester resins, saturated:	Yes	
Polybutylene terephthalate (PBT)	No	BAS, GE, HCL.
Polyethylene terephthalate (PET)	Yes	ACS, DUP, EKT, GE, GYR, HCL, ICI, TRY, WLM, YKK, (2).
All other polyester resins, saturated	Yes	ACS, AUS, BAS, CGY, CKC, CPV, DUP, EKT, GLD, GRG, GYR, HCL, ICI, IMI, MID, MNP, PPG, REL, SCN, USM.
Polyethylene and copolymers resins:	Yes	
Ethylene-vinyl acetate (EVA) resins	Yes	ENJ, NSC, RCI, RSN, USI, WLK.
Other ethylene copolymer resins	Yes	DOW, EKX, ENJ, EVL, HXL, KTX, SQA, (2).
Specific gravity 0.940 and below (LDPE)	Yes	DOW, DUP, EKX, ELP, ENJ, LYP, SM, SOC, SQA, UCC, USI, WLK.
Specific gravity 0.940 and below, linear (LLDPE)	Yes	DOW, ENJ, SM, SOC, UCC, USI.
Specific gravity over 0.940	Yes	DOW, ENJ, HCL, HIM, HKP, PAX, PLC, SLT, SOC, UCC, USI.
Polypropylene polymer and copolymer resins	Yes	AMO, ART, BAS, CSD, EKX, ELP, ENJ, HIM, LYP, MIL, PLC, SHC, SLT, USI, WYK.
Polyterpene resins	No	ARZ.
Rosin modifications:	Yes	
Modified rosin (unesterified)	Yes	ARZ, CJO, HPC, WTH, WVA.
Modified rosin esters	Yes	ARZ, BAS, CKC, EW, FRP, GP, GRV, HCL, HPC, LII, WTH, WVA, (2).
Rosin esters, unmodified (Ester gums)	Yes	ARZ, CKC, FRP, HPC, WTH.
Styrene type plastics materials:	Yes	
Acrylonitrile-butadiene-styrene (ABS) terpolymer resins	Yes	DOW, GE, GRD, MON.
α -Methyl styrene polymers	No	AIP, AMO, CKC, CPV, JNS.
Styrene-acrylonitrile copolymer resins (SAN)	No	DOW, ICI, MON.
Polystyrene:	Yes	
Expandable polystyrene beads	Yes	ATR, BAS, DPI, HMN, TXS.
Rubber modified polystyrene	Yes	AMO, API, CSD, DOW, DPI, HMN, PLR, SM.
Straight polystyrene	Yes	AEP, AMO, API, ATR, CSD, DLT, DOW, DPI, HMN, HPC, KTP, PLR, SM, SOC, TXS.
Styrene latexes:	Yes	
Styrene-butadiene latexes	Yes	DOW, GRD, GYR, PYI, RCI, UOC.
All other styrene latexes	Yes	ADC, CCS, FRS, GRD, SPO, UCC, UOC.
Other styrene copolymers:	Yes	
Acrylic-styrene-acrylonitrile	No	MON.
Methyl methacrylate-butadiene styrene (MBS) resins	Yes	CYR, KTX, RH.
Styrene-acrylonitrile- α -methyl styrene	No	MON.
Styrene-allyl alcohol copolymer resins	No	HPC, MON.
Styrene-divinylbenzene copolymer resins	No	EK, RH, TCC.
Styrene-maleic anhydride copolymer resins	No	ATR, DIX, JNS, MON, PAS.
Styrene-maleic anhydride, glass filled	No	MON.
Styrene-maleic anhydride-isobutanol terpolymer ..	No	MON.
Styrene-methyl methacrylate copolymer resins ..	No	ADC, PLR, ZNC, (2).
All other styrene copolymers	Yes	AIP, ATR, CKC, CPV, EW, FLH, GAF, GE, GGI, GYR, HPC, JNS, MON, PLC, SCN, SQA, TCC, (2).

See footnotes at end of table.

Section 8

Table 8-2—Continued
Plastics and resin materials for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plastics and resin materials	Separate statistics ¹	Manufacturers' identification codes (according to list in table 8-3)
Thermoplastic resins—Continued:		
All other styrene type plastics materials	No	FER, ICI.
Vinyl resins:		
Polyvinyl acetate resins	Yes	AIP, CGL, DAN, FLH, FLN, GLD, GRD, JOB, MNP, MON, PYI, RCI, SQA, NSC, TCC, UCC, UOC, (?).
Polyvinyl alcohol resins	No	AIP, DUP.
Polyvinyl butyral resins	No	MON.
Polyvinyl formal resin	No	GRG, MON.
Vinyl acetate-acrylate copolymers	Yes	ACO, DAN, FLH, FLN, GLD, KMP, NCJ, NTC, PRA, RCI, RH, SPC, SQA, UCC, UOC.
Polyvinyl chloride and copolymer resins:		
All other polyvinyl chloride copolymer resins	Yes	BCP, BFG, KYS, UCC, VYN.
Polyvinyl chloride homopolymer resins	Yes	BCP, BFG, CNT, FOR, GGC, GYR, HKP, KYS, PLC, SHT, VST, VYN.
Polyvinylidene chloride resins:		
Latex type polyvinylidene chloride resins	No	BFG, DOW, GRD, UOC.
Solid type polyvinylidene chloride resins	No	DOW.
All other vinyl resins	Yes	DIX, EW, FLH, GLD, NCJ, RH, UCC.
All other thermoplastic resins, benzenoid	Yes	BRD, FER, HCL, LII, NES, UOC, (?).

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 8-3
Plastics and resin materials: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ACO	Adco Chemical Co.	CNI	Conap, Inc.
ACS	Allied Signal, Inc. Engineered Materials Sector. Engineered Plastic Div.	CNT	Certainteed Corp.
ACY	American Cyanamid Co.	COO	H.B. Fuller Co.
ADC	Anderson Development Co.	CPV	Cook Paint & Varnish Co.
AEP	Packaging Corp. of America	CSD	Fina Oil & Chemical Co.
AES	Advanced Elastomer Systems, L.P.	CTR	Custom Resins Div. of Bemis Co., Inc.
AGI	EMS-American Grilon, Inc.	CXI	Chemical Exchange Industries, Inc.
AIP	Air Products & Chemicals, Inc.	CYR	CYRO Industries
AKZ	Akzo Coating, Inc.	DAN	Hickson Danchem Corp.
AMO	Amoco Corp.	DCC	Dow Corning Corp.
APH	Alpha Resins Corp.	DGO	Day-Glo Color Corp.
API	American Polymers, Inc.	DIX	Dixie Chemical Co., Inc.
AQU	Aqualon Co.	DLT	Deltech Corp.
ARO	Arnco	DNS	Dennis Chemical Co.
ART	Aristech Chemical Corp.	DOW	Dow Chemical Co.
ARZ	Arizona Chemical Co.	DPI	Dart Polymers, Inc., Sub of Dart Container Corp.
ASH	Ashland Oil, Inc.	DRB	Rohm Tech, Inc.
ATR	Atlantic Richfield Co., Arco Chemical Co.	DRC	Dock Resins Corp.
AUS	Ausimont N.V.	DRR	Delta Resins & Refractories, Inc.
AUX	Auralux Corp.	DUP	E. I. duPont de Nemours & Co., Inc.: Automotive Product Dept. Chemicals and Pigments Dept. ED/IMG Dept. Petrochemicals Dept. Polymer Products Dept.
BAS	BASF Corp.	DXA	Dexter Corp., Automotive Div.
BCM	Belding Heminway Co.	ECC	Eastern Color & Chemical Co.
BCP	Borden Chemical & Plastics Delaware Limited Partnership	EFH	E. F. Houghton & Co.
BFG	B. F. Goodrich Co.	EK	Eastman Kodak Co.:
BLC	Ranbar Technology, Inc.	EKT	Tennessee Eastman Co. Div.
BMC	Brin-Mont Chemicals, Inc.	EKX	Texas Eastman Co. Div.
BME	Allied Signal, Inc., Friction Materials Div.	ELP	Rexene Products Company
BOR	Borden, Inc., Packaging & Industrial Products Div.	ENJ	Exxon Chemical Americas
BPT	Permuthane Coatings, Inc.	ESS	Essential Industries, Inc.
BRD	Lonza, Inc.	EVL	Eval Company of America
BRU	M. A. Bruder & Sons, Inc.	EW	Westinghouse Electric Corp., Electrical
BSC	Cascade Resins, Inc.	FER	Ferro Corp., Keil Chemical Div.
BTL	BTL Specialty Resin Corp.	FLH	H. B. Fuller Co.
CAS	CasChem, Inc.	FLN	Franklin International, Inc.
CBD	Neste Resins Corp.	FOC	Handschy Industries, Inc., Ink & Chemicals Div.
CCS	Advanced Resins, Inc.	FOR	Formosa Plastics Corp.
CFX	Chemfax, Inc.	FRP	Akzo Coatings, Inc.
CGL	Cargill, Inc.	FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.
CGY	Ciba-Geigy Corp.	GAF	ISP Chemicals Corp.
CHC	Carpenter Chemical Co.	GE	General Electric Co.: Electromaterials Div. Specialty Chemical Group
CHP	C. H. Patrick & Co., Inc.		
CJO	C. J. Osborn Chemicals, Inc.		
CKC	Cook Composites and Polymers Co.		
CLU	CL Industries, Inc.		
CMP	Commercial Products Co., Inc.		
CMS	Cosmic Plastics, Inc.		

See footnotes at end of table.

Table 8-3—Continued
Plastics and resin materials: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
GGC	Georgia-Gulf Corp.,: PVC Compound Div. Plaquemine Div.	MID	Dexter Corp., Dexter Specialty Coatings
GGI	Grow Group, Inc., Cello Corp. Div.	MIL	Milliken & Co., Milliken Chemical Div.
GLD	Glidden Co.	MMM	Minnesota Mining & Manufacturing Co.
GP	Georgia-Pacific Corp.: Resins, Inc.	MNP	McWhorther, Inc.
GRD	W. R. Grace & Co., Organic Chemicals Div.,	MON	Monsanto Co.
GRG	P. D. George Co.	MRT	Morton International Inc., Morton Chemical Div.
GRV	Guardsmen Products, Inc.	NCJ	National Casein of New Jersey
GYR	Goodyear Tire & Rubber Co.	NCP	Niles Chemical Paint Co.
HCF	Cape Industries	NES	Ruetgers-Nease Chemical Co.
HCL	Hoechst Celanese Corp.: Bayport Works Fibers Industrial Div. Sou-Tex Works	NEV	Neville Chemical Co.
HER	Heresite Protective Coatings, Inc.	NSC	National Starch & Chemical Corp.
HIM	Himont U.S.A., Inc.	NTC	National Casein Co.
HKP	Occidental Chemical Corp., Polymers and Plastics Group	NYL	Nylon Corp. of America
HMN	Huntsman Chemical Corp.	OCF	Owens-Corning Fiberglas Corp.
HPC	Hercules, Inc.	OMC	Olin Corp.
HVG	Ametek, Inc., Haveg Div.	PAS	ELF Atochem North America, Inc.
HXL	Hexcel Corp., Hexcel Chemical Products Dexter Corp:	PAX	Paxon Polymer Co., L.P.
HYA	Aerospace Material Div.	PDI	Phelps Dodge Industries, Inc., Phelps Dodge Magnet Wire Co. Div.
HYC	Dexter Electronic Materials Div.	PEL	Pelron Corp.
ICI	ICI Americas: Film Group Div. ICI Acrylic, Inc. Resin Div. Rubicon, Inc. Specialty Chemical Div.	PKL	Plaskolite, Inc.
IMI	Insulating Materials, Inc.	PLC	Phillips 66 Co.
INP	Synair Corp.	PLR	Novacor Chemicals, Inc.
IOV	Akzo Resins & Vehicles	PLS	Plastics Engineering Co.
IPC	Interplastic Corp.	PMC	Plastics Manufacturing Co.
IRI	Stuart-Ironside, Inc.	PPG	PPG Industries, Inc.
ISP	Indspec Chemical Corp.	PPL	Pioneer Plastics Corp.
JNS	S.C. Johnson & Son, Inc.	PRA	Para-Chem Southern, Inc.
JOB	Jones-Blair	PRC	Products Research & Chemical Corp.
KMP	Kelly-Moore Paint Co., Inc.	PRT	Pratt & Lambert, Inc.
KTP	Kama Corp.	PSG	PMC, Inc., PMC Specialites Group, Inc.
KTX	Kaneka Texas Corp.	PSL	Plaslok Corp.
KYS	Keysor Century Corp.	PST	Perstorp Compounds, Inc.
LC	Lord Corp., Chemical Products Group	PYI	Morton International, Inc., Morton Chemical Div.
LIC	Lilly Industrial, Inc.	QCP	Quaker Chemical Corp.
LII	Lawter International, Inc.	QUN	K. J. Quinn & Co., Inc.
LYP	Lyondell Petrochemical Co.	RAS	Surface Coatings, Inc.
MCA	Masonite Corp., Alpine Resin Div.	RCI	Reichhold Chemicals, Inc.
		REL	Akzo Coatings, Inc.
		REZ	Rhone-Poulenc, Inc.
		RH	Rohm & Haas Co.
		RSN	ELF Atochem North America, Polymers Div.
		RTC	Mount Vernon Mills, Inc.
		RUO	Ruco Polymer Corp.
		S	Sandoz Chemicals Corp., Color and Chemicals Div.
		SAC	Southeastern Adhesives Co.
		SAR	Esschem, Inc.

See footnotes at end of table.

Table 8-3—Continued
Plastics and resin materials: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
SCN	Schenectady Chemicals, Inc.	TCC	Sybron Chemicals, Inc.
SCP	Henkel Corp.	TNA	Ethyl Corp.
SHC	Shell Oil Co., Shell Chemical Co.	TRY	Toray Plastics America, Inc.
SHT	Shintech, Inc.	TXS	Scott Polymers, Inc.
SHX	Sherex Chemical Co., Inc.	UCC	Union Carbide Corp., Industrial Chemical Div.
SIC	BP Chemicals, Inc., Silmar Div.	UNO	United-Erie, Inc.
SIF	BP Chemicals, Inc., Filon Div.	UOC	Union Oil Co. of California
SKP	Shakespeare Co. Monofilament Div.	USI	Quantum Chemical Corp., USI Division
SLC	Soluol Chem Co., Inc.	USM	Emhart Corp., Bostik Div.
SLT	Solvay Polymer Corp.	USP	U.S. Polymers, Inc.
SM	Mobil Oil Corp.: Mobil Chemical Co.: Chemical Products Div. Petrochemicals Div. Polystyrene Business Group	USR	Uniroyal, Chemical Co., Inc.
SMO	Smooth-On, Inc.	UTF	Ultraform Co.
SOC	Chevron Corp., Chevron Chemical Co.	VST	Vista Chemical Co.
SOR	Southern Resin, Inc.	VSV	Valentine Sugars, Inc.
SPC	Insilco Corp., Sinclair Paint Co. Div.	VYN	Vygen, Inc.
SPD	General Electric Co., Silicone Products Dept.	WCL	Wright Chemical Corp.
SPL	Spaulding Composites Co., Industrial Plastics Div.	WLK	Westlake Corp.
SPO	Ameripol Synpol Co. Div. of Uniroyal Goodrich Tire Co.	WLM	Wellman, Inc.
SPU	Spulock Adhesives, Inc.	WM	Inolex Chemical Co.
SQA	Sequa Chemicals, Inc.	WPG	West Point-Pepperell, Inc. Grifftex Chemical Co., Sub.
SRY	Synray Corp.	WRD	Weyerhaeuser Co.
SYT	Synthron, Inc.	WTH	Union Camp Corp., Chemical Div.
		WVA	Westvaco Corp.
		WYK	Wyckoff Chemical Co., Inc.
		YKK	YKK Corp.
		ZNC	Zeon Chemicals, Inc.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 9 Rubber-Processing Chemicals

Rubber-processing chemicals are organic compounds that are added to natural and synthetic rubber to give them qualities necessary for their conversion into finished rubber goods. In this report, statistics are given for cyclic and acyclic compounds by use—such as accelerators, antioxidants, and vulcanizing agents. Data on production and sales of rubber-processing chemicals in 1991 are given in table 9-1. Data on production of rubber-processing chemicals during 1987-91 are given in figure 9-1.

Production of rubber-processing chemicals as a group in 1991 amounted to 155 million kilograms, or 14 percent less than the 179 million kilograms produced in 1990. Sales of rubber-processing chemicals in 1991 amounted to 114 million kilograms, valued at \$457 million, compared with 136 million kilograms, valued at \$458 million, in 1990.

The production of cyclic rubber-processing chemicals in 1991 amounted to 140 million kilograms, or 1 percent more than the 138 million kilograms produced in 1990. Sales of cyclic rubber-processing chemicals in 1991 totaled 99 million kilograms, valued at \$428 million, compared with 104 million kilograms,

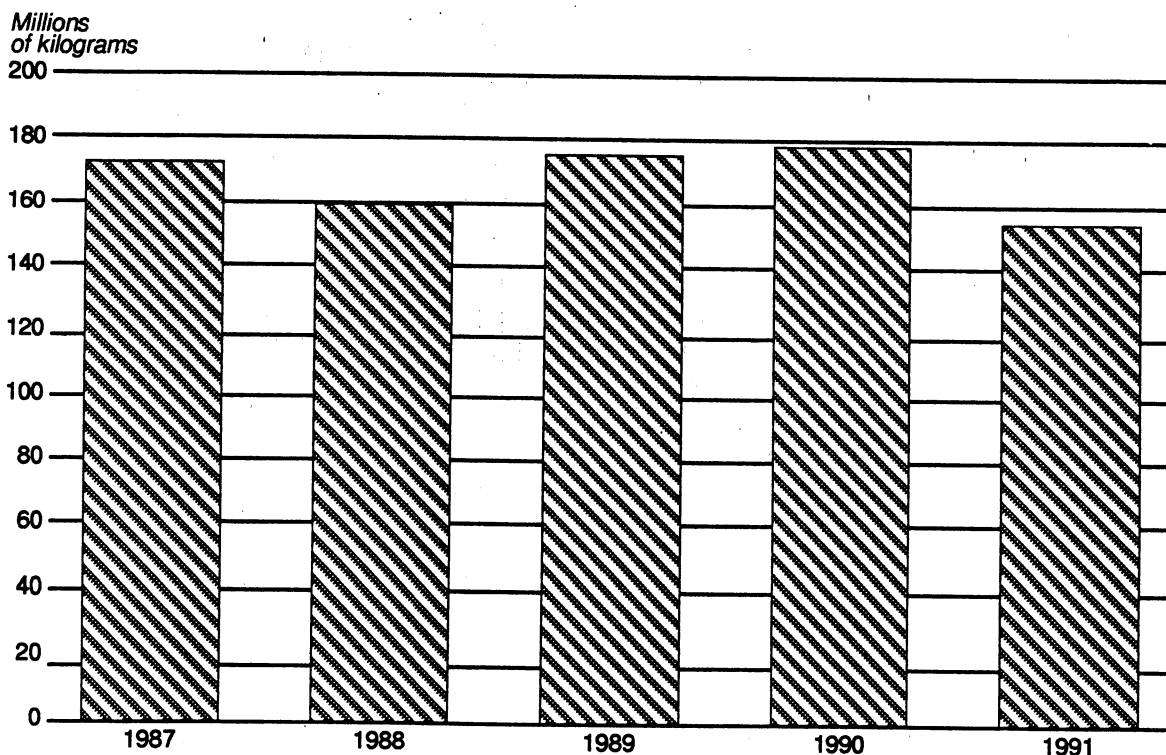
valued at \$413 million, in 1990. Of the total production of cyclic rubber-processing chemicals in 1991, antioxidants, antiozonants, and stabilizers accounted for 61 percent, and accelerators, activators, and vulcanizing agents for 37 percent. Production of antioxidants, antiozonants, and stabilizers, which amounted to 85 million kilograms in 1991, included 54 million kilograms of amino compounds and 31 million kilograms of phenolic and phosphite compounds. Sales of amino antioxidants, antiozonants, and stabilizers in 1991 amounted to 40 million kilograms, valued at \$165 million; sales of phenolic and phosphite compounds were 30 million kilograms, valued at \$130 million.

Production of acyclic rubber-processing chemicals in 1991 amounted to 15 million kilograms, or 63 percent less than the 40 million kilograms produced in 1990. Sales in 1991 totaled 14 million kilograms, valued at \$29 million, compared with 32 million kilograms, valued at \$44 million, in 1990.

Table 9-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 9-3.

Cynthia Trainor
202-205-3354

Figure 9-1
Rubber-processing chemicals: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Figure 9-1
Rubber-processing chemicals: U.S. production, 1987-91

Rubber-processing chemicals	Production	Sales		Average Unit value ¹
		Quantity	Value	
	<i>1,000 kilograms</i>	<i>1,000 kilograms</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Grand Total	154,596	113,813	457,337	\$4.02
Cyclic				
Total	139,796	99,434	427,997	4.30
Accelerators, activators, and vulcanizing agents total	51,030	25,441	103,641	4.07
Thiazole derivatives, total	49,160	23,685	86,645	3.66
N-tert-Butyl-2-benzothiazolesulfenamide	10,821	9,238	39,186	4.24
2,2'-Dithiobis[benzothiazole]	4,419	5,153	13,900	2.70
All other thiazole derivatives	33,920	9,294	33,559	3.61
All other accelerators, activators, and vulcanizing agents ^{2 3}	1,870	1,756	16,996	9.68
Antioxidants, antiozonants, and stabilizers, total	84,735	70,164	295,242	4.21
Amino compounds, total	54,085	39,753	165,350	4.16
Substituted p-phenylenediamines	33,946	23,950	112,758	4.71
All other amino compounds ⁴	20,139	15,803	52,592	3.33
Phenolic and phosphite compounds, total ⁵	30,650	30,411	129,892	4.27
Polyphenolics	2,653	-	-	-
All other phenolic and phosphite compounds	27,997	⁶ 30,411	⁶ 129,892	⁶ 4.27
All other cyclic rubber-processing chemicals ⁷	4,031	3,829	29,114	7.60
Acyclic				
Total	14,800	14,379	29,340	2.04

¹ Calculated from unrounded figures.

² Includes aldehyde-amine reaction products, dithiocarbamates, and other accelerators, activators, and vulcanizing agents.

³ Data on dithiocarbamates included in this table are for materials used chiefly in the processing of natural and synthetic rubber. Data on dithiocarbamates, which are used chiefly as fungicides, are included in the section on "Pesticides and Related Products."

⁴ Includes aldehyde- and acetone-amine reaction products and other amines.

⁵ Also includes other antioxidants, antiozonants, and stabilizers.

⁶ Includes sales quantity and value figures for polyphenolics.

⁷ Includes blowing agents and other cyclic rubber-processing chemicals.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 9-2
Rubber-processing chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Rubber-processing chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 9-3)
Cyclic:		
Accelerators, activators, and vulcanizing agents:		
Aldehyde-amine reaction products:		
Heptaldehyde-aniline condensate	No	USR.
Triethyltrimethylenetriamine	No	USR.
All other aldehyde-amine reaction products, cyclic	No	DUP.
Dithiocarbamic acid derivatives:		
Dibenzylidithiocarbamic acid, sodium salt	No	USR.
Dibenzylidithiocarbamic acid, zinc salt	No	USR.
All other dithiocarbamic acid derivatives, cyclic	No	VNC.
Guanidines:		
Dicatechol borate, di-o-tolylguanidine salt	No	VNC, (?).
All other guanidines, cyclic	No	VNC.
Thiazole derivatives:		
N-tert-Butyl-2-benzothiazolesulfenamide	Yes	BFG, MON, USR.
N-Cyclohexyl-2-benzothiazolesulfenamide	No	MON, USR.
2,2'-Dithiobis[benzothiazole]	Yes	BFG, MON, USR.
2-Mercaptobenzothiazole	No	MON, USR.
2-Mercaptobenzothiazole, copper salt	No	ACY.
2-Mercaptobenzothiazole, zinc salt	No	USR, (?).
N-Morpholinyl-2-benzothiazolyl disulfide	No	GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide	No	BFG, USR.
All other thiazole derivatives, cyclic	No	BFG, (?).
All other cyclic accelerators, activators, and vulcanizing agents:		
Bis(morpholinothiocabamoyl) disulfide	No	ACY.
1,3-Dihydro-4(or 5)-methyl-2H-benzimidazole-2-thione	No	VNC.
Dimethylammonium hydrogen isophthalate	No	(?).
Di-N,N'-pentamethylenethiuram tetrasulfide	No	VNC.
4,4'-Dithiodimorpholine	No	MON.
2-Mercaptotoluimidazole, zinc salt	No	VNC.
m-Phenylenebismaleimide	No	DUP.
All other accelerators, activators, and vulcanizing agents, cyclic	No	DUP, USR, (?).
Antioxidants, antiozonants, and stabilizers :		
Amino antioxidants, antiozonants, and stabilizers:		
Aldehyde- and acetone-amine reaction products:		
Diphenylamine-acetone aldehyde	No	USR.
Diphenylamine-acetone condensate	No	BFG, USR.
All other aldehyde and acetone-amine reaction products, cyclic	No	USR.
Substituted p-phenylenediamines:		
Alkylaryl-p-phenylenediamines	No	MON.
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	No	MON, UPM.
N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylenediamine	No	UPM.
N,N'-Bis(1-methylheptyl)-p-phenylenediamine	No	UPM.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine	No	USR.
Diarylenediamines, mixed	No	GYR.
N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine	No	UPM, USR.
N,N'-Di-2-naphthyl-p-phenylenediamine	No	BFG.

See footnotes at end of table.

Table 9-2—Continued
Rubber-processing chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Rubber-processing chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 9-3)
Cyclic-Continued		
Antioxidants, antiozonants, and stabilizers -Continued		
Amino antioxidants, antiozonants, and stabilizers -Continued		
Substituted p-phenylenediamines-Continued		
N,N'-Diphenyl-p-phenylenediamine	No	BFG.
N-Isopropyl-N'-phenyl-p-phenylenediamine	No	USR.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine	No	UPM.
N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine	No	USR.
All other p-Phenylenediamines, substituted	No	KPI, UPM, USR.
Other amines:		
p-Anilinophenol	No	BFG.
1,2-Dihydro-2,2,4-trimethylquinoline	No	BFG, MON, USR.
Nonyldiphenylamine mixture (Mono-, di-, and tri-) ..	No	USR.
Octyldiphenylamine	No	BFG, USR.
Octyldiphenylamine, alkylated	No	BFG.
p-(p-Toluenesulfonamido)diphenylamine	No	USR.
Phenolic and phosphite antioxidants and stabilizers:		
Phosphites:		
Alkylaryl phosphites mixed	No	FER, GE.
Nonylphenyl phosphites, mixed	No	GE, USR.
Polyphenolic phosphites, polyalkylated	No	BFG, GE.
Triaryl phosphites	No	GE.
Polyphenolics (including bisphenols):		
Bisphenol, hindered	No	USR.
4,4'-Butylidenebis(6-tert-butyl-m-cresol)	No	MON.
2,5-Di-sec-butyldecylhydroquinone	No	USR.
2,5-Di-(1,1-dimethylpropyl)hydroquinone	No	MON.
2,2'-Methylenebis(6-tert-butyl-p-cresol)	No	ACY.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)	No	ACY.
All other phenolic antioxidants and stabilizers:		
Phenol, alkylated	No	ACY, BFG, GYR, NEV.
Phenol, hindered	No	GYR, USR.
Phenol, styrenated, mixtures	No	NEV, USR.
N-Stearoyl-p-aminophenol	No	HXL
All other phenolic antioxidants	No	USR.
Blowing agents:		
p,p'-Oxybis(benzenesulfonylhydrazide)	No	USR.
5-Phenyltetrazole	No	OMC.
p-Toluenesulfonylsemicarbazide	No	USR.
All other cyclic rubber-processing chemicals:		
p-tert-Amylphenol sulfide (Tackifier)	No	PAS.
N-(Cyclohexylthio)phthalimide	No	MON.
Diphenyl-4,4'-diphenylmethylenedicarbamate	No	USR.
All other rubber-processing chemicals, cyclic	No	FER.
Acyclic:		
Accelerators, activators, and vulcanizing agents:		
Dithiocarbamic acid derivatives:		
Dialkyldithiocarbamic acid derivative	No	(?).
Dibutyldithiocarbamic acid, nickel salt	No	USR, VNC.
Dibutyldithiocarbamic acid, sodium salt	No	USR, VNC.
Dibutyldithiocarbamic acid, zinc salt	No	VNC, (?).

See footnotes at end of table.

Table 9-2—Continued
Rubber-processing chemicals for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Rubber-processing chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 9-3)
Acyclic-Continued		
Accelerators, activators, and vulcanizing agents-Continued		
Diethyldithiocarbamic acid, cadmium salt and bis(diethylthiocarbamoyl)disulfide, mixture	No	(?).
Diethyldithiocarbamic acid, sodium salt	No	(?).
Diethyldithiocarbamic acid, tellurium salt	No	(?).
Diethyldithiocarbamic acid, zinc salt	No	VNC, (?).
Dimethyldithiocarbamic acid, bismuth salt	No	(?).
Dimethyldithiocarbamic acid, copper salt	No	(?).
Dimethyldithiocarbamic acid, lead salt	No	(?).
Dimethyldithiocarbamic acid, selenium salt	No	(?).
Dimethyldithiocarbamic acid, zinc salt	No	VNC.
All other dithiocarbamic acid derivatives, acyclic	No	(?).
Thiurams:		
Bis(dibutylthiocarbamoyl) disulfide	No	(?).
Xanthates and sulfides:		
Di-n-butylxantho disulfide	No	USR.
Zinc isopropyl xanthate	No	VNC.
All other acyclic accelerators, activators, and vulcanizing agents:		
All other accelerators, activators, and vulcanizing agents, acyclic	No	DUP, (?).
Polymerization regulators:		
n-Dodecyl mercaptans	No	PLC.
tert-Nonyl mercaptan	No	PAS.
n-Octyl mercaptan	No	PAS, PLC.
tert-Octyl mercaptan	No	PLC.
All other polymerization regulators, acyclic	No	PLC.
Shortstops:		
Dimethyldithiocarbamic acid, potassium salt	No	USR.
Dimethyldithiocarbamic acid, sodium salt	No	ALC, USR, VCC, VNC.
All other acyclic rubber-processing chemicals:		
Waxes and paraffinic products	No	DUP.
Zinc laurate (Activator, physical property improver, and processing auxiliary)	No	USR.
All other rubber-processing chemicals, acyclic	No	(?).

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 9-3
Rubber-processing chemicals: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ACY	American Cyanamid Co.	KPI	Kenrich Petrochemicals, Inc.
ALC	Alco Chemical Corp.	MON	Monsanto Co.
BFG	B.F. Goodrich Co., B.F. Goodrich Chemical Group	NEV	Neville Chemical Co.
DUP	E. I. duPont de Nemours & Co., Inc. Polymer Products Dept.	OMC	Olin Corp.
FER	Ferro Corp., Bedford Chemical Div.	PAS	ELF Atochem North America, Inc.
GE	General Electric Co., Speciality Chemical Group	PLC	Phillips 66 Co.
GYR	Goodyear Tire & Rubber Co.	UPM	UOP, Inc.
HXL	Hexcel Corp., Hexcel Chemical Products	USR	Uniroyal Chemical Co., Inc.
		VCC	Vinings Industries, Inc.
		VNC	Vanderbilt Chemical Corp.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 10 Elastomers

Elastomers or synthetic rubbers are high polymer material exhibiting extensibility and elastic recovery. The term "elastomers" as used in this report pertain to substances, whether in bale, crumb, powder, latex, or other crude form, which can be vulcanized or similarly processed into materials which can be stretched to at least twice their original length and which, after having been so stretched and the stress removed, will return with force to approximately their original length. U.S. production and sales of elastomers in 1991 are shown in table 10-1.

In 1991, total U.S. production¹ of elastomers amounted to 2,166 million kilograms, a decrease of 3.0 percent from that produced in 1990. The production of elastomers has remained stable during the past 5 year period; 1991 production showed an increase of 1.8 percent over 1987 production. Sales of elastomers also decreased slightly in 1991 compared to 1990. The sales volume decreased by 1.7 percent and sales value decreased 4.7 percent.

¹ Polyurethane type elastomers have previously been included in the section VIII "Plastics and Resin Materials." The commission reports urethane elastomers in section VIII, and section X, "Elastomers" (synthetic rubber). Henceforth those polyurethane products classified as "thermoplastic" urethane elastomers will be reported in SOC section X; all other urethane elastomers will remain in SOC section VIII.

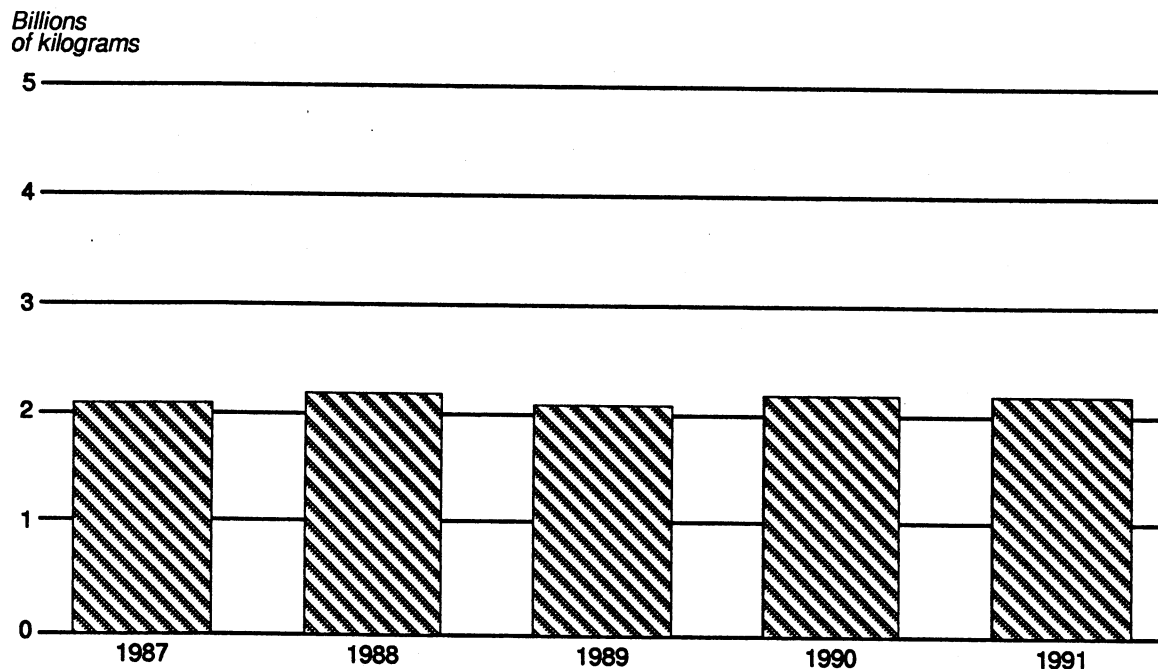
Elastomers production was dominated by styrene-butadiene rubber (SBR) in 1991; production amounted to 902 million kilograms. Polybutadiene rubber was produced in the next largest quantity, amounting to 371 million kilograms. These two rubbers are used primarily in the production of tires. Other principle types of synthetic elastomers for which U.S. production data were reported separately are thermoplastic elastomers, production of which was 215 million kilograms in 1991; ethylene-propylene rubber, production of which was 206 million kilograms in 1991; and butadiene-acrylonitrile rubber (NBR), production of which was 73 million kilograms in 1991.

Sales of styrene-butadiene rubber by U.S. producers in 1991 amounted to 603 million kilograms. In 1991, sales of polybutadiene rubber amounted to 170 million kilograms, and those of ethylene-propylene rubber to 194 million kilograms. Sales of thermoplastic elastomers amounted to 176 million kilograms and butadiene-acrylonitrile rubber amounted to 75 million kilograms.

Table 10-2 lists the products reported in this section and indicates the manufacture(s) of each by code. These codes are identified by company names in table 10-3.

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Figure 10-1
Elastomers: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 10-1
Elastomers (synthetic rubber):¹ U.S. production and sales, 1991

Elastomers	Production ²	Sales		Average Unit value ³
		Quantity ²	Value	
	<i>1,000 kilograms</i>	<i>1,000 kilograms</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Grand total	2,166,164	1,529,127	2,979,307	\$1.95
Acrylic type elastomers	4,138	5,637	26,927	4.78
Butadiene-acrylonitrile type (nitrile) (NBR-type)	72,979	74,892	163,721	2.19
Ethylene-propylene type (EP-type)	206,045	193,659	394,272	2.04
Polybutadiene type (BR-type), total	370,713	170,120	159,823	.94
Polybutadiene, emulsion-polymerized	15,481	12,253	12,912	1.05
Polybutadiene, solution-polymerized	355,232	157,867	146,911	.93
Silicone (Q) type elastomers	59,993	38,455	357,927	9.31
Styrene-butadiene type (SBR)-type), total	902,038	602,787	593,101	.98
Styrene-butadiene, dry type	763,542	464,090	418,066	.90
Styrene-butadiene-vinylpyridine	7,800	5,336	14,658	2.75
Styrene-butadiene, latex type and other	130,696	133,361	160,377	1.20
Thermoplastic elastomers (such as styrene-block copolymers, thermoplastic olefin elastomers, thermoplastic polyurethane elastomers, and copolyesters)	215,319	175,783	535,243	3.04
All other elastomers ⁴	334,939	267,794	748,293	2.79

¹ The term "elastomers" is defined as substances in bale, crumb, powder, latex, and other crude forms which can be vulcanized or similarly processed into materials that can be stretched at 68° F. to at least twice their original length and, after having been stretched and the stress removed, will return with force to approximately their original length.

² Includes oil content of oil-extended elastomers.

³ Calculated from unrounded figures.

⁴ Includes butyl, chlorosulfonated polyethylene, epichlorohydrin, fluoroelastomers, hydrogenated nitrile, polychloroprene (neoprene) type, polyisoprene, polysulfide, and miscellaneous elastomers.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 10-2
Elastomers for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Elastomers	Separate statistics ¹	Manufacturers' identification codes (according to list in table 10-3)
Cyclic		
Epichlorohydrin elastomers (CO, ECO) type	No	ZNC.
Styrene-butadiene (S or SBR) type	Yes	
Styrene-butadiene, dry type	Yes	CPY, FRS, DYG, GYR, RCI, SPO.
Styrene-butadiene, latex type	No	BAS, BFG, GNT, GRD, GYR, MMM.
Styrene-butadiene-vinylpyridine	Yes	BFG, FRS, GNT, GYR.
All other styrene-butadiene type elastomers, other	No	ASY, LC.
Thermoplastic elastomers (such as styrene-block copolymers, thermoplastic olefin elastomers, thermoplastic polyurethanes elastomers, and copolyester)	Yes	AES, BAS, BFG, DOW, DUP, EEP, EPI, FRS, GEP, HCL, ROG, SHC.
All other cyclic elastomers	No	TNA.
Acyclic		
Butadiene-acrylonitrile type (nitrile) (NBR-type)	Yes	BFG, CPY, GYR, MMM, RCI, USR, ZNC.
Butyl (isobutylene-isoprene) type	No	ENJ.
Chlorosulfonated polyethylene (CSM) type	No	DUP.
Ethylene acrylic elastomer	No	DUP.
Ethylene-propylene (EP) type	Yes	CPY, DUP, ENJ, USR.
Fluoroelastomers (CFM, FKM, FFKM) type	No	DUP, MMM.
Hydrogenated nitrile (HNBR) type	No	ZNC.
Polyacrylic (ACM) type elastomers	No	ACY, ZNC.
Polybutadiene acrylic acid acrylonitrile terpolymer (PBAN)	No	ASY.
Polybutadiene (BR) type	Yes	
Polybutadiene, emulsion-polymerized	Yes	DYG, GNT, GYR, RCI, SPO.
Polybutadiene, solution-polymerized	Yes	ASY, FRS, GYR, PLC.
Polychloroprene (Neoprene) (CR) type	No	DUP, DKA.
Polysoprene (IR) type	No	GYR.
Polysulfide (T) type elastomers	No	MRT.
Silicone (Q) type elastomers	Yes	DCC, MRT, SPD, SWS.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 10-3
Elastomers (synthetic rubber): Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ACY	American Cyanamid Co.	GRD	W. R. Grace & Co., Organic Chemicals Div.
AES	Advanced Elastomer Systems		Polymers & Chemical Div.
ASY	American Synthetic Rubber Corp.	GYR	Goodyear Tire & Rubber Co.
BAS	BASF Corp.	HCL	Hoechst Celanese Corp., Advanced Materials Group
BFG	B. F. Goodrich Co.	LC	Lord Corp., Chemical Products Group
CPY	Copolymer Rubber & Chemical Corp.	MMM	Minnesota Mining and Manufacturing Co.
DCC	Dow Corning Corp.	MRT	Morton International, Inc., Morton Chemical Div.
DKA	Miles, Inc.	PLC	Phillips 66 Co.
DOW	Dow Chemical Co.	RCI	Reichold Chemicals, Inc.
DUP	E. I. duPont de Nemours & Co., Inc., Polymer Products Dept.	ROG	Rogers Corp.
DYG	Dynagen, Inc., Subsidiary of General Tire	SHC	Shell Oil Co., Shell Chemical Co.
EEP	Furon Co.	SPD	General Electric Co., Silicone Products Dept.
ENJ	Exxon Chemical Americas	SPO	Ameripol Synpol Co., Div. of Uniroyal Goodrich Tire Co.
EPI	Eagle Pitcher Industries Inc., Orthane Div.	SWS	Wacker Silicones Corp.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.	TNA	Ethyl Corp
GE	General Electric Co., Speciality Chemical Group	USR	Uniroyal Chemical Co., Inc.
GEP	General Electric Co., Plastics Div.	ZNC	Zeon Chemicals, Inc.
GNT	Gencorp Polymers Products		

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app A.
 Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 11 Plasticizers

Plasticizers are organic chemicals that are added to synthetic plastics and resin materials to (1) improve workability during fabrication, (2) extend or modify the natural properties of these materials, or (3) develop new or improved properties not present in the original material. Table 11-1 presents statistics on U.S. production and sales of plasticizers in as great detail as is possible without revealing the operations of individual producers.

U.S. production of plasticizers totaled 828 million kilograms in 1991, a decrease of 7.0 percent from the 891 million kilograms reported for 1990. The trend of production of these products is shown in the graph in figure 11-1. Sales of plasticizers totaled 810 million kilograms, valued at \$1,052 million in 1991, compared with 827 million kilograms, valued at \$967 million, in 1990.

Production of cyclic plasticizers in 1991, which consisted chiefly of the esters of phthalic anhydride, phosphoric acid, and trimellitic acid, amounted to 604

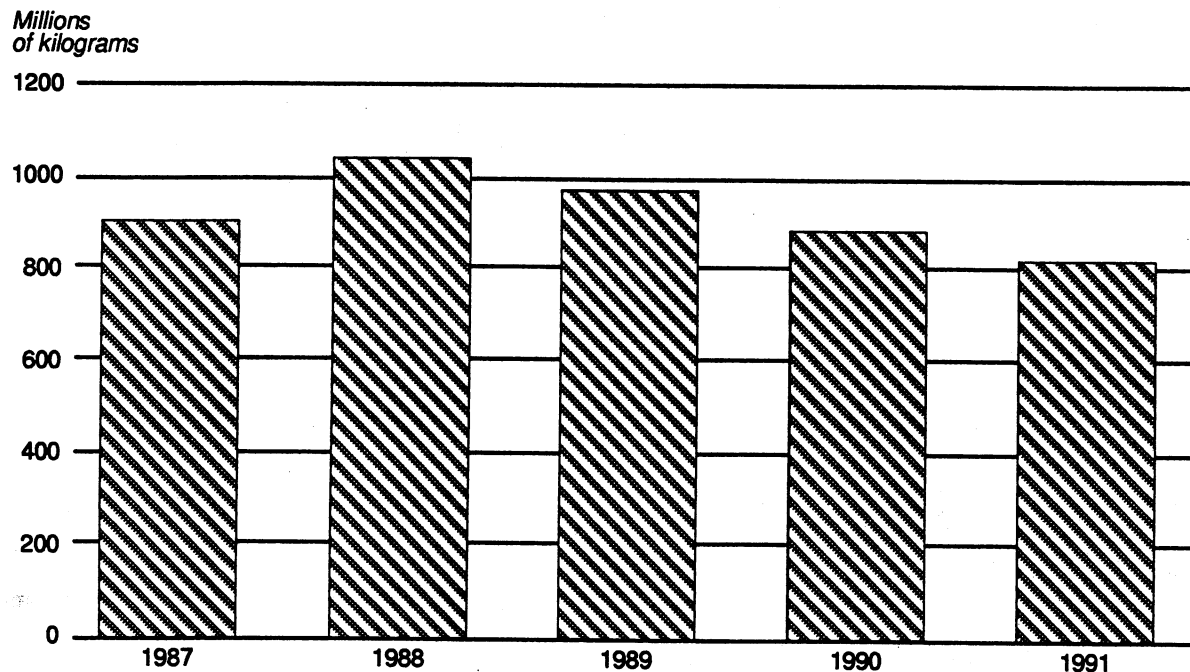
million kilograms, an decrease of 5.6 percent from the 640 million kilograms reported for 1990. Sales of cyclic plasticizers in 1991 totaled 604 million kilograms, valued at \$708 million, compared with 644 million kilograms, valued at \$665 million, in 1990. The most important cyclic plasticizers were the dioctyl phthalates, with production of 123 million pounds, in 1991.

Production of acyclic plasticizers in 1991 totaled 224 million kilograms, a decrease of 10.7 percent from the 251 million kilograms reported for 1990. Sales of acyclic plasticizers totaled 205 million kilograms, valued at \$344 million in 1991, compared with 182 million kilograms, valued at \$301 million, in 1990. Epoxidized esters were the most important acyclic plasticizers in 1991 with production of 62 million kilograms.

Table 11-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 11-3.

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Figure 11-1
Plasticizers: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 11-1
Plasticizers: U.S. production and sales, 1991

Plasticizers	Production ¹	Sales		Average Unit value ²
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Grand total	827,931	809,927	1,052,464	\$1.30
Benzenoid ³	685,480	677,074	843,139	1.25
Nonbenzenoid	142,451	132,853	209,325	1.58
Cyclic				
Total	604,042	604,433	708,491	1.17
Phthalic anhydride esters, total	546,477	537,728	603,912	1.12
Dibutyl phthalates (including diisobutyl phthalates)	8,506	6,450	7,945	1.23
Diisodecyl phthalate	95,348	96,103	83,902	.87
Dioctyl phthalates ⁴	122,510	125,206	115,518	.92
All other phthalic anhydride esters	320,113	309,969	396,547	1.28
Trimellitic acid esters	15,731	24,400	43,333	1.78
All other cyclic plasticizers ⁵	41,834	42,305	61,246	1.45
Acyclic				
Total	223,889	205,494	343,973	1.67
Adipic acid esters, total	56,523	48,651	86,116	1.77
Di(2-ethylhexyl) adipate	24,343	23,159	30,036	1.30
Diisodecyl adipate	987	1,074	1,768	1.65
All other adipic acid esters	31,193	24,418	54,312	2.22
Complex linear polyesters and polymeric plasticizers	42,013	30,178	65,665	2.18
Epoxidized esters	62,383	66,687	75,445	1.13
Butyl oleate	535	517	773	1.50
Sebacic acid esters, total	3,380	3,080	16,017	5.20
Dibutyl sebacate	245	250	895	3.58
All other sebacic acid esters	3,135	2,830	15,122	5.34
Stearic acid esters	5,145	5,240	8,791	1.68
All other acyclic plasticizers ⁶	53,910	51,141	91,166	1.78

¹ Includes data for compounds used principally (but not exclusively) as primary plasticizers. Does not include clearly defined extenders or secondary plasticizers.

² Calculated from unrounded figures.

³ Includes benzenoid products as defined in part 1, schedule 4, of the Tariff Schedules of the United States Annotated.

⁴ The difference between the production reported here and that shown on the *Preliminary Report on U.S. Production of Selected Organic Chemicals (including Synthetic Plastics and Resin Materials), 1991*, results from a combination of incorrect reporting by some companies, end-of-year inventory adjustments, and rounding.

⁵ Includes data for cresyl diphenyl phosphate, dibutyl phenyl phosphate, diphenyl octyl phosphate, tricresyl phosphate, triphenyl phosphate, and other cyclic phosphoric acid esters, glycol dibenzoates, toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

⁶ Includes data for azelaic acid esters, citric and acetylcitric acid esters, myristic acid esters, pelargonic acid esters, ricinoleic and acetylricinoleic acid esters, glyceryl and glycol esters, and other acyclic plasticizers.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 11-2

Plasticizers for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plasticizers	Separate statistics ¹	Manufacturers' identification codes (according to list in table 11-3)
Cyclic plasticizers	Yes	
N-n-Butyl benzenesulfonamide	No	UTC.
Diethylene glycol dibenzoate	No	KLM, VEL.
Dipropylene glycol dibenzoate (Dipropylene glycol dibenzoate)	No	KLM, VEL.
N-Ethyl-p-toluenesulfonamide	No	EPI, UTC.
Phosphoric acid esters:	No	
Isodecyl diphenyl phosphate	No	MON.
Tricresyl phosphate	No	FMC.
Triphenyl phosphate	No	FMC, MON.
All other phosphoric acid esters	No	FMC, MON, SCP, SM.
Phthalic anhydride esters:	Yes	
Bis(2-ethylhexyl)terephthalate	No	EKT.
Butyl benzyl phthalate	No	MON.
Butyl octyl phthalates	No	ART.
Di(2-butoxyethyl) phthalate	No	ART.
Dibutyl phthalate (including diisobutyl phthalate)	Yes	ART, EKT, NOD, UTC, WTH.
Dicyclohexyl phthalate	No	UTC, (?).
Diethylene glycol phthalate	No	CMB.
Diethyl isophthalate	No	(?).
Diethyl phthalate	No	EKT, MRF.
Di-(heptyl, nonyl) phthalate, mixed esters	No	BAS, ENJ, SC.
Di-(heptyl, nonyl, undecyl) phthalate, mixed esters	No	BAS, SC.
Diisodecyl phthalate	Yes	ART, ENJ, HCC, MON, NOD, TEK.
Diisononyl phthalate	No	ART, BAS, ENJ, MRF, TEK.
Dimethyl isophthalate	No	UTC.
Dimethyl phthalate	No	EKT, MRF, UTC.
Di-(nonyl, decyl, undecyl) phthalate, mixed esters	No	BAS.
Dinonyl phthalate	No	BAS, ENJ, SC, TEK.
Diphenyl phthalate	No	ART.
Di-tridecyl phthalate	No	ENJ, HCC, NOD, SM, TEK.
Diundecyl phthalate	No	ART, BAS, SC, TEK.
Hexyl n-decyl phthalate	No	VST.
n-Octyl n-decyl phthalate	No	ART, VST.
Dioctyl phthalates:	Yes	
Di(2-ethylhexyl) phthalate	No	ART, BAS, EKT, ENJ, NOD, TEK.
Diiso-octyl phthalate	No	ENJ, HAL, HCC, NOD, TEK.
All other dioctyl phthalates	No	WTH.
Glycol phthalate esters:	No	
Butyl phthalyl butyl glycolate	No	(?).
All other glycol phthalate esters	No	HAL.
All other phthalic anhydride esters	Yes	BAS, MON, NOD, SC, TEK, WTC.
Polyethylene glycol dibenzoate	No	VEL.
Tetrahydrofurfuryl oleate	No	WTC.
Trimellitic acid esters:	Yes	
Tri(2-ethylhexyl) trimellitate	No	BAS, ENJ, TEK.
Tri-n-hexyltrimellitate	No	(?).
Triisodecyl trimellitate	No	ENJ, WM.
Triisononyl trimellitate	No	ART, TEK.
Triiso-octyl trimellitate	No	NOD.
trimethyl trimellitate	No	FER.
Trioctyl trimellitate	No	ART, EKT.
All other trimellitic acid esters	No	ART, BAS, TEK, (?), (?).
All other cyclic plasticizers	Yes	BOE, NEV, NOD, UTC.

See footnotes at end of table.

Table 11-2—Continued
Plasticizers for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plasticizers	Separate statistics ¹	Manufacturers' identification codes (according to list in table 11-3)
Acyclic plasticizers:	Yes	
Adipic acid esters:	Yes	
Butylene glycol adipate	No	HAL.
Di(2-(2-butoxyethoxy)ethyl) adipate	No	HAL, MON.
Dibutoxyethyl adipate	No	HAL.
Di(2-ethylhexyl) adipate	Yes	ART, CAS, EKT, ENJ, HAL, MON, NOD, TEK, WTH.
Di-n-hexyl adipate	No	EKT, MON.
Diisobutyl adipate	No	HAL, WTC, (?).
Diisodecyl adipate	Yes	HAL, HCC, NOD.
Diisononyl adipate	No	ART, TEK.
Diiso-octyl adipate	No	HAL, HCC, SM.
Diisopropyl adipate	No	WTH.
Dimethyl adipate	No	MRF.
Di-n-octyl adipate	No	WTH.
Di-tridecyl adipate	No	NOD, WM.
Ethylene glycol adipate	No	HAL.
Neopentyl glycol adipate	No	HAL.
All other adipic acid esters	Yes	ENJ, HAL, SCP, SM, WTC.
Azelaic acid esters:	No	
Di(2-ethylhexyl) azelate	No	HAL, SCP, TEK.
All other azelaic acid esters	No	SCP.
Citric and acetylcitric acid esters:	Yes	
Tributyl acetylcitrate	No	UTC.
Tributyl citrate	No	(?).
Triethyl acetylcitrate	No	(?).
Triethyl citrate	No	(?).
All other citric and acetylcitric acid esters	No	CCL, (?).
Complex linear polyesters and polymeric plasticizers:	Yes	
Adipic acid type complex linear polyesters and polymeric plasticizers	No	CMB, HAL, SCP, TEK, WTC, WTH.
All other complex linear polyesters and polymeric plasticizers	No	AQU, EKX, HPC, SBC, SCP, SM, TEK, VND, WM, WTC.
Epoxidized esters:	Yes	
Epoxidized linseed oils	No	PAS, UCC, WTC.
Epoxidized pentaerythritol tetraphthalate	No	UCC.
Epoxidized soya oils	No	FER, FMB, PAS, TEK, UCC, WTC.
2-Ethylhexyl epoxytallates	No	UCC, WTC.
All other epoxidized esters	No	PAS, UCC.
Glyceryl tripropionate	No	EKT.
Glutaric acid esters:	No	
Neopentyl glycol glutarate	No	HAL.
All other glutaric acid esters	No	HAL.
Lauric acid esters:	No	
All other lauric acid esters	No	HAL.
Myristic acid esters:	No	
Isopropyl myristate	No	CAS, WM, WTH.
All other myristic acid esters	No	CAS, WTH.
Octandic acid esters:	No	
2-Butoxyethyl oleate	No	HAL.
Oleic acid esters:	Yes	
Butyl oleate	No	CHL, SCP, WTC, WTH.
Decyl oleate	No	SBC, VND.
Glyceryl trioleate (Triolein)	No	SCP, WTC.

See footnotes at end of table.

Table 11-2—Continued
Plasticizers for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plasticizers	Separate statistics ¹	Manufacturers' identification codes (according to list in table 11-3)
Acyclic plasticizers—Continued	Yes	
Oleic acid esters—Continued	Yes	
Isobutyl oleate	No	SBC.
Methyl oleate	No	SCP, WTC.
Oleyl oleate	No	SBC.
Propyl oleates:		
n-Propyl oleate	No	SCP.
All other oleic acid esters	No	SCP.
Palmitic acid esters:		
n-Butyl palmitate	No	EKT.
2-Ethylhexyl palmitate	No	CAS, VND, WM, WTH.
Isobutyl palmitate	No	WTH.
Isopropyl palmitate	No	CAS, WM, WTH.
All other palmitic acid esters	No	SBC.
Pelargonic acid esters:		
Glycol pelargonate	No	SCP.
Isodecyl pelargonate	No	SCP.
All other pelargonic acid esters	No	SBC, SM, WM.
Phosphoric acid esters:	No	
Tri(2-butoxyethyl) phosphate	No	FMC, MON, RDA.
Tributyl phosphate	No	FMC.
Triethyl phosphate	No	EKT.
Trioctyl phosphate	No	FMC, RDA.
Ricinoleic and acetylricinoleic acid esters:	No	
n-Butyl acetylricinoleate	No	CAS.
Butyl ricinoleate	No	CAS.
Glyceryl monoricinoleate	No	CAS.
Glyceryl tri(acetylricinoleate)	No	CAS.
Methyl ricinoleate	No	CAS, SCP.
Propylene glycol monoricinoleate	No	CAS.
All other ricinoleic and acetylricinoleic acid esters	No	CAS.
Sebacic acid esters:	Yes	
Dibutoxyethyl sebacate	No	HAL.
Dibutyl sebacate	Yes	HAL, MRF, (2).
Di(2-ethylhexyl) sebacate	No	HAL, TEK, (2).
Diisopropyl sebacate	No	SBC, (2).
Dimethyl sebacate	No	(2), (2).
Propylene glycol sebacate	No	HAL.
All other sebacic acid ester	Yes	
Stearic acid esters:	No	
n-Butyl stearate	No	CHL, SCP, WM, WTC, WTH.
2-Ethylhexyl stearate	No	CAS, HCL, WM.
Glyceryl triacetyl stearate	No	CAS.
Hexadecyl stearate	No	HCL.
Isobutyl stearate	No	SCP, WTC, WTH.
Isopropyl stearate	No	CAS, WM.
Myristyl stearate	No	VND.
Tridecyl stearate	No	WM.
All other stearic acid esters	No	CMB, SBC, SM, VND, WM.

See footnotes at end of table.

Table 11-2—Continued
Plasticizers for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Plasticizers	Separate statistics ¹	Manufacturers' identification codes (according to list in table 11-3)
Acyclic plasticizers—Continued	Yes	
Stearic acid esters—Continued	No	
Sucrose acetate isobutyrate	No	EKT.
Tetraethylene glycol di(2-ethylhexanoate)	No	HAL, UCC, WM.
Triethylene glycol di(caprylate-caprate)	No	HAL.
Triethylene glycol di(2-ethylbutyrate)	No	HAL.
Triethylene glycol di(2-ethylhexanoate)	No	EKT, HAL.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	No	EKX.
All other acyclic plasticizers	Yes	HCL, VND, WM.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 11-3
Plasticizers: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
AQU	Aqualon Co.	HPC	Hercules, Inc.
ART	Aristech Chemical Corp.	KLM	Kalama Chemical, Inc.
BAS	BASF Corp.	MON	Monsanto Co.
BOE	Boehme Filatex, Inc.	MRF	Morflex, Inc.
CAS	CasChem, Inc.	NEV	Neville Chemical Co.
CCL	Catawba-Charlab, Inc.	NOD	Huls America, Inc.
CHL	Chemol Co.	PAS	ELF Atochem North America, Inc.
CMB	Cambridge Industries Co.	RDA	Rhone-Poulenc, Inc.
EK	Eastman Kodak Co.:	SBC	Scher Chemicals, Inc.
EKT	Tennessee Eastman Co. Div.	SC	Sterling Chemical, Inc.
EKX	Texas Eastman Co. Div.	SCP	Henkel Corp.
ENJ	Exxon Chemical Americas	SM	Mobil Oil Corp. Chemical Products Div.
EPI	Eagle Picher Industries, Inc.	TEK	Teknor Apex Co.
FER	Ferro Corp.:	UCC	Union Carbide Corp., Industrial Chemicals Div.
	Bedford Chemical Div.	UTC	Unitex Chemical Corp.
	Grant Chemical Div.	VEL	Vesicol Chemical Corp.
FMB	FMC Corp., Chemical Products Group	VND	ISP-Van Dyk, Inc.
FMC	FMC Corp., Nitro Div.	VST	Vista Chemical Co.
HAL	C. P. Hall Co.	WM	Inolex Chemical Co.
HCC	Hatco Chemical Corp.	WTC	Witco Corp.
HCL	Hoechst Celanese Corp., Sou-Tex Works	WTH	Union Camp Corp., Chemical Div.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 12

Surface-Active Agents

The surface-active agents included in this report are organic chemicals that reduce the surface tension of water or other solvents and are used chiefly as detergents, dispersing agents, emulsifiers, foaming agents, or wetting agents in either aqueous or nonaqueous systems. Waxes and products used chiefly as plasticizers are excluded. Surface-active agents are produced from natural fats and oils, from silvichemicals such as lignin, rosin, and tall oil, and from chemical intermediates derived from coal tar and petroleum. A major part of the output of the bulk chemicals shown in this report is consumed in the form of packaged soaps and detergents for household and industrial use. The remainder is used in the processing of textiles and leather, in ore flotation and oil-drilling operations, and in the manufacture of agricultural sprays, cosmetics, elastomers, foods, lubricants, paint, pharmaceuticals, and many other products.

The statistics for production and sales of surface-active agents (table 12-1) are grouped by ionic class and by chemical class and subclass. All quantities are reported in terms of 100-percent organic surface-active ingredients and thus exclude all inorganic salts, water, and other diluents. Sales statistics reflect sales of bulk surface-active agents only; sales of formulated products are excluded. Data for the production of surface-active agents during 1987-91 are shown in figure 12-1.

Total U.S. production of surface-active agents in 1991 amounted to 3,379 million kilograms, or 11 percent less than the 3,795 million kilograms reported for 1990. Sales of bulk surface-active agents in 1991 amounted to 2,028 million kilograms, valued at \$2,257 million, compared with sales in 1990 of 1,930 million kilograms, valued at \$2,193 million. In terms of

quantity, sales in 1991 were 5 percent greater than in 1990.

Production of anionic surface-active agents in 1991 amounted to 2,223 million kilograms, or 66 percent of the total surfactant output reported for 1991. Sales of anionics in 1991 amounted to 1,064 million kilograms, valued at \$779 million.

Production of cationic surface-active agents in 1991 amounted to 300 million kilograms, 13 percent less than the 343 million kilograms reported in 1990. Production of nonionic surface-active agents amounted to 842 million kilograms in 1991, 0.4 percent less than the 845 million kilograms reported in 1990. Sales of cationic surface-active agents in 1991 decreased by 2 percent in terms of quantity, but increased by 1 percent in terms of value when compared with sales as reported in 1990. Sales of nonionics in 1991 increased by 3 percent in terms of quantity, but decreased by about 2 percent in terms of value when compared with sales as reported in 1990.

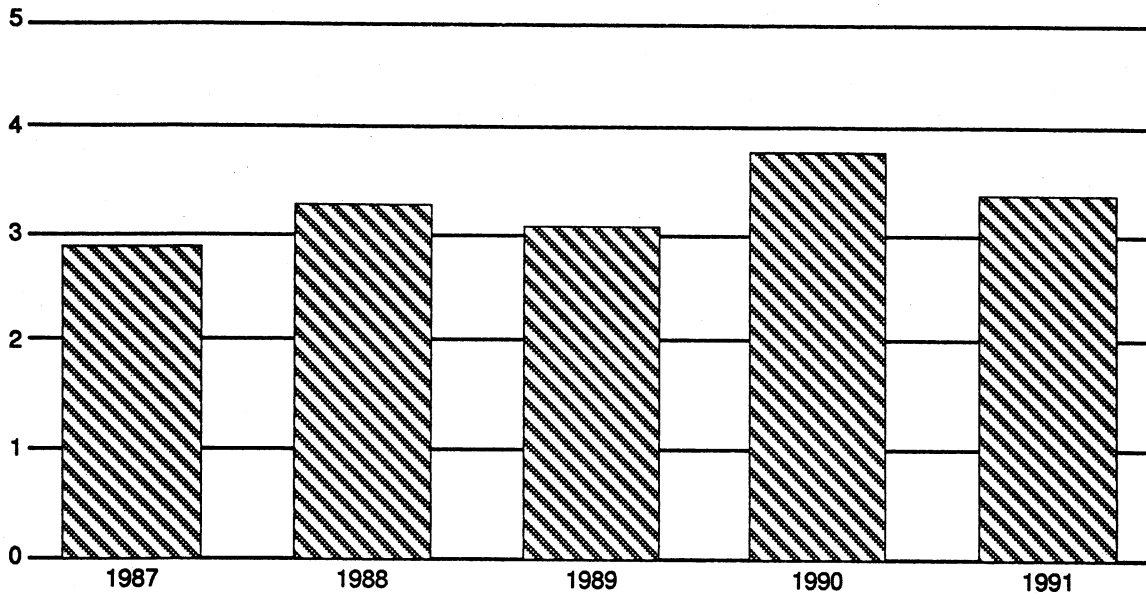
The difference between production and sales reflects inventory changes and captive consumption of surface-active agents by synthetic rubber producers, and by manufacturers of cosmetics, packaged detergents, bar soaps, and other formulated consumer products. In some instances the difference may also reflect quantities of surface-active agents used as chemical intermediates, e.g., nonionic alcohol and alkylphenol ethoxylates, which may be converted to anionic surface-active agents by phosphorylation or sulfation.

Table 12-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 12-3.

Eric Land
202-205-3349

Figure 12-1
Surface-active agents: U.S. production, 1987-91

*Billions
of kilograms*



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 12-1
Surface-active agents: U.S. production and sales, 1991

Surface-active agents	Production ¹	Sales ²		Average Unit value ³
		Quantity	Value	
Grand total	1,000 kilograms 3,379,162	1,000 kilograms 2,027,823	1,000 dollars 2,257,046	Per kilogram \$1.11
Amphoteric				
Total	14,633	12,125	31,375	2.59
(Carboxymethyl)[3-(coconut oil amido)propyl] dimethylammonium hydroxide, inner salt	4,421	3,078	8,056	2.62
(Mixed alkyl) sulfobetaine	284	260	722	2.78
All other amphoteric surface active agents	9,928	8,787	22,597	2.57
Anionic				
Total	2,223,007	1,064,222	779,180	.73
Carboxylic acids (and salts thereof), total				
	755,420	235,974	153,148	.65
Amine salts of fatty, rosin, and tall oil acids	3,257	2,872	4,698	1.64
Carboxylic acids having amide, ester, or ether linkages	7,244	6,960	14,104	2.03
Coconut oil acids, potassium salt	1,755	229	2,404	10.50
Coconut oil acids, sodium salt	78,895	4,350	4,250	.98
Oleic acid, sodium salt	96	58	98	1.68
Tall oil acids, potassium salt	5,073	1,385	691	.50
Tallow acids, sodium salt	260,223	17,187	10,235	.60
All other carboxylic acids (and salts thereof)	398,877	202,933	116,668	.57
Phosphoric and polyphosphoric acid esters (and salts thereof), total				
	32,350	28,138	54,495	1.94
Decyl alcohol, ethoxylated and phosphated	274	229	585	2.55
Decyl and octyl phosphate	1,027	999	1,494	1.49
Dinonylphenol, ethoxylated and phosphated	490	467	1,027	2.20
2-Ethylhexanol, ethoxylated and phosphated	1,194	1,219	1,483	1.22
2-Ethylhexyl phosphate	350	295	531	1.80
Hexyl phosphate	408	321	604	1.88
Mixed alkyl phosphate	740	585	2,338	3.99
Mixed linear alcohols, ethoxylated and phosphated	2,556	2,284	5,464	2.39
Nonylphenol, ethoxylated and phosphated	3,976	3,589	8,695	2.42
9-Octadecenyl alcohol, ethoxylated and phosphated	658	711	2,373	3.34
Phenol, ethoxylated and phosphated	659	645	1,381	2.14
Tridecyl alcohol, ethoxylated and phosphated	5,366	(⁴)	(⁴)	(⁴)
All other phosphoric and polyphosphoric acid esters (and salts thereof)	14,652	16,794	28,520	1.70
Sulfonic acids (and salts thereof), total				
	1,000,655	655,230	341,682	0.52
Dodecylbenzenesulfonic acid	157,205	105,201	83,361	\$.79
Dodecylbenzenesulfonic acid, calcium salt	2,431	1,743	5,476	3.14
Dodecylbenzenesulfonic acid, isopropylamine salt	4,258	3,937	6,073	1.54
Dodecylbenzenesulfonic acid, potassium salt	18	(⁴)	(⁴)	(⁴)
Dodecylbenzenesulfonic acid, sodium salt	216,334	24,997	40,638	1.63
Dodecylbenzenesulfonic acid, triethanolamine salt	1,548	1,531	2,715	1.77
Ligninsulfonic acid, calcium salt	292,780	283,561	31,607	.11
Ligninsulfonic acid, sodium salt	87,816	87,140	29,982	.34
Tridecylbenzenesulfonic acid, sodium salt	11,738	709	1,167	1.65
Xylenesulfonic acid, sodium salt	34,076	29,973	21,888	.73
All other sulfonic acids (and salts thereof)	192,451	116,438	118,775	1.02

See footnotes at end of table.

Table 12-1—Continued
Surface-active agents: U.S. production and sales, 1991

Surface-active agents	Production ¹	Sales ²		Average Unit value ³
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Anionic—Continued				
Sulfuric acid esters (and salts thereof), total ⁵	415,629	125,936	195,346	1.55
Butyl oleate, sulfated, sodium salt	261	247	346	1.40
Castor oil, sulfated, sodium salt	2,199	1,744	2,446	1.40
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	550	395	1,415	3.58
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	7,578	6,795	19,417	2.86
Dodecyl sulfate, ammonium salt	8,724	5,861	12,813	2.19
Dodecyl sulfate, magnesium salt	49	50	278	5.60
Dodecyl sulfate, sodium salt	12,659	12,004	33,930	2.83
Dodecyl sulfate, triethanolamine salt	1,805	1,083	3,580	3.30
2-Ethylhexyl sulfate sodium salt	1,746	1,733	3,476	2.01
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	65,966	(⁴)	(⁴)	(⁴)
Octyl sulfate, sodium salt	217	199	661	3.32
Tall oil, sulfated, sodium salt	548	516	559	1.08
Tallow, sulfated, sodium salt	303	228	199	.87
All other sulfuric acid esters (and salts thereof)	313,024	95,081	116,226	1.22
All other anionic surface active agents	18,953	18,944	34,509	1.82
Cationic				
Total	299,908	186,928	400,744	2.14
Amines and amine oxides, total	181,231	88,994	178,251	2.11
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine, ethoxylated	-	1,614	3,399	2.11
(Coconut oil alkyl) amine	-	535	1,358	2.54
(Coconut oil alkyl)amine, ethoxylated	1,684	1,371	2,539	1.85
N,N-Dimethylhexadecylamine	1,286	527	1,494	2.84
N,N-Dimethyloctadecylamine	2,217	2,131	5,412	2.54
(Hydrogenated tallow alkyl)amine	3,296	1,536	2,163	\$1.41
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	443	323	1,095	3.39
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	768	320	2,407	7.52
N-Methylbis(coconut oil alkyl)amine	(⁴)	168	236	1.40
Mixed alkyl)amine	2,341	2,244	3,473	1.55
(Mixed alkyl)amine, ethoxylated	687	463	1,606	3.48
(9-Octadecenyl)amine	2,909	1,732	3,223	1.86
(9-Octadecenyl)amine, ethoxylated	1,412	1,227	2,300	1.88
Octadecylamine	(⁴)	473	1,241	2.62
(Soybean oil alkyl)amine, ethoxylated	895	880	2,730	3.10
(Tallow alkyl)amine, ethoxylated	1,961	1,367	3,604	2.64
N-(Tallow alkyl) trimethylene diamine, ethoxylated	1,802	1,214	1,669	1.37
All other amines and amines oxides	159,530	70,869	138,302	1.95
Quaternary ammonium salts total	114,284	97,169	219,984	2.26
Benzyl(coconut oil alkyl)dimethylammonium chloride	818	796	1,734	2.18
Benzyl(dimethyl(mixed alkyl)ammonium chloride)	6,312	4,519	17,544	3.88
Benzyl(dimethyl octadecyl ammonium chloride)	366	271	1,391	5.14

See footnotes at end of table.

Table 12-1—Continued
Surface-active agents: U.S. production and sales, 1991

Surface-active agents	Production ¹	Sales ²		Average Unit value ³
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Cationic-Continued				
Quaternary ammonium salts-Continued				
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride	1,454	770	1,693	2.20
Bis(coconut oil alkyl)dimethylammonium chloride	1,805	1,572	4,186	2.66
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	38,043	34,692	55,136	1.59
Hexadecyltrimethylammonium chloride	806	532	2,337	4.39
Trimethyl(tallow alkyl)ammonium chloride	1,093	1,045	2,981	2.85
All other quaternary ammonium salts	63,587	52,972	132,982	2.51
All other cationic surface-active agents	4,393	765	2,509	3.28
Nonionic				
Total	841,614	764,548	1,045,747	1.37
Carboxylic acid amides, total	53,646	44,489	70,590	1.59
Coconut oil acids, diethanolamine condensate, amine acid ratio = 2/1	1,398	1,416	2,385	1.94
Coconut oil acids, diethanolamine condensate, amine acid ratio = 1/1	11,279	11,313	14,907	1.32
Lauric acid, diethanolamine condensate, amine acid ratio = 1/1	6,621	6,667	7,940	1.19
Lauric and myristic acids, diethanolamine condensate, amine acid ratio = 1/1	670	872	1,985	\$2.28
Oleic acid, diethanolamine condensate, amine acid ratio = 2/1	73	85	189	2.21
Oleic acid, diethanolamine condensate, amine acid ratio = 1/1	111	63	182	2.88
Soybean oil acids, diethanolamine condensate, amine acid ratio = 1/1	-	1,069	2,115	1.98
Stearic acid, diethanolamine condensate amine acid ratio = 1/1	327	323	554	1.72
Tall oil acids diethanolamine condensate amine acid ratio = 2/1	548	(⁴)	(⁴)	(⁴)
Tall oil acids diethanolamine condensate amine acid ratio = 1/1	73	(⁴)	(⁴)	(⁴)
Tallow acids, diethanolamine condensate, amine acid ratio = 2/1	122	74	160	2.16
All other carboxylic acid amides	32,424	22,607	40,173	1.78
Carboxylic acid esters, total	155,949	119,417	226,239	1.89
Anhydrosorbitol monolaurate	3,590	2,627	5,215	1.99
Anhydrosorbitol mono-oleate	5,056	2,705	4,787	1.77
Anhydrosorbitol monostearate	8,553	7,063	11,437	1.62
Castor oil, ethoxylated	12,371	10,095	16,290	1.61
Diethylene glycol mono-oleate	405	469	832	1.77
Ethoxylated anhydrosorbitol monolaurate	3,337	2,968	7,626	2.57
Ethoxylated anhydrosorbitol mono-oleate	4,302	4,225	8,750	2.07
Ethoxylated anhydrosorbitol monostearate	4,480	4,442	9,656	2.17
Ethoxylated anhydrosorbitol tristearate	298	252	598	2.37
Ethoxylated sorbitol monostearate	88	85	201	2.37
Ethylene glycol distearate	1,849	1,954	3,235	1.66
Ethylene glycol monostearate	1,896	2,009	3,685	1.83
Glycerol diester of lard acids	453	(⁴)	(⁴)	(⁴)

See footnotes at end of table.

Table 12-1—Continued
Surface-active agents: U.S. production and sales, 1991

Surface-active agents	Production ¹	Sales ²		Average Unit value ³
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Nonionic-Continued				
Carboxylic acid esters-Continued				
Glycerol mono-oleate	4,454	4,305	7,257	1.69
Glycerol monostearate	4,392	3,868	7,368	1.91
Hydrogenated castor oil, ethoxylated	1,414	1,249	2,017	1.62
Lanolin, ethoxylated	505	400	946	2.36
Polyethylene glycol diester of tall oil acids	3,884	(⁴)	(⁴)	(⁴)
Polyethylene glycol dilaurate	823	758	1,168	1.54
Polyethylene glycol dioleate	1,662	659	1,304	1.98
Polyethylene glycol distearate	910	856	2,764	3.23
Polyethylene glycol monolaurate	3,786	3,584	5,560	1.55
Polyethylene glycol mono-oleate	2,383	1,956	3,067	1.57
Polyethylene glycol monopalmitate	111	(⁴)	(⁴)	(⁴)
Polyethylene glycol monopelargonate	1,855	(⁴)	(⁴)	(⁴)
Polyethylene glycol monostearate	3,113	3,039	5,278	1.74
Polyethylene glycol sesquiester of tall oil acids	(⁴)	473	1,103	2.33
Polyglycerol mono-oleate	330	304	945	3.11
Tall oil acids, ethoxylated	391	350	804	2.30
All other carboxylic acid esters	79,258	58,722	114,346	1.95
Ethers, total	622,562	594,684	735,787	1.24
Decyl alcohol, ethoxylated	3,711	3,579	6,009	1.68
Dinonylphenol, ethoxylated	1,705	1,402	2,768	1.97
Dodecyl alcohol, ethoxylated	1,146	961	2,379	2.48
Dodecylphenol, ethoxylated	2,700	2,753	5,385	1.96
Hexadecyl alcohol, ethoxylated	668	(⁴)	(⁴)	(⁴)
Isodecyl alcohol, ethoxylated	1,385	1,215	1,471	1.21
Mixed alcohols, ethoxylated	821	732	809	1.11
(Mixed alkyl)phenol-formaldehyde, alkoxyated	9,112	(⁴)	(⁴)	(⁴)
Mixed linear alcohols, ethoxylated	313,982	307,589	306,774	1.00
Mixed linear alcohols, ethoxylated and propoxylated	13,597	12,043	20,081	1.67
Nonylphenol, ethoxylated	178,422	176,105	195,210	1.11
Nonylphenol, ethoxylated and propoxylated	1,246	1,318	3,132	2.38
Nonylphenol-formaldehyde, alkoxyated	2,127	-	-	-
9-Octadecenyl alcohol, ethoxylated	1,484	1,431	1,872	1.31
Octadecyl alcohol ethoxylated	1,299	1,210	3,431	2.83
Oleyl alcohol, ethoxylated	728	701	1,973	2.82
Phenol, ethoxylated	380	(⁴)	(⁴)	(⁴)
Poly(mixed ethylene, propylene) glycol	4,312	1,829	3,880	2.12
Tridecyl alcohol, ethoxylated	3,775	3,048	4,741	1.56
Trimethylol propane, alkoxyated	1,433	1,433	3,266	2.28
All other ether ethers and thioethers	78,529	77,335	172,606	2.23
All other nonionic surface-active agents	9,457	5,958	13,131	2.20

¹ All quantities are given in terms of 100 percent organic surface-active ingredient.

² Sales include products sold as bulk surface-active agents only.

³ Calculated from unrounded figures.

⁴ Reported data were accepted in confidence and may not be published, or no data were reported.

⁵ Includes all other anionic surface-active agents.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 12-2
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Amphoteric surface-active agents:		
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium hydroxide, disodium salt	No	PCI.
1-Carboxyethyl-1-(2-hydroxyethyl)-2-heptyl-2-imidazolium hydroxide, sodium derivative, sodium salt	No	RDA.
N-[2-(Carboxymethylamino)ethyl]-N-(2-hydroxyethyl)-coconut oil amide, sodium salt	No	ETC.
Carboxymethyl-3-cocoamidopropyl dimethyl ammonium chloride, sodium salt	No	ENJ.
(Carboxymethyl)[3-(coconut oil amido)propyl]-dimethylammonium hydroxide, inner salt	Yes	BRD, PPG, RDA, SBC, SCP, SHX, WM, WTC, (?).
(Carboxymethyl)dodecyldimethylammonium hydroxide, inner salt	No	RDA.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolium hydroxide, sodium derivative, sodium salt	No	RDA.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-heptyl-2-imidazolium hydroxide, sodium derivative, sodium salt	No	RDA.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolium hydroxide, sodium derivative, sodium salt	No	RDA.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt	No	RDA.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt	No	RDA.
Cocoamidoamphoglycinate	No	MOA.
N-Cocoamido-propyl-N,N-dimethylamine oxide	No	MOA.
3-Cocoamidopropyl-2-hydroxy-3-sulfopropyl dimethyl ammonium hydroxide, inner salt	No	SHX.
Cocoamphocarboxyglycinate	No	MOA.
Cocoamphocarboxypropionate	No	MOA.
Cocoamphopropionate	No	MOA.
3-[(Coconut oil alkyl)amidoethylene-(2-hydroxyethyl)-amino]propionic acid	No	RDA.
N,N-di(hydroxyethyl)-n-carboxymethyl tallow ammonium quat, inner salt	No	SHX.
N,N-Dihydroxyethyl tallow glycinate	No	MOA.
N-Dodecyl-3-iminodipropionic acid, disodium salt	No	MOA, RDA, SCP.
N-Dodecyl-3-imino-dipropionic acid, monosodium salt	No	RDA.
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-nor-coconut oil fatty acids-2-imidazolium hydroxide	No	RDA.
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-oleyl-2-imidazolium hydroxide	No	RDA.
1-(2-Hydroxyethyl)-2-undecyl-3-carboxyethylimidazoline, sodium salt	No	RDA.
Isodecyloxypropyliminopropionic acid, monosodium salt	No	ENJ.
Isonanylamidocaproic acid, triethanolamine salt	No	RDA.
Isostearic amphopropionate	No	MOA.
Laurylamidopropyl betaine	No	MOA.
Laurylamphoglycinate	No	MOA.
(Mixed alkyl)sulfobetaine	Yes	BRD, MOA, SBC, WTC, (?).

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Amphoteric-Continued		
Oleamidopropyl betaine	No	RDA.
Oleyl betaine	No	RDA.
1-(Sodium carboxymethyl)-1-(sodium carboxymethyleneoxyethylene)-2-nor-(coconut oil fatty acids)-2-imidazolium lauryl sulfate	No	RDA.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt	No	MOA, RDA, SCP.
Tridecyloxypoly(ethyleneoxy)propionic acid, potassium salt	No	MRV.
All other acyclic amphoteric surface-active agents	No	BRD, DUP, ENJ, MOA, RDA, SCP.
All other cyclic amphoteric surface-active agents	No	BRD, SBC.
Anionic		
Carboxylic acids (and salts thereof):		
Amine salts of fatty, rosin, and tall oil acids:		
Coconut oil acids, diethanolamine salt	No	RDA, SHX.
Coconut oil acids, ethanolamine salt	No	SBP.
Coconut oil acids, triethanolamine salt	No	SCP.
Isostearic acid, mixed isopropanolamines salt	No	(²).
Isostearic acid, triethanolamine salt	No	PCI.
Oleic acid, diethanolamine salt	No	RDA.
Oleic acid, mixed isopropanolamine salt	No	UTC, (²).
Oleic acid, morpholine salt	No	(²).
Oleic acid, triethanolamine salt	No	(²).
Rosin acids, triethanolamine salt	No	CPC.
Stearic acid, triethanolamine salt	No	BRD, PCI, SBP.
Tall oil acids, diethanolamine salt (Condensate)	No	RDA, WPG.
(Tall oil fatty acids), triethanolamine salt	No	PNX, WPG.
Tallow acids, diethanolamine salt	No	SBP.
Tallow acids, triethanolamine salt	No	CPC, ENJ, SBP, (²).
All other amine salts of fatty, rosin, and tall oil acids	No	BRD, WVA, (²).
Carboxylic acids having amide, ester, or ether linkages:		
Butoxyethylene oxyacetic acid, sodium salt	No	RDA.
5(or 6)-Carboxy-4-hexyl-2-cyclohexene-1-octanoic acid, reaction products with castor oil	No	(²).
N-(Coconut oil acyl)sarcosine, sodium salt	No	ENJ, HMP.
N,N-Dimethyl capramide	No	PEL.
Dodecyloxypoly(ethyleneoxy)acetic acid, sodium salt	No	RDA.
N-Lauroylsarcosine, sodium salt	No	HMP.
N-(Mixed alkylsulfonyl)glycine, sodium salt	No	HMP.
Mixed(secondary linear alcohol)polyethylene propionic acid, sodium salt	No	CHP.
Naphthenic acid, ethoxylated	No	(²).
Nonylphenol poly(ethyleneoxy)acetic acid, sodium salt	No	BRI.
Poly(oxy-1,2-ethanediyl), w-(2-carboxyethoxy)-w'-hydroxy- α , α' -(iminodi-2, 1-ethanediyl) bis-, N-tallow alkyl derivs., potassium salt	No	RDA.
Tridecyloxypoly(ethyleneoxy)acetic acid, sodium salt	No	FTX, S.
carboxylic acids with amide, ester or ether linkage	No	BRD, PCI, WM.
Potassium and sodium salts of fatty, rosin, and tall oil acids:		
Alkoxy triacryl titanate	No	KPI.
5(or 6)carboxy-4-hexyl-2-cyclohexene-1-octanoic acid, potassium/sodium salts	No	(²).

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Carboxylic acids (and salts thereof)-Continued		
Potassium and sodium salts of fatty, rosin, and tall oil acids-Continued		
Castor oil acids, potassium salt	No	GRL.
Castor oil acids, sodium salt	No	DEX, LEA.
Coconut oil acids and oleic acid, potassium salt	No	HCL.
Coconut oil acids, potassium salt	Yes	CON, ESS, GRL, HEW, HNT, JTM, NMC, PG, PNK.
Coconut oil acids, sodium salt	Yes	AGP, BSW, CON, CP, ENJ, HEW, LEV, NMC, PG, PNK, (2).
Corn oil acids, potassium salt	No	HNT, MCP.
Corn oil acids, sodium salt	No	NMC.
Gluconic acid, potassium and sodium salts W/20% mix of sodium bisulfite-formaldehyde	No	HCL.
Heptanoic acid, potassium salt	No	(2).
Isostearic acid, isoproxy titanium salt	No	KPI.
Lauric acid, potassium salt	No	PG.
Mixed vegetable fatty acids, potassium salt	No	CRT, GRL.
Mixed wool grease and tall oil fatty acids	No	SLM.
Neoalkoxy, trineodecanoyl titanate	No	KPI.
Neoalkoxy, trineodecanoyl zirconate	No	KPI.
Oleic acid, potassium salt	No	BSW, PG, WBG, (2).
Oleic acid, sodium salt	Yes	BSW, HNT, NMC, SCP, WBG.
Olive oil acids, potassium salt	No	HNT.
Palm oil acids, sodium salt	No	AGP, BSW, CON, HEW, PG.
Rosin acids, potassium salt	No	ARZ, ECC, WVA, (2).
Rosin acids, sodium salt	No	ARZ, SLM, (2).
Stearic acid, ammonium salt	No	BSW.
Stearic acid, potassium salt	No	CON, SCP.
Stearic acid, sodium salt	No	HEW, JTM, LEV, PNK.
Tall oil acids, potassium salt	Yes	CON, DAN, ESS, FER, HNT, JTM, LEA, PNK, SBP, SCP, WVA, (2).
Tall oil acids, sodium salt	No	NMC, PG, WVA, (2), (2).
Tallow acids, potassium salt	No	CRT, PG.
Tallow acids, sodium salt	Yes	AGP, BSW, CON, CP, HEW, LEV, NMC, PG, (2).
Potassium and sodium salts of fatty rosin, and oil acids	No	ECC, GAF, PG, SCP, WVA.
Other carboxylic acids:		
All other carboxylic acids	No	ARZ, BRD, BRI, MOA, SCP, TX, USR, WVA.
Phosphoric and polyphosphoric acid esters (and salts thereof):		
Alcohols and phenols, alkoxyated and phosphated:		
Butyl alcohol, ethoxylated and phosphated	No	RDA.
Decyl alcohol, ethoxylated and phosphated	Yes	MCP, OC, RDA, VKR.
Dinonylphenol, ethoxylated and phosphated	Yes	CPC, ETC, GAF, RDA, WTC.
Dodecyl alcohol, ethoxylated and phosphated	No	CPC, ENJ, GAF, HCL, RDA, VKR.
Dodecylphenol, ethoxylated and phosphated	No	DEX, GAF, RDA.
2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated	No	CCC.
2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated, sodium salt	No	CCC.
2-Ethylhexanol, ethoxylated and phosphated	Yes	BRD, CPC, ETC, PPG, SCP, SDC, WTC.
2-Ethylhexanol, ethoxylated, phosphated, potassium salt	No	BRI.
Hexylalcohol, ethoxylated and phosphated	No	RDA.
Isopentyl alcohol, ethoxylated and phosphated	No	RDA.
Lauryl alcohol, ethoxylated and phosphated	No	RDA.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Phosphoric and polyphosphoric acid esters (and salts thereof)-Continued		
Alcohols and phenols, alkoxyated and phosphated -Continued		
Mixed linear alcohols, alkoxyated and phosphated, potassium salt	No	PCI.
Mixed linear alcohols, ethoxyated and phosphated	Yes	BAS, CRD, CRT, EFH, ENJ, ESS, ETC, FER, GAF, HCL, HRT, MOA, MRV, RDA, TMH, WTC, (2).
Mixed linear alcohols, ethoxyated and phosphated, sodium salt	No	CHP.
Nonylphenol, ethoxyated and phosphated	Yes	ARL, BRD, CPC, DEX, ESS, ETC, GAF, GDC,
Nonylphenol, ethoxyated and phosphated, diethanolamine salt	No	OMC.
Nonylphenol, ethoxyated and phosphated, sodium salt	No	WTC.
9-Octadecenyl alcohol, ethoxyated and phosphated	Yes	ETC, GAF, HCL, RDA, WTC.
Octylphenol, ethoxyated and phosphated	No	RDA, WTC.
Phenol, ethoxyated and phosphated	Yes	ETC, HDG, MOA, PPG, WTC.
Polyhydric alcohol, ethoxyated and phosphated	No	ETC, RDA.
Polypropylene glycol, phosphated	No	BAS, TMH.
Tridecyl alcohol, ethoxyated and phosphated, polyalkylene polyamine salt	No	(2).
Tridecyl alcohol, ethoxyated and phosphated	Yes	BRD, CPC, DAN, DEX, ETC, GAF, MIL, RDA, VKR, WTC.
Tridecyl alcohol ethoxyated and phosphated, potassium salt	No	DEX.
Tridecylphenol, ethoxyated and phosphated	No	TCC.
All other alcohols and phenols, alkoxyated and phosphated or polyphosphated	No	ETC, GAF, RDA, SCP, TCC.
Alcohols, phosphated or polyphosphated:		
Butyl phosphate	No	HRT, TCC.
Butyl phosphate, potassium salt	No	DUP.
Decyl and octyl phosphate	Yes	ENJ, ETC, HCL, SCP.
Decyl polyphosphate, sodium salt	No	CRD.
1,2 Ethanediol phosphate	No	(2).
Ethanol, 2,2',2''-nitritoltris-tris(dihydrogen phosphate)ester, disodium salt	No	(2).
Ethyl alcohol, phosphated, amine salt	No	UTC.
2-Ethylhexyl phosphate	Yes	CHP, ETC, FER, OC, OMC, RDA, SOS.
2-Ethylhexylphosphate, potassium salt	No	PCI.
2-Ethylhexyl phosphate, sodium salt	No	CHP, DAN, ENJ, PAT, S.
2-Ethylhexyl polyphosphate, sodium salt	No	DEX, GAF.
Hexadecyldiphosphate	No	(2).
Hexadecylmonophosphate	No	(2).
Hexyl phosphate	Yes	ETC, HCL, ICI.
Hexyl phosphate, potassium salt	No	ICI.
Isocetyl phosphate	No	BRI, QCP.
Isocetyl phosphate, potassium salt	No	QCP.
Isopropyl phosphate	No	TCC.
Methylbutyl pyrophosphate, ethylenedioxy titanium salt	No	KPI.
Mixed alkyl phoshate, sodium salt	No	(2).
Mixed alkyl phosphate	Yes	DUP, HCL, WTC, (2).
Mixed alkyl phosphate, alkylamine salt	No	(2).
Mixed alkyl phosphate, diethanolamine salt	No	DUP.
Mixed alkyl phosphate, potassium salt	No	QCP.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Phosphoric and polyphosphoric acid esters (and salts thereof)-Continued		
Alcohols, phosphated or polyphosphated-Continued		
Mixed alkyl phosphate, triethanolamine salt	No	(²).
Neoalkoxy tris(dioctyl) pyrophosphato zirconate	No	KPI.
Octyl diphosphate, oxoethylene titanium salt	No	KPI.
Octyl phosphate	No	ENJ, GAF.
Octyl phosphate, alkylamine salt	No	(²).
Octyl phosphate, isoproxy titanium salt	No	KPI.
Octyl phosphate neoalkoxy titanium salt	No	KPI.
Octyl polyphosphate	No	DEX.
Octyl polyphosphate, potassium salt	No	DEX.
Octyl pyrophosphate, ethylenedioxy titanium salt	No	KPI.
Octyl pyrophosphate, isoproxy titanium salt	No	KPI.
Octyl pyrophosphate neoalkoxy titanium salt	No	KPI.
Octyl pyrophosphate, oxoethylenedioxy titanium salt	No	KPI.
N-2(C-5 to C-17)alkylamido-N-carboxyethyl,N-2-hydroxyethyl, 3-amino-2-hydroxypropyl phosphate, disodium salt	No	MOA.
Tridecyl phosphate	No	HCL.
All other phosphated and polyphosphated alcohols	No	ETC, SOS.
Other phosphoric and polyphosphoric acid esters:		
Blend of fatty and phosphate esters	No	MIL.
Glycerol, ethoxylated and phosphated	No	(²).
Glycerol monoester of mixed fatty acids, phosphated	No	WTC.
Octadecylamine, ethoxylated and phosphated, sodium salt	No	GDC.
All other phosphoric and polyphosphoric acid esters	No	BRD, ENJ, SCP, WTC.
Sulfonic acids (and salts thereof):		
Alkylbenzenesulfonates:		
Dodecylbenzenesulfonates:		
Dodecylbenzenesulfonic acid	Yes	ENJ, JLP, LEV, NPR, PIL, SCP, STP, TEN, VST, WTC, (²).
Dodecylbenzenesulfonic acid, (Mixed alkyl)amine salt	No	JLP, TMH, (²).
Dodecylbenzenesulfonic acid, ammonium salt	No	(²), (²).
Dodecylbenzenesulfonic acid, calcium salt	Yes	HCL, ICI, RH, STP, TMH, WTC, (²).
Dodecylbenzenesulfonic acid, diethanolamine salt	No	RDA.
Dodecylbenzenesulfonic acid, DMAP salt	No	WTC.
Dodecylbenzenesulfonic acid, isopropanolamine salt	Yes	PIL.
Dodecylbenzenesulfonic acid, isopropylamine salt	No	ECC, ICI, KPI, NES, PPG, RDA, STP, WTC, (²).
Dodecylbenzenesulfonic acid, monoethanolamine salt	No	ESS, PCI.
Dodecylbenzenesulfonic acid, potassium salt	Yes	BRI, ESS, LEA, (²).
Dodecylbenzenesulfonic acid, sodium salt	Yes	BLA, BOE, BRI, CP, CPC, DOW, ECC, JTM, LEA, LEV, NES, PCI, PG, PIL, PNX, RDA, STP, TEN, VST, WTC, (²).
Dodecylbenzenesulfonic acid, triethanolamine salt	Yes	BRD, BRI, CCC, CPC, ESS, NES, PCI, PPG, RDA, SCP, STP, WTC, (²).

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Sulfonic acids (and salts thereof)-Continued		
Alkylbenzenesulfonates-Continued		
Dodecylbenzenesulfonates—Continued		
Other alkylbenzenesulfonates-Continued		
All other dodecylbenzene sulfonates	No	BAS, ENJ, PG.
Other alkylbenzenesulfonates:		
Benzene sulfonic acid	No	WTC.
2,4-Didodecylbenzenesulfonic acid, ammonium salt	No	(2).
Didodecylbenzenesulfonic acid, sodium salt	No	ENJ.
[Mono-(C ₁₀₋₁₁)alkyl derivatives]benzenesulfonic acid, ammonium salt	No	(2).
Neoalkoxy, dodecylbenzene-sulfonyl titanate	No	KPI.
Oxirane, methyl-, polymer with oxirane, didodecylbenzenesulfonate	No	(2).
Tridecylbenzenesulfonic acid	No	STP.
Tridecylbenzenesulfonic acid, sodium salt	Yes	BLA, CMT, CP, CPC, STP.
Benzene-, cumene-, toluene-, and xylenesulfonates:		
Cumenesulfonic acid, ammonium salt	No	NES, STP.
Cumenesulfonic acid, sodium salt	No	NES, STP.
Toluenesulfonic acid, potassium salt	No	NES.
Toluenesulfonic acid, sodium salt	No	NES, PG, VST.
Toluene xylene sulfonic acid	No	WTC.
Xylenesulfonic acid, ammonium salt	No	NES, STP.
Xylenesulfonic acid, potassium salt	No	DUP.
Xylenesulfonic acid, sodium salt	Yes	ICI, NES, PIL, SDC, STP, WTC.
All other benzene-, cumene-, toluene-, and xylenesulfonates	No	SCP.
Ligninsulfonates:		
Ligninsulfonic acid, aluminum salt	No	DUP.
Ligninsulfonic acid, ammonium salt	No	MAR, PSP, RAY.
Ligninsulfonic acid, calcium salt	Yes	FPC, MAR, PSP.
Ligninsulfonic acid, chromium salt	No	PSP, RAY.
Ligninsulfonic acid, iron salt	No	MAR, PSP.
Ligninsulfonic acid, manganese salt	No	MAR.
Ligninsulfonic acid, mixed chromium and iron salts	No	PSP.
Ligninsulfonic acid, mixed salt	No	LKY.
Ligninsulfonic acid, sodium salt	Yes	ENJ, MAR, PSP, RAY, WVA.
Ligninsulfonic acid, zinc salt	No	MAR, PSP.
All other ligninsulfates	No	ETC.
Naphthalenesulfonates:		
Butylnaphthalenesulfonic acid	No	DUP.
Butylnaphthalenesulfonic acid, sodium salt	No	ECC, SCP.
Di(C5-C6 alkyl)naphthalenesulfonic acid	No	(2).
Diisopropylnaphthalenesulfonic acid, sodium salt	No	DUP, SCP.
Methylnaphthalenesulfonic acid, sodium salt	No	CPC, SCP.
Naphthalenesulfonic acid, bis(1-methylethyl)-, compounded with cyclohexanamine (1:1)	No	(2).
Naphthalene sulfonic acid, sodium salt, formaldehyde condensate	No	ICI.
All other naphthalenesulfonates	No	HAL, SCP, WTC.
Sulfonic acids having amide linkages:		
Sulfosuccinamic acid derivatives:		
N-(Coconut oil alkyl)sulfosuccinamic and disodium salt	No	WPG.
N-(1,2-Dicarboxyethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt	No	ACY, DUP, MOA.

See footnotes at end of table.

Table 12-2—Continued

Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Sulfonic acids (and salts thereof)-Continued		
Sulfonic acids having amide linkages-Cont.		
Sulfosuccinamic acid derivatives-Cont.		
N-Octadecylsulfosuccinamic acid, disodium salt	No	ACY, HIP.
Oleamidossulfosuccinamic acid, disodium salt	No	SBC.
N-(Oleoyloxyisopropyl)sulfosuccinamic acid	No	WTC.
All other sulfosuccinamic acid derivatives	No	DUP, SCP.
Taurine derivatives:		
N-(Coconut oil acyl)-N-methyltaurine, sodium salt	No	FTX, RDA.
N-Methyl-N-oleoyltaurine, sodium salt	No	CPC, FTX, HCL, RDA.
N-Methyl-N-(tall oil acyl)taurine, sodium salt	No	CCC, DUP, FTX, RDA, WVA.
All other sulfonic acids having amide linkages:		
All other sulfonic acids having amide linkages	No	HCL.
Sulfonic acids having ester or ether linkages:		
Sulfosuccinic acid esters:		
Sulfosuccinic acid, bis(diisobutyl)ester, amidodisodium salt	No	MOA.
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl)-ester, sodium salt	No	MOA, NSC.
Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt	No	ACY, AMU, APX, BRI, CCC, CHP, ECC, ENJ, FTX, HCL, MCP, MOA, WPG, WTC.
Sulfosuccinic acid, dihexyl ester, sodium salt	No	ACY, FTX, MOA.
Sulfosuccinic acid, diisodecyl ester, sodium salt	No	FTX.
Sulfosuccinic acid, diisooctyl ester, sodium salt	No	ARI, MIL, SCP, SHX.
Sulfosuccinic acid, dioctyl ester, sodium salt	No	MOA.
Sulfosuccinic acid, dipentyl ester, sodium salt	No	ACY.
Sulfosuccinic acid, ditridecyl ester, sodium salt	No	ACY, MOA.
Sulfosuccinic acid, (lauryl polyethylene glycol ether) ester, disodium salt	No	SHX.
Sulfosuccinic acid, (coconut oil alkyl)-iminoisopropanol half-ester, sodium salt	No	MOA.
Sulfosuccinic acid, lauramidomonoethanolamine, disodium salt	No	RDA.
Sulfosuccinic acid, monolauareth ester, disodium salt	No	MOA, RDA.
Sulfosuccinic acid myristyl ester disodium monoethanolamine salt	No	WTC.
Sulfosuccinic acid, oleamidopolyethyleneglycol, disodium salt	No	MOA.
All other sulfosuccinic acid esters	No	FTX, MOA, RDA, SCP, WTC.
All other sulfonic acids having ester or ether linkages:		
Coconut oil acids, 2-sulfoethyl ester, sodium salt	No	FTX, LEV.
Dodecyldiphenyloxydisulfonic acid	No	(?).
Dodecyldiphenyloxydisulfonic acid, disodium salt	No	PIL, RDA, (?).
n-Octylphenol, ethoxylated and sulfonated, sodium salt	No	APX.
All other sulfonic acid with ester linkages	No	GAF.
All other sulfonic acids with ether linkages	No	PG, PPG.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Sulfonic acids (and salts thereof)-Continued		
Sulfonic acids having ester or ether linkages-Cont.		
Other sulfonic acids:		
Allyl sulfonate, sodium salt	No	ARD.
Mixed alkane sulfonic acid, sodium salt	No	STP, WTC.
Mixed linear olefin sulfonate	No	RDA, STP, WVA.
n-Octanesulfonic acid, sodium salt	No	(²).
Oleyoxyethyldiamide oxypropanol sulfonic acid	No	S.
Petroleumsulfonic acid, water soluble (Acid layer), sodium salt	No	PIL.
All other sulfonic acids	No	CLU, HAL.
Sulfuric acid esters (and salts thereof):		
Acids, amides, and esters, sulfated:		
Coconut oil acids-ethanolamine salt, sulfated, potassium salt	No	ENJ.
Mixed alkyl phenol sulfate, ethoxylated, triethanolamine salt	No	MIL.
Carboxylic acid esters (except natural fats and oils), sulfated:		
Esters of sulfated oleic acid:		
Butyl oleate, sulfated, sodium salt	Yes	ICI, MCP, MRV, NSC.
Isopropyl oleate, sulfated, sodium salt	No	DEX.
Methyl oleate, sulfated, sodium salt	No	ICI.
Oleic acid, sulfated	No	ACT.
Propyl oleate, sulfated, sodium salt	No	MRV.
All other esters of sulfated oleic acid	No	SCP.
Other sulfated esters:		
Tall oil acids, sulfated, sodium salt	No	ICI.
Alcohols, sulfated:		
Decyl and octyl sulfate, sodium salt	No	DUP, STP, WTC.
Decyl sulfate, sodium salt	No	ARI, SCP.
Dodecylsulfate salts:		
Dodecyl sulfate, ammonium salt	Yes	BRD, LEV, RDA, SCP, STP, TNI.
Dodecyl sulfate, diethanolamine salt	No	BRD, DUP, STP.
Dodecyl sulfate, N,N-diethylcyclohexylamine salt	No	DUP.
Dodecyl sulfate, magnesium salt	Yes	BRD, RDA, STP.
Dodecyl sulfate, sodium salt	Yes	BRD, DUP, RDA, SCP, STP.
Dodecyl sulfate, triethanolamine salt	Yes	BRD, RDA, SCP, TNI.
3,9-Diethyl-6-tridecyl sulfate, sodium salt	No	NCC.
2-Ethylhexyl sulfate, sodium salt	Yes	NCC, PCI, RDA, SCP, WTC.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	No	NCC.
Hexadecyl sulfate, sodium salt	No	RDA, STP.
Hexyl sulfate, potassium salt	No	DEX.
All other linear alcohols, sulfated	No	BRD, PG, RDA, SCP.
Mixed linear alcohols, sulfated, ammonium salt	No	CP, S, SCP, WTC, (²).
Mixed linear alcohols, sulfated, diethanolamine salt	No	WTC.
Mixed linear alcohols, sulfated, sodium salt	No	CP, DUP, PG, SCP, WTC.
Mixed linear alcohols, sulfated, triethanolamine salt	No	SCP, WTC.
Octyl sulfate, sodium salt	Yes	ARC, DUP, RDA, SCP, WTC.
Oleyl sulfate, sodium salt	No	DUP, RDA.
Oxoalcohol bottoms, sulfated, sodium salt	No	WVA.
Tridecyl sulfate, sodium salt	No	RDA.
All other alcohols and phenols, sulfated	No	BRD, RDA.

See footnotes at end of table.

Table 12-2—Continued
 Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Sulfuric acid esters (and salts thereof)-Continued		
Alcohols, sulfated-Continued		
Ethers, sulfated:		
Alkylphenols, ethoxylated and sulfated:		
1-Naphthol, ethoxylated and sulfated, free acid . . .	No	SCP.
Nonylphenol, ethoxylated and sulfated, ammonium salt	No	GAF, RDA, STP.
Octylphenol, ethoxylated and sulfated, sodium salt	No	RDA, STP.
All other sulfated cyclic ethers	No	BRD, RDA, SCP, WTC.
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	Yes	BRD, MOA, RDA, SCP, TNI.
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	Yes	BRD, RDA, SCP.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt	No	(?).
2-Hexyloxypropyl sulfate, sodium salt	No	(?).
Isobutanol, ethoxylated and sulfated, ammonium salt	No	(?).
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	No	PG, RDA, SCP, STP, VST, WTC, (?).
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	Yes	DUP, PG, PIL, RDA, SCP, STP, VST, WTC, WVA.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt	No	BRD, RDA.
All other sulfated ethers	No	BRD.
Natural fats and oils, sulfated:		
Castor oil, sulfated, sodium salt	Yes	ACT, ACY, ARI, ARL, CRT, DEX, HIP, LEA, MRV, S, SCP, SLM, WHW.
Coconut oil, sulfated, sodium salt	No	WHW.
Cod oil, sulfated, sodium salt	No	ARI.
Cod oil, sulfated, sodium salt	No	WHW.
Grease, other than wool, sulfated, sodium salt	No	WHW.
Herring oil, sulfated	No	SLM.
Herring oil, sulfated, sodium salt	No	ARI, SLM, WHW.
Hydrogenated marine glycerides, sulfated, sodium salt	No	CRT.
Lard, sulfated, sodium salt	No	CIN, CRT, DUP, WHW.
Mixed animal and vegetable oil, sulfated, sodium salt	No	SLM.
Mixed fish oils, sulfated, ammonium salt	No	CIN.
Mixed fish oils, sulfated, sodium salt	No	CRT, SLM, WHW.
Mixed vegetable oils, sulfated, sodium salt	No	CRT.
Mixed vegetable oils, sulfated, sodium salt	No	CPC.
Neat's foot oil, sulfated, sodium salt	No	ARI, WHW.
Soybean oil, sulfated, sodium salt	No	ACT, SCP, WHW.
All other sulfated animal fats and oils	No	WHW.
All other sulfated fish and marine fat oils	No	WHW.
Synthetic fatty alcohol ester, sulfated, sodium salt	No	SLM.
Tall oil, sulfated, ammonia salt	No	CIN.
Tall oil, sulfated, sodium salt	Yes	ACT, ARI, CIN, CRT, WHW, WTC.
Tallow, sulfated, sodium salt	Yes	ARI, CCC, CRT, NSC, WHW.
All other vegetable oils, sulfated	No	CRT, SCP.
All other sulfuric acid esters	No	BRD, SCP.
Other anionic surface-active agents:		
Lignin, sodium salt	No	WVA.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Anionic-Continued		
Sulfuric acid ester (and salt thereof)-Continued		
Mixed alpha-olefins and vegetable	No	SLM.
Mixed linear alcohols, ethoxylated and carbonated, sodium salt	No	S.
Nonylphenol, ethoxylated and carbonated, sodium salt	No	WTC.
Stearoyl isolactylate	No	BFP.
Stearoyl iso-lactylate, sodium salt	No	BFP.
Stearoyl-2 lactylate, calcium salt	No	BFP.
Stearoyl lactylate, mixed sodium and calcium salt	No	BFP.
Stearoyl lactylate, sodium salt	No	BFP.
Tridecyl alcohol, ethoxylated and carbonated, sodium salt	No	S.
All other anionic surface-active agents	No	DUP, MOA, WVA.
Cationic surface-active agents:		
Amine oxides and oxygen-containing amines (except those having amide linkages):		
Acyclic:		
3-(C12-15 alkyloxy)-1-propanamine	No	ENJ.
Amides from C-18 unsaturated fatty acid dimers and polyhexamethylenepolyamines, ethoxylated	No	(2).
Bis-(2-hydroxyethyl)isodecyloxypropylamine oxide	No	ENJ.
N,N-Bis(2-hydroxyethyl)octadecylamine	No	ARC, SHX.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine	Yes	ARC, ENJ, HCL, JTO, SHX.
Cocoamidopropyl dimethyl amine	No	(2).
(Coconut oil alkyl)amine, ethoxylated	Yes	ARC, BAS, ENJ, ETC, ICI, PPG, SHX, SVC, WTC, (2).
(Coconut oil alkyl)amine, ethoxylated, acetate	No	PG, (2).
Coconut oil(alkyl)amine, ethoxylated and phosphated	No	(2).
Diethylenetriamine, alkoxyated	No	(2).
N,N-Dimethyldodecylamine oxide	No	(2).
N,N-Dimethyldodecylamine oxide	No	BRD, PPG, SCP.
N,N-Dimethylhexadecylamine oxide	No	ARC, PPG.
N,N-Dimethyl(mixed alkyl)amine oxide	No	S.
1,2-Ethanediamine, N-(2-aminoethyl)-, ethoxylated and propoxylated	No	(2).
Ethylenediamine, alkoxyated	No	(2).
Ethylene diamine ethoxylated	No	KPI.
Hexyloxypropyl amine	No	DUP, ENJ.
(Hydrogenated tallow alkyl)amine, ethoxylated	No	ENJ, ETC, SHX, WTC.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)-ethylenediamine	No	(2).
2-Imidazoline-1-(2-aminoethyl)-2-(tall oil alkyl), ethoxylated	No	(2).
Isodecyloxypropylamine	No	ENJ.
Isodecyloxypropylamine, ethoxylated	No	ENJ.
3-(3-Isodecyloxy)propylaminopropyl amine	No	SHX.
N-Isodecyloxypropyl trimethylene diamine	No	ENJ.
Isopropoxy-tris(2-ethylenediamino)ethyl titanate	No	KPI.
Isotridecyloxypropylamine	No	ENJ.
N-Isotridecyloxypropyl trimethylene diamine	No	ENJ.
3-(Mixed alkoxy)propylamine, ethoxylated oxides	No	SHX.
3-(3-Mixed alkoxy)propylaminopropyl amine	No	SHX.
(Mixed alkyl)amine, ethoxylated	Yes	BRD, ICI.
Nealkoxy, tri(m-amino)-phenyl titanate	No	KPI.
Nealkoxy, tris(m-amino) phenyl zirconate	No	KPI.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Amine oxides and oxygen-containing amines (except those having amide linkages)-Continued		
Acyclic-Continued		
Neoalkoxy, tris (ethylene diamino) zirconate	No	KPI.
(9-Octadecenyl)amine, ethoxylated	Yes	ARC, ETC, GAF, RDA, SHX, WTC, (?).
Octadecylamine, ethoxylated	No	ARC, ETC, WTC.
Octyldimethylamine oxide	No	HNT.
Polyalkylene polyamine, ethoxylated	No	BAS.
(Soybean oil alkyl)amine, ethoxylated	Yes	ARC, ENJ, ETC, JTO, RDA, SHX, SVC, (?).
(Tallow alkyl)amine, ethoxylated	Yes	ARC, BAS, ENJ, HCL, PPG, S, SCP, SHX, WTC, (?).
(Tallow alkyl)amine, propoxylated	No	SHX.
N-(Tallow alkyl)trimethylenediamine, ethoxylated	Yes	ARC, ENJ, ETC, JTO, (?).
[Tallow ethyl alkyl]amine, ethoxylated, sulfate	No	RDA.
N,N,N',N'-Tetrakis(2-Hydroxyethyl)ethylenediamine, propoxylated	No	HCL.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, propoxylated and ethoxylated	No	BAS, ETC.
3-(3-Tridecyloxy)propylaminopropyl amine	No	SHX.
Tridecyl-3-(trimethyleneamine), ethoxylated	No	JTO.
Triethanolamine, ethoxylated	No	MIL, RSA, SCP.
Triethanolamine phosphate ester	No	(?).
Amine oxides and oxygen-containing amines (except those with amide linkages), acyclic	No	ARC, BRD, ENJ, ETC, MOA, PG, RDA, SCP, SHX, TNA, (?).
Cyclic:		
Aniline, ethoxylated	No	MIL.
2-Butenedioic acid-(ε)-diamine - 1-(2-aminoethyl)-2-(tall oil alkyl)-2-imidazoline condensate	No	(?).
2,5-Dimethoxyaniline, ethoxylated	No	MIL.
N-Hexadecylmorpholine	No	BRD.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine	No	BRD, RDA.
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	Yes	MOA, RDA, SHX, VKR, WTC.
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline	Yes	BRD, FTX, MOA.
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	No	HDG, MOA, RDA, (?).
1-(2-Hydroxyethyl)-2-(tall oil alkyl)imidazoline, fatty acid salt	No	(?).
Lignin amine	No	WVA.
Rosin amine, ethoxylated	No	HPC, (?).
Tall oil fatty acids, compound with polyethylenepolyamine-tall oil fatty acid reaction products	No	(?).
All other amine oxides and oxygen-containing amines (except those having amine linkages), cyclic	No	BRD, RDA, (?).
Amines and amine oxides having amide linkages:		
Carboxylic acid - diamine and polyamine condensates:		
Acetic acid, amides with polyalkylene polyamines, salt	No	(?).
Amides from C-18	No	(?).
Amides from C-18 unsaturated fatty acid dimers and polyhexamethylenepolyamines	No	(?).
2-Butenediamide, (E)-, N,n'-bis[2-(4,5-dihydro-2-nortall oil alkyl)-1H-imidazol-1-yl]ethyl]-derivatives	No	(?).
Caprylic acid tetraethylene-pentamine condensate	No	ICI.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Amines and amine oxides having amide linkages-Continued		
Cyclic-Continued		
Coconut oil acids-N,N-dimethyltrimethylenediamine condensate	No	ENJ, SCP.
C-18 Fatty acids, unsaturated compounds, with polyethylene-polyamines-tall oil fatty acid reaction products	No	(²).
1H-Imidazole-1-ethanamine, 4,5-dihydro-, 2-nor-tall-oil alkyl derivatives, acetates	No	(²).
N,N'-(1-iminodi-2,1-ethanediy)bis-tall oil fatty amides	No	(²).
Mixed fatty acids-polyalkylenepolyamine condensate	No	JTO.
Naphthenic acids-polyalkylene polyamine condensate	No	(²).
Naphthenic acids-tall oil fatty acids-polyalkylene polyamine condensate	No	(²).
2-Nor-tall oil alkyl-1-tall oil amido-ethyl imidazoline	No	SHX.
Oleic acid-1-(2-aminoethyl)piperazine condensate	No	ARC.
Oleic acid-N,N-dimethyltrimethylenediamine condensate	No	CCW.
Pelargonic acid-tetraethylenepentamine condensate	No	ETC, ICI, OC.
Stearic acid-diethylenetriamine condensate	No	ARC, OC, RDA, S, SCP, SQA.
Stearic acid-diethylenetriamine condensate, ethyl sulfate	No	GDC.
Stearic acid - ethylenediamine condensate	No	CLD, SOS.
Stearic acid mixed amine condensate	No	HCL.
Stearic acid-tetraethylenepentamine condensate	No	(²).
Tall oil acids/aminoethylpiperazine condensate	No	ENJ.
Tall oil acids-diethylenetriamine condensate	No	SCP, WTC, WVA.
Tall oil acids-polyalkylenepolyamine condensate	No	FER, JTO, WVA, (²).
Tall oil acids-polyalkylene polyamine condensate, salts, with dodecylbenzene sulfonic acid and/or tall oil fatty acids	No	(²).
Tall oil fatty acids, reaction products with diethylenetriamine acetates	No	(²).
Tallow fatty acids-aminoethyl ethanolamine condensates	No	OC.
All other carboxylic acid-diamine and polyamine condensates	No	ARI, BRD, RDA, WVA, (²).
Carboxylic acid - diamine and polyamine condensates, alkoxyated:		
Mixed fatty acids-alkylenediamine condensate, polyethoxylate	No	WTC.
Stearic acid-ethylenediamine condensate, monoethoxylated	No	APC, DEX, GDC, ICI.
All other carboxylic acid-diamine and polyamine condensates alkoxyated	No	SCP, TMH.
Other amines and amine oxides having amide linkages:		
3-Cocoamido-N,N-dimethyl propylamine oxide	No	(²).
Cocoamidopropyl dimethyl amine oxide	No	PAT, SBC.
N,N'-(Di-tall oil acid)amidoethylamine	No	(²).
1-(2-Hydrogenated tallow amidoethyl)-2-nor(hydrogenated tallow)-2-imidazoline	No	SHX.
3-Lauramido-N,N-dimethylpropylamine oxide	No	DAN, SQA.
Stearamidoethyldiethylamine	No	S.

See footnotes at end of table.

Table 12-2—Continued

Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Other amines and amine oxides having amid linkages		
-Continued		
Stearamidoethylethanolamine acetate	No	S.
Stearic acid-N-(2-cyanoethyl)diethylenetriamine condensate (Amine/acid ratio = 1/2)	No	ICI.
Stearic acid, diethanolamine condensate, methyl sulfate	No	DUP, PCI.
Stearylamidopropyldimethyl amine	No	RDA.
Amines, not containing oxygen (and salts thereof):		
Amine salts:		
(Coconut oil alkyl)amine acetate	No	ENJ, (2).
N,N-Dimethyl-N-alkylamine phosphate	No	(2).
(Hydrogenated tallow alkyl)amine acetate	No	ARC.
Hydrogenated tallow diethylenetriamine condensate	No	CRT.
(Mixed alkyl)amine phosphate	No	(2).
Octadecylamine acetate	No	ARC.
(Tallow alkyl)amine acetate	No	ARC, SHX.
N-(Tallow alkyl)trimethylenediamine acetate	No	ARC.
N-(Tallow alkyl)trimethylenediamine oleate	No	ARC.
All other amine salts (Not containing oxygen)	No	ARC, JTO.
Diamines and polyamines:		
Imidazoline derivatives:		
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline	No	WTC, (2).
N-(Coconut oil alkyl)trimethylenediamine	No	ARC, JTO, SHX.
N-(Dimeracidalkyl)trimethylenediamine	No	ENO.
Dimer diamine	No	SHX.
N-(Mixed alkyl)polyethylenepolyamine	No	CCW.
Mustard seed oil fatty acids diethylenetriamine, phosphate salt	No	CRT.
N-(9-Octadecenyl)trimethylenediamine	No	ARC, JTO, SHX, WTC.
Polyalicyclic polyamines and salts and quats	No	(2).
1-Propanamine, 3-(C ₁₂ -C ₁₅ alkoxy derivatives)	No	SHX.
N-(Soybean oil alkyl)trimethylenediamine	No	ENO, WTC.
Stearamidoethyl-2-heptadecyl imidazoline	No	ICI.
N-(Tallow alkyl)dipropylenetriamine	No	ARC, ENJ.
N-(Tallow alkyl)trimethylenediamine	No	ARC, ENJ, JTO, SHX.
All other diamines and polyamines	No	ARC, ENO, JTO, (2).
Primary monoamines:		
Arachidylbehenylalkyl amine	No	ENO.
(Coconut oil alkyl)amine	Yes	ARC, ENO, JTO, SHX, WTC.
Dimeracidalkyl amine	No	ENO, WTC.
Dodecylamine	No	ARC, JTO, SHX.
[Erucyl alkyl]amine	No	ENO.
Hexadecylamine	No	ARC, ENO, WTC.
(Hydrogenated tallow alkyl)amine	Yes	ARC, ENO, JTO, SHX, WTC.
(Mixed alkyl)amine	Yes	ARC, JTO, SHX.
9-Octadecenylamine	Yes	ARC, ENO, JTO, SHX, WTC.
Octadecylamine	Yes	ARC, ENO, JTO.
(Soybean oil alkyl)amine	No	ARC, ENO, JTO, WTC.
(Tallow alkyl)amine	No	ENJ, ENO, JTO, SHX.
All other primary monoamines	No	ARC, WTC.
Secondary and tertiary monoamines:		
Bis(coconut oil alkyl)amine	No	ARC.
Bis(hydrogenated tallow alkyl)amine	No	ARC, ENO, WTC.
N,N-Didecylmethylamine	No	SHX.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Amines not containing oxygen (and salt thereof)		
-Continued		
Secondary and tertiary monoamines-Continued		
N,N-Dimethyl(coconut oil alkyl)amine	No	ARC, EFH, JTO.
N,N-Dimethyldodecylamine	No	ARC, SHX, TNA.
N,N-Dimethylhexadecylamine	Yes	ARC, BRD, SHX, TNA.
N,N-Dimethyl(hydrogenated tallow alkyl)amine	No	ARC, CPC.
N,N-Dimethyl(mixed alkyl)amine	No	ARC, TNA.
N,N-Dimethyl(9-octadecenyl-alkyl)amine	No	ENO.
N,N-Dimethyloctadecylamine	No	WTC.
N,N-Dimethyl(octadecyl)amine	Yes	ARC, ENO, SHX, TNA, WTC.
N,N-Dimethyl(soybean oil alkyl)amine	No	ARC, JTO.
N,N-Dimethyltetradecylamine	No	SHX, TNA.
N-Methylbis(coconut oil alkyl)amine	Yes	ARC, JTO, SHX.
N-Methylbis(hydrogenated tallow alkyl)amine	No	ARC, SHX.
N-Methyldioctadecylamine	No	ARC.
Triisodecylamine	No	SCP.
Trilaurylamine	No	SCP.
Tri(mixed alkyl)amine	No	SHX.
Trioctylamine	No	SCP, SHX.
All other secondary and tertiary monoamines	No	ARC, ENO, TNA, WTC.
Oxygen-containing quaternary ammonium salts:		
β-Alanine-N-(2-hydroxyethyl)-N-2,1-oxococoyl amino ethyl, sodium salt	No	SHX.
2-(C ₁₃₋₁₇ Alkyl)-1-(C ₁₄₋₁₈ amidoethyl)(4,5-dimethyl-3-methyl)imidazolium, methyl sulfate	No	DOW, SVC.
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2-hydroxyethyl)ammonium ethyl sulfate	No	OC.
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)ammonium chloride	No	(?).
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolium chloride	No	HDG.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazolium chloride	No	EFH.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	No	(?).
Benzyl(tallow alkyl)bis(2-hydroxyethyl)ammonium chloride	No	DUP.
Bis(N-amidopropyl)-N,N-dimethyl-N-ethylammonium ethyl sulfate, dimer acid	No	SBC.
Bis(N,N1-ethyl(stearic/arachidic/behenic)amide)-cyanoethyl ethylammonium ethosulfate	No	PCI.
Bis(2-hydroxyethyl, ethoxylated)-methyloctadecylammonium chloride	No	SHX.
Bis-2-hydroxyethyl-hydrogenated tallow-ethyl sulfate	No	ICI.
Bis-2-hydroxyethyl-octyl-methyl-p-toluene sulfonate	No	HXL.
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)-methylammonium chloride	No	ENJ, SHX.
(Coconut oil alkyl)-bis-(hydroxyethyl)methyl ethoxylated mono-(2-carboxyethyl)ether methyl sulfate, potassium salt	No	SVC.
Distearyl dimethyl ammonium methosulfate	No	HXL.
Ethoxylated(hydrogenated tallow amine), methyl ammonium chloride	No	ENJ.
Ethoxylated, quaternized(C12-18 alkyl) oxypropyl trimethylene diamine	No	ENJ.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Oxygen-containing quaternary ammonium salts-Continued		
Ethoxylated, quaternized reaction product of formaldehyde and tallow diamine	No	ENJ.
N-Ethyl-N,N-bis(polyoxyethylene)tallow ammonium ethyl sulfate	No	SHX.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	No	ICI, SHX.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate	No	BRD, ICI.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate	No	ICI.
α-Gluconamidopropyl dimethyl-2-hydroxyethyl ammonium chloride	No	VND.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium nitrate	No	ACY.
Hydroxyethyl-2-undecyl-2,3-imidazoline	No	MOA.
N-2-hydroxy propyl-n-methyl-N,n-bis[tallow amide ethyl] ammonium ethyl sulfate	No	SHX.
Imidazolium, 1-carboxymethyl-4,5-dihydro-1-(hydroxyethyl)-2-nor(cocoalkyl), hydroxides, monosodium salts	No	SHX.
(3-Lauramidopropyl)trimethylammonium methyl sulfate	No	ACY.
Methyl, bis-(2-hydroxyethyl) hydrogenated tallow alkylammonium chloride	No	ENJ.
Methyl, bis-(2-hydroxyethyl) isodecyloxypropylammonium chloride	No	ENJ.
Methyl, bis-(2-hydroxyethyl) isotridecyloxypropylammonium chloride	No	ENJ.
Methyl, bis-(2-hydroxyethyl) soyaalkylammonium chloride	No	ENJ.
Methyl-ditallowimidazolium methosulfate	No	SVC.
1-Methyl-2-(8-heptadecenyl)-1-(9-octadecenyl)amido ethyl	No	SHX.
Methyl(hydrogenated tallow alkyl)diethylamine condensate, polyethoxylated, methyl sulfate	No	SVC.
1-methyl-2-nor-tallow-1-[2-tallow amidoethyl]-imidazoliummethyl sulfate	No	SHX.
N-Methyl-N-polyoxyethylene-N,N-bis(hydrogenated tallow amidoethyl)ammonium	No	SHX.
N-Methyl-N-polyoxyethylene-N,N-bis(tallow amidoethyl)	No	SHX.
Methyltallowdiethylenetriamine condensate, polyethoxylated, methyl sulfate	No	SVC.
Methyltallowdiethylenetriamine condensate, polypropoxylated, methyl sulfate	No	SVC.
Mixed(coco and soya fatty acids), reaction products with chloromethane and diethylenetriamine, ethoxylated, quaternized	No	ENJ.
Mixed fatty acid amide with diethylene triamine/ethyl sulfate	No	EFH.
N-Octadecyl-N,N-di(2-hydroxyethyl)-N-methylammonium chloride	No	SHX.
Phosphonic acid, [1,2-ethanedylbis[nitriobis(methylene)]]tetrakis-, ammonium salt	No	(?).

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Oxygen-containing quaternary ammonium salts—Continued		
Quaternary ammonium salts—Continued		
Phosphonic acid, [nitrilotris(methylene)]-tris-, ammonium salt	No	(?)
Phosphonic acid, [nitrilotris(methylene)]-tris-, sodium salt	No	(?)
Polyethoxy methylstearyl ammonium chloride	No	WTC.
Poly(oxyethanyl, 2-diyl)-di-[2-[2-bis(2-aminoethyl)-methylamiummethyl]-	No	SVC.
Polypropoxy diethylmethyl ammonium chloride	No	WTC.
1-Propanaminium, N-ethyl-N,N-dimethyl-3-[(1-oxooctadecyl)amino]-, ethyl sulfate	No	SBC.
Soya fatty acids, reaction products with chloromethane and diethylenetriamine, ethoxylated, quaternized	No	ENJ.
Soya fatty acids, reaction products with chloromethane and diethylenetriamine, propoxylated, quaternized	No	ENJ.
Stearamidopropyldimethylcetylammonium tosylate and propylene glycol	No	VND.
Stearylamidopropyl dimethyl myristyl acetate ammonium chloride	No	VND.
Tallow alkyl)ethoxylated, ethyl sulfate	No	SVC.
Tallow amine, ethoxylated, quaternary ammonium salt	No	DUP, VND.
All other oxygen-containing quaternary ammonium salts (except those having amide linkages)	No	ARC, BRD, ENJ, ETC, SBC, SCP, SDC, SHX, WTC, (?), (?).
All other quaternary ammonium salts having amide linkages	No	BRD, ENJ, MIL.
Quaternary ammonium salts, not containing oxygen:		
Acyclic:		
Bis(coconut oil alkyl)dimethylammonium chloride	Yes	ARC, ENJ, JTO, PPG, SHX.
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	Yes	ARC, ENO, SHX, WTC.
Bis(hydrogenated tallow alkyl)-dimethylammoniummethyl sulfate	No	ARC, SHX.
Bis(tallow alkyl)dimethylammonium chloride	No	SHX.
N-(Cocoamidopropyl; N,N-acetic acid) ammonium salt	No	(?)
Cocodimethyl ethyl ammonium ethyl sulfate	No	SHX.
N-[(Coconut oil alkyl)amino]butyric acid, sodium salt	No	ARC, JTO, PPG, SHX.
Didecyldimethylammonium chloride	No	BRD, HNT.
Dimethyldi(C12-18)ammonium chloride (mixed straight and branched chains)	No	SHX.
Dimethyldioctadecylammonium chloride	No	SHX.
Dodecyltrimethylammonium bromide	No	RSA.
Dodecyltrimethylammonium chloride	No	ARC, BRD, SHX.
Ethyl(mixed alkyl)ammonium ethyl sulfate	No	BRD, DEX.
Hexadecyltrimethylammonium bromide	No	ARC.
Hexadecyltrimethylammonium chloride	Yes	ARC, BRD, SHX.
Hexane-1,6-bis(tributylammonium bromide) (Hydrogenated tallow alkyl)trimethylammonium chloride	No	HXL.
Lauryl pyridinium chloride	No	ARC, SHX.
Methyl-1-tallowamidoethyl-2-tallowimidazolium-methyl sulfate	No	WTC.
	No	CRD.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Cationic-Continued		
Quaternary ammonium salts, not containing oxygen		
-Continued		
Acyclic-Continued		
Methyl tri(C9-10)ammonium chloride	No	SHX.
Methyltrioctylammonium chloride	No	SCP.
Methyltris(mixed alkyl)ammonium chloride	No	HMP.
N,N,N',N',N'-Pentamethyl-N-(tallow alkyl)-trimethylene-bis[ammonium chloride]	No	SHX.
Stearyl pyridium chloride	No	WTC.
Trihydrogenated tallow ammonium chloride	No	ENO.
Trimethyl(mixed alkyl)ammonium chloride	No	ARC, BRD.
Trimethyloctadecylammonium chloride	No	ARC, SHX.
Trimethyl(soybean oil alkyl)ammonium chloride	No	JTO.
Trimethyl(tallow alkyl)ammonium chloride	Yes	ARC, ENO, JTO, SHX, WTC.
All other quaternary ammonium salts, not containing oxygen acyclic	No	ARC, BRD, DUP, MOA, SHX.
Benzenoid:		
Benzyl(alkylpyridinium)chloride	No	(?).
Benzyl(cocoamidopropyl)dimethyl ammonium chloride	No	(?).
Benzyl(coconut oil alkyl)dimethylammonium chloride	Yes	ARC, ENJ, ENO, GDC, HRT, WTC, (?).
Benzyl dimethyl(mixed alkyl)ammonium chloride	Yes	BRD, CRD, HNT, PPG, SHX, STP, TCC, (?), (?).
Benzyl dimethyloctadecylammonium chloride	Yes	BRD, PPG, RDA, SHX, TNI.
Benzyl dimethyl oleyl ammonium chloride	No	RDA.
Benzyl dimethyl(tallow alkyl)ammonium chloride	No	BOE, ENO, WTC.
Benzyl dimethyl tetradecylammonium chloride	No	BRD.
Benzyl dodecyl dimethyl ammonium chloride	No	HIP.
Benzyl hexadecyl dimethyl ammonium chloride	No	BKM.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride	Yes	ARC, ENO, SHX, WTC.
Benzyl-methyl-bis(hydrogenated tallow)ammonium chloride	No	ENO.
Benzyl(mixed alkyl)pyridinium chloride	No	(?).
Benzyl picolinium chloride	No	GDC.
Benzyl trimethyl ammonium chloride	No	HIP, RSA, TCC.
Butyl picolinium bromide	No	HXL.
1-Dodecylpyridinium chloride	No	DAN.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride	No	BRD, HNT, STP.
Octadecyl-dibenzyltrimethyl-1,3-propane diammonium chloride	No	GDC.
1-Phenethyl-2-picolinium bromide	No	HXL.
All other quaternary ammonium salts not containing oxygen cyclic	No	ARC, BRD, ICI, RDA, WTC, (?).
Other cationic surface-active agents:		
All other cationic surface-active agents	No	ARC, ARI, BRI, JTO, MOA, PPG, RDA, S, WM, WTC, WVA.
Nonionic surface-active agents:		
Carboxylic acid amides:		
(amine/acid ratio = 2/1):		
Capric acid (Ratio = 2/1)	No	SCP.
Castor oil acids (Ratio = 2/1)	No	NSC, RDA.
Coconut oil acids (Ratio = 2/1)	Yes	ARD, ARL, BRI, CCC, CON, CRT, ECC, EFH, ETC, HNT, MCP, MOA, MRV, NES, PPG, RDA, SBC, SCP, SHX, WPG, ... WTC.
Coconut oil and tallow acids (Ratio = 2/1)	No	ENJ, MOA, SBC, UNN.
Lard oil acids	No	FER.

See footnotes at end of table.

Section 12

Table 12-2—Continued

Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Carboxylic acid amides-Continued		
Other amine/acid ratios-Continued		
Lauric acid (Ratio = 2/1)	No	CRD.
Lauric and myristic acids (Ratio = 2/1)	No	CRD, MOA, SBC.
Linoleic acid (Ratio = 2/1)	No	MOA.
Mixed carboxylic acids	No	SOS.
Mixed fatty acids, neutralized	No	FTX.
Oleic acid (Ratio = 2/1)	Yes	EFH, LEA, MOA, RDA, SBC, WTC.
Stearic acid (Ratio = 2/1)	No	BRD, OC, RDA.
Tall oil acids (Ratio = 2/1)	Yes	BRI, ECC, PPG, SBC, WVA.
Tallow acids (Ratio = 2/1)	Yes	ICI, MOA.
All other diethanolamine condensates (Amine/acid = 2/1)	No	ARZ, MOA, RDA, SHX.
Other amine/acid ratios:		
Capric acid (Ratio=1/1)	No	MOA.
Coconut oil acids (Ratio = 1/1)	Yes	ARD, BRD, CPC, CRT, ESS, ETC, FTX, HNT, HRT, JRG, MOA, PIL, QCP, RDA, SBC, SCP, SHX, TMH, VND, WTC, (?).
Lard oil acids (ratio = 1/1)	No	FER.
Lauric acid (Ratio = 1/1)	Yes	MOA, RDA, SBC, SCP, SHX, TNI, WTC.
Lauric and myristic acid (Ratio = 1/1)	Yes	BRD, FTX, MOA, RDA, SBC.
Linoleic acid (Ratio = 1/1)	No	SBC, VND.
Mixed carboxylic acids	No	SOS, WTC.
Mixed fatty acids camine/acid ratio = 1/1	No	RDA, WTC.
Myristic acid (Ratio = 1/1)	No	MOA.
Oleic acid (Ratio = 1/1)	Yes	DAN, EFH, MOA, RDA, SBC.
Palm kernel oil acids (Ratio = 1/1)	No	SVC, TMH.
Rapeseed acids (ratio = 1/1)	No	EFH.
Soybean oil acids (Ratio = 1/1)	Yes	MOA, RDA, SBC.
Stearic acid (Ratio = 1/1)	Yes	ECC, ENJ, ETC, HIP, MRV, WTC.
Tall oil acids	Yes	EFH, ESS, (?).
Tallow acids	No	MOA.
Diethanolamine condensates, amine/acid, ratio = 1/1	No	BRD, MOA.
All other carboxylic acid amides:		
All other alkanolamine condensates	No	SCP, (?).
All other carboxylic acid - alkanolamine condensates	No	SCP.
All other carboxylic acid-diamine and polyamine condensate	No	HIP.
All other diethanolamine condensate	No	EFH, SCP, SHX.
All other ethanolamine condensates, amine/acid, ratio = 1/1	No	BRD.
All other ethanolamine condensates, amine/acid, ratio = 2/1	No	SHX.
Coconut oil acids (Ratio = 1/1)	No	FTX, MOA, RDA, SOS, STP.
Coconut oil acids (Ratio = 2/1)	No	ENJ, MOA, NSC, SCP.
Coconut oil acids	No	DAN, PAT, PPG.
Coconut oil acids-dimethylaminopropylamine condensate (amine/acid ratio = 1/1	No	(?).
Dodecylbenzenesulfonic acid, monoethanolamine condensate	No	(?).
Hydrogenated tallow acids, (Ratio = 2/1)	No	WPG.
Hydrogenated tallow amides, ethoxylated	No	PCI.
Hydrogenated tallow glycerides diethylenediamine condensate	No	LEA.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Carboxylic acid amides-Continued		
All other carboxylic acid amides		
Hydrogenated tallow glycerides diethylenetriamine condensate	No	HRT.
Isonanoic acid, mono- and triethanolamine salt	No	HCL.
All other isopropanolamine condensates	No	SBC, VND.
Isostearic acid, aminoethylethanolamide, acetate salt	No	PCI.
Lauric acid	No	MOA, NSC.
Lauric acid (Ratio = 1/1)	No	RDA.
Lauric and myristic acids	No	RDA.
Lauric and myristic acids (Ratio = 1/1)	No	MOA, STP.
Mixed fatty acids, diethanolamine condensate	No	WTC.
Stearic acid (Ratio = 1/1)	No	MOA.
Stearic acid (Ratio = 2/1)	No	ECC.
Stearic acid aminoethanolamine (amine acid ratio = 1.0/1.65)	No	CHP.
Stearic acid-N-aminoethyl ethanolamine condensate	No	BOE.
Stearic acid-ethylenediamine condensate amine/acid ratio=1/2	No	SLC.
Stearic acid monoethanolamine condensate	No	VND, WTC.
Tall oil acids-dimethylamine condensate (Amine acid ratio = 1/1)	No	BKM.
Tall oil fatty acids (ratio = 1/2)	No	EFH.
Tall oil fatty acids (ratio = 2.7/1)	No	EFH.
Tall oil fatty acids (ratio = 1.5/1)	No	EFH.
Tall oil fatty acids-triethanolamine condensate	No	(²).
Tallow, n-[3-(dimethylamino)propyl (amine/acid ratio=1/3)]	No	PAT.
All other carboxylic acid amides	No	BRD, MOA, (²).
Carboxylic acid esters:		
Anhydrosorbitol esters:		
Anhydrosorbitol dioleate	No	ICI.
Anhydrosorbitol monoester of tall oil acids	No	HDG.
Anhydrosorbitol monolaurate	Yes	BRD, HDG, ICI, PPG.
Anhydrosorbitol mono-oleate	Yes	BRD, HDG, ICI, PPG, SCP.
Anhydrosorbitol monopalmitate	No	BRD, ICI, PPG.
Anhydrosorbitol monostearate	Yes	BRD, HDG, ICI, PPG.
Anhydrosorbitol sesquioleate	No	BRD, HDG.
Anhydrosorbitol triester of tall oil acids	No	(²).
Anhydrosorbitol trioleate	No	BRD, ICI, PPG.
Anhydrosorbitol tristearate	No	BRD, PPG.
All other anhydrosorbitol esters	No	PG.
Diethylene glycol esters:		
Diethylene glycol monoester of coconut oil acids	No	BRD.
Diethylene glycol monoester of tall oil acids	No	BKM.
Diethylene glycol monoester of tallow acids	No	ENJ.
Diethylene glycol monolaurate	No	ECC, HDG, PPG.
Diethylene glycol mono-oleate	Yes	BRD, SCP, SHX, (²).
Diethylene glycol monostearate	No	BRD, ECC, HDG, RDA.
Diethylene glycol sesquiester of tall oil acids	No	ECC, WVA.
All other diethylene glycol esters	No	(²).
Ethoxylated anhydrosorbitol esters:		
Ethoxylated anhydrosorbitol monolaurate	Yes	BRD, ETC, HDG, ICI, PPG, SVC.
Ethoxylated anhydrosorbitol mono-oleate	Yes	BRD, ETC, HDG, ICI, PPG, SVC.

See footnotes at end of table.

Table 12-2—Continued

Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Carboxylic acid esters-Continued		
Ethoxylated anhyrosorbitol esters-Continued		
Ethoxylated anhydrosorbitol monopalmitate	No	ICI, PPG.
Ethoxylated anhydrosorbitol monostearate	Yes	BRD, ETC, HDG, ICI, PPG.
Ethoxylated anhydrosorbitol trioleate	No	BRD, ETC, HDG, ICI, PPG.
Ethoxylated anhydrosorbitol tristearate	Yes	BRD, ICI, PPG.
All other ethoxylated anhydrosorbitol esters	No	BRD.
Ethoxylated sorbitol esters:		
Ethoxylated sorbitol beeswax ester	No	ICI.
Ethoxylated sorbitol hexaester of tall oil acids	No	BRD, PPG.
Ethoxylated sorbitol hexaoleate	No	ETC, ICI.
Ethoxylated sorbitol lanolin ester	No	ICI.
Ethoxylated sorbitol mono-oleate	No	CPC, ICI.
Ethoxylated sorbitol monopalmitate	No	HIP.
Ethoxylated sorbitol monostearate	Yes	CPC, HIP, NSC.
Ethoxylated sorbitol oleate, acetylated	No	ICI.
Ethoxylated sorbitol pentalaurate	No	NSC.
Ethoxylated sorbitol tetraester of lauric and oleic acids	No	ICI.
Ethoxylated sorbitol tetraester of tall oil acids	No	WTC, (2).
Ethoxylated sorbitol tetraoleate	No	ICI.
Ethoxylated sorbitol tetrastearate	No	ICI.
Ethylene glycol esters:		
Ethylene glycol distearate	Yes	BRD, ENJ, HDG, PPG, RDA, STP, WM, WTC.
Ethylene glycol monostearate	Yes	BRD, HDG, PPG, RDA, SCP, STP, VND, WM, WTC.
Ethylene glycol sesquisteate	No	JTO, VND.
All other ethylene glycol esters	No	BAS, VND.
Glycerol esters:		
Complex glycerol esters:		
Glycerol mono- and diesters of mixed fatty acids	No	ICI.
Glycerol monoester of mixed fatty acids, acetylated	No	EKT.
Glycerol monoester of mixed fatty acids, succinylated	No	EKT.
All other complex glycerol esters	No	BRD, LEV, SCP.
Glycerol esters of chemically defined acids:		
Glycerol dilaurate	No	HIP, STP, VND.
Glycerol monocaprylate	No	SVC.
Glycerol monolaurate	No	BRD, HDG.
Glycerol mono-oleate	Yes	BRD, EFH, ETC, HAL, HDG, PPG, SCP, STP, SVC, WTC.
Glycerol monoricinoleate	No	BRD, HDG.
Glycerol monostearate	Yes	BRD, CCC, CHL, CPC, CRT, HAL, HDG, PPG, SCP, SQA, STP, VND, WM, WTC.
Glycerol trioctanoate/decanoate	No	WM.
Glycerol trioleate	No	SVC.
All other glycerol esters of chemically defined acids	No	BRD, SCP, SVC, VND.
Glycerol esters of mixed acids:		
Glycerol diester of lard acids	Yes	BRD, SVC, WPG.
Glycerol monoester of C ₈ -C ₁₀ acids	No	SVC.
Glycerol monoester of cottonseed oil acids	No	EKT.
Glycerol monoester of hydrogenated cottonseed oil acids	No	EKT.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Carboxylic acid esters-Continued		
Glycerol esters-Continued		
Glycerol esters of mixed acids—Continued		
Glycerol monoester of hydrogenated lard acids	No	EKT.
Glycerol monoester of hydrogenated soybean oil acids	No	EKT.
Glycerol monoester of lard acids	No	EKT.
Glycerol monoester of mixed vegetable oil acid	No	BFP.
Glycerol monoester of palm oil acids	No	EKT.
Glycerol monoester of safflower oil acids	No	EKT.
Glycerol monoester of tall oil acids	No	EFH, FER.
Glycerol monoester of tallow acids	No	EKT.
Glycerol sesquiesther of hydrogenated tallow acids	No	PCI.
Glycerol triester of mixed fatty acids	No	SVC.
All other glycerol esters of mixed acids	No	BFP, BRD, EKT, ETC.
Natural fats and oils, ethoxylated:		
Castor oil, ethoxylated	No	CAS, CPC, CRD, ETC, GAF, HCL, HIP, ICI, MIL, NSC, PPG, RDA, S, SCP, SVC, TMH, WTC, (2).
Coconut oil, ethoxylated	No	SVC.
Hydrogenated castor oil, ethoxylated	Yes	ETC, ICI, MIL, PPG, RDA, SCP.
Lanolin, ethoxylated	Yes	CRD, ETC, HCL, RDA, SVC, (2).
Mixed fatty acids, alkyl ether, ethoxylated	No	(2).
Mixed tall oil and rosin acids, ethoxylated	No	HCL.
Tall oil acids, ethoxylated	Yes	FER, HCL, HIP, RDA.
Tall oil acids, ethoxylated and propoxylated	No	RDA, (2).
Tall oil, refined, ethoxylated	No	(2).
All other natural fats and oils, ethoxylated	No	BAS, BRD, CRD, ETC, HDG, MIL, SCP.
Polyethylene glycol esters:		
Polyethylene glycol esters of chemically defined acids:		
Polyethylene glycol dilaurate	Yes	BRD, EFH, ETC, HDG, PPG, STP, WM.
Polyethylene glycol dioleate	Yes	BRD, EFH, HAL, HDG, OC, PPG, QCP, SCP, SOS, STP.
Polyethylene glycol distearate	Yes	BRD, HDG, HIP, PPG, RDA, STP.
Polyethylene glycol monocaprylate	No	ECC.
Polyethylene glycol monolaurate	Yes	BRD, CCA, ECC, EFH, ETC, HAL, HDG, ICI, PPG, RDA, STP.
Polyethylene glycol mono-oleate	Yes	BOE, BRD, CCA, ECC, EFH, ETC, GDC, HAL, HCL, HDG, MIL, MRT, MRV, OC, PPG, SHX, STP, SVC, TMH, WTC, (2).
Polyethylene glycol mono-oleate, ethoxylated	No	ICI.
Polyethylene glycol monopalmitate	Yes	ETC, HCL, ICI, RDA.
Polyethylene glycol monopelargonate, methoxylated	No	RDA.
Polyethylene glycol monopelargonate	Yes	ETC, SOS.
Polyethylene glycol monoricinoleate	No	ECC.
Polyethylene glycol monostearate	Yes	BRD, CPC, ETC, GDC, HDG, HIP, ICI, OC, PPG, RDA, SCP, STP, SVC, VND, (2).
Polyethylene glycol monotallate	No	CCC, PPG.
Polyethylene glycol sesquinoate	No	SOS.
Polyethylene glycol terephthalate	No	BOE, PCI.
All other polyethylene glycol esters of chemically defined acids	No	ARC, CCA, ETC, HCL, MIL.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Carboxylic acid esters-Continued		
Polyethylene glycol esters-Continued		
Polyethylene glycol esters of chemically defined acids-Continued		
Polyethylene glycol esters of mixed acids:		
Polyethylene glycol diester of coconut oil acids	No	PPG.
Polyethylene glycol diester of coconut oil and oleic acids	No	EFH.
Polyethylene glycol diester of mixed liner acid/oleic acid	No	PCI.
Polyethylene glycol diester of tall oil acids	Yes	ARI, BRD, CCC, EFH, ETC, HIP, PPG, QCP, (?), SHX, SOS.
Polyethylene glycol ester of mixed fatty acids	No	ICI.
Polyethylene glycol monoester of coconut oil acids	No	BKM, EFH, WPG.
Polyethylene glycol monoester of tall oil acids	No	
Polyethylene glycol (mixed ester) of tall oil acids	No	CRT.
Polyethylene glycol sesquiester of coconut oil acids	No	ENJ, SCP.
Polyethylene glycol sesquiester of tall oil acids	Yes	SLM, WTC, (?).
Polyethylene glycol sesquiester of tallow acids	No	PAT.
All other polyethylene glycol esters of mixed acids	No	BOE, BRD, ETC, LEA, SCP, (?).
Polyglycerol esters:		
Decaglycerol	No	SVC.
Decaglycerol tetraoleate	No	SVC.
1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-, polymer with methyloxirane and oxirane	No	(?).
1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-, polymer with methyloxirane	No	(?).
Hexaglycerol	No	SVC.
Mixed oleic, lauric, stearic, and palmitic hexaglycerol esters	No	SVC.
Polyglycerol distearate	No	BRD.
Polyglycerol mono-oleate	Yes	BRD, HDG, PPG, SVC, WTC.
Polyglycerol monostearate	No	BRD, HDG, SVC.
Polyglycerol tetraoleate	No	PPG.
All other polyglycerol esters	No	BRD.
Propanediol esters:		
1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, polymer with oxirane	No	(?).
1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, polymer with oxirane and methyloxirane	No	(?).
1,2-Propanediol dioctanoate/decanoate	No	SVC.
1,2-Propanediol monolaurate	No	SBC, STP.
1,2-Propanediol mono-oleate	No	EFH, HAL.
1,2-Propanediol monostearate	No	BRD, EKT, HAL, PPG, SBC, STP, WM.
All other propanediol esters	No	SCP.
Other carboxylic acid esters:		
Cholesterol isostearate	No	HIP.
Di-isobutylene maleate	No	RH.
Ethoxylated 1,3-butylene glycol condensed with oil fatty acid		
Ethoxylated 1,3-butylene glycol stearate	No	HCL.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Carboxylic acid esters-Continued		
Other carboxylic acid ester—Continued		
Ethoxylated glycerol and propylene glycol esters of coco fatty acids	No	SVC.
Ethoxylated glycerol sesquiesther of mixed fatty acids	No	BRD, SHX. HDG, ICI.
Ethoxylated 1,2-propanediol monostearate	No	(²).
Linoleic acid dimers, alkoxyated	No	PCI.
Maleic anhydride, polypropylene glycol copolymer	No	HDG, PPG.
Methylglucoside laurate	No	APC.
Mixed alkyl benzoate	No	SOS.
Mixed alkyl stearate	No	CRT.
Nonylphenol, ethoxylated, coconut oil esters	No	HIP.
Oleic acid, N-octyl ester	No	PPG, SCP.
Pentaerythritol stearate	No	PPG.
Pentaerythritol tetraoleate	No	HIP.
Pentaerythritol tetrapelargonate	No	SOS.
Polyalkylene glycol oleate	No	(²).
Polycarboxylic acid, alkylate	No	(²).
Polycarboxylic acid, alkylphenoxyalkoxyate	No	(²).
Propylene glycol esters of hydrogenated palm oil	No	PG, VND.
All other carboxylic acid esters	No	ARI, BRD, CHP, EFH, ETC, MOA, PPG, SCP, SVC, WM, WPG, (²).
Ethers:		
Benzenoid ethers:		
Alkylphenol-formaldehyde condensates alkoxyated	No	BAS, ETC, WTC, (²), (²).
Amylphenol-formaldehyde, alkoxyated	No	(²).
Bisphenol A, ethoxylated and propoxyated	No	PPG.
Bisphenol a, ethoxylated	No	PPG.
Bisphenol-A, propoxyated	No	PPG.
P-tert-Butylphenol-formaldehyde, alkoxyated	No	(²).
Diisobutylphenol, ethoxylated	No	RDA.
Dinonylphenol, ethoxylated	Yes	CPC, ETC, GAF, NSC, PPG, RDA, S, WTC, (²).
Dodecylphenol, ethoxylated	Yes	MON, RDA, SCP, TMH, WTC.
Epichlorohydrin bisphenol A, ethoxylated	No	(²).
Furfuryl alcohol, ethoxylated	No	SVC.
Iso-octylphenol, ethoxylated	No	BAS, GAF, PPG, RH, TMH.
(Mixed alkyl)phenol epichlorohydrin-formaldehyde, alkoxyated	No	(²).
(Mixed alkyl)phenol-formaldehyde, alkoxyated	Yes	ENJ, HCL, WTC, (²), (²).
Naphthalene sulfonic acid, polymer with formaldehyde and 4,4'-dihydroxydiphenyl sulfone	No	PCI.
Naphthalene sulfonic acid, polymer with formaldehyde, sodium salt	No	PCI.
β -Naphthol, ethoxylated	No	BAS.
Nonylphenol, ethoxylated	Yes	ARC, BAS, BRD, CPC, DUP, ENJ, ETC, GAF, HCL, HDG, ICI, MIL, MOA, MON, NSC, OMC, PPG, RDA, S, SCP, STP, TMH, TX, UCC, WPG, WTC, (²), (²).
Nonylphenol, ethoxylated, phosphate esters	No	OMC.
Nonylphenol, ethoxylated and propoxyated	Yes	ETC, RDA, STP, TMH, WTC.
Nonyl phenol, ethoxylated with mixed fatty acids	No	SOS.
Nonylphenol-formaldehyde, alkoxyated	Yes	BAS, (²), (²).
Nonylphenoxy ethoxycocoate	No	AMU.
Nonylphenoxy poly(ethyleneoxy)ethyl iodide	No	RDA.
n-Octylphenol, ethoxylated	No	RDA, SCP, TMH, WTC.

See footnotes at end of table.

Table 12-2—Continued
Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Ethers-Continued		
Benzenoid ethers-Continued		
tert-Octylphenol-formaldehyde, ethoxylated	No	SDW, WTC.
Phenol, ethoxylated	Yes	GAF, ICI, PPG, RDA, SCP.
Phenol-formaldehyde resin (with lignite)	No	PSP.
p-Phenylphenol, alkoxyated	No	BAS.
Phenylstyrene, ethoxylated	No	HCL.
Poly[oxy(methyl-1,2-ethanediyl)], α -hydro-	No	(?).
Tridecylphenol, ethoxylated	No	WTC.
All other phenols, ethoxylated	No	BAS, ETC, GAF, MIL, RDA, RH, SCP, WTC.
Nonbenzenoid ethers:		
Linear alcohols, alkoxyated:		
Butanol, ethoxylated	No	HDG.
Butyl alcohol, propoxyated	No	WTC.
Decyl alcohol, ethoxylated	Yes	BAS, CPC, ENJ, GAF, HCL, HIP, ICI, MIL, S.
Decyl alcohol, ethoxylated and propoxyated	No	HIP.
Decyloxypoly(ethyleneoxy)ethyl chloride	No	GAF, RDA.
Dodecyl alcohol, ethoxylated	Yes	ENJ, HCL, HDG, ICI, MIL, (?).
Hexadecyl alcohol, ethoxylated	Yes	BRD, HIP, ICI, RDA, SVC.
Hexadecyl alcohol, propoxyated	No	PPG.
N-Hexyl alcohol, ethoxylated	No	HIP, RDA.
Isostearyl alcohol, ethoxylated	No	SHX.
9-Octadecenyl alcohol, ethoxylated	Yes	ETC, GAF, ICI, RDA, S.
Octadecyl alcohol, ethoxylated	Yes	ICI, NSC, PPG, RDA, SCP, SVC.
Oleyl alcohol, ethoxylated	Yes	CPC, CRD, HCL, PPG, SHX.
Stearyl alcohol, propoxyated	No	SVC.
All other chemically defined linear alcohol alkoxyated	No	BAS, BRD, CRD, SCP.
Coconut oil alcohol, ethoxylated	No	ETC, GAF, RDA.
Decyl and octyl alcohols, ethoxylated	No	WTC.
Decyl and octyl alcohols, ethoxylated and propoxyated	No	PPG.
Jobba oil, ethoxylated	No	SVC.
Mixed linear alcohols, alkoxyated	No	(?).
Mixed linear alcohols, ethoxylated	Yes	BAS, DUP, ENJ, HDG, ICI, MIL, RDA, SCP, SHC, SHX, STP, TNA, TX, UCC, VST, WTC, (?).
Mixed linear alcohols, ethoxylated, benzyl ether	No	(?).
Mixed linear alcohols, ethoxylated and propoxyated	Yes	BAS, DUP, ENJ, ETC, MIL, OMC, PEL, PPG, RDA, S, SCP, SHX, STP, SVC, UCC, WTC.
Myristyl alcohol, propoxyated	No	WTC.
Stearyl alcohol, propoxyated	No	WTC.
Tallow alcohol, ethoxylated	No	ENJ, ETC, PPG, RDA.
Wool wax alcohols, ethoxylated	No	CRD.
All other mixed linear alcohols, alkoxyated	No	ETC, RDA, SHC, (?).
Other ethers and thioethers:		
Bis-cumylphenyl-oxoethylene titanate	No	KPI.
1,3-Butylene glycol, ethoxylated	No	HCL.
tert-Dodecyl mercaptan, ethoxylated	No	ETC, RDA.
2-Ethylhexanol, ethoxylated	No	HIP.
Glycerine, alkoxyated	No	(?).
Glycerol, alkoxyated, toluene diisocyanate copolymer	No	(?).
Isodecyl alcohol, ethoxylated	Yes	ETC, PPG, RDA, WTC.

See footnotes at end of table.

Table 12-2—Continued

Surface-active agents for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Surface-active agents	Separate statistics ¹	Manufacturers' identification codes (according to list in table 12-3)
Nonionic-Continued		
Ethers-Continued		
Other ethers and thioethers—Continued		
Isodecyl alcohol, ethoxylated and propoxylated	No	RDA.
Iso-octyl alcohol, ethoxylated	No	ETC.
Lignin, ethoxylated	No	WVA.
Mixed alcohols, ethoxylated	Yes	ENJ, S, TMH, WTC, (2).
Phosphonic acid, (1-hydroxy ethylidene)bis compounded with 2-aminomethanol	No	(2).
Poly(epichlorhydrin	No	(2).
Polyether diols	No	WTC.
Polyether triols	No	WTC.
Polyethoxylate/polypropoxylate dibenzyl ether	No	(2).
Polyethylene glycol mono(nonylphenol)ether ammonium sulfate	No	(2).
Polyethylene glycol, propoxylated	No	RDA.
Poly(mixed ethylene, propylene)glycol	Yes	ETC, UCC, WTC, (2), (2).
Poly(mixed ethylene/propylene glycol) capped with alkyl oxirone	No	(2).
Poly(oxy-1,2-ethanediyl), α -phenylmethyl-70- hydroxy, C ₁₂ C ₁₅ alkyl ethers	No	PCI.
Poly(oxy-1,2-ethanediyl), α -phenylmethyl-70- hydroxy, ethoxylated nonylphenol alkyl ether	No	PCI.
Polypropylene glycol, alkoxyated, polymer with maleic anhydride, acrylic acid, and alkylphenol- formaldehyde resin, alkoxyated	No	(2).
Polypropylene glycol, ethoxylated	No	BAS, ETC, HDG, PPG, RDA, SCP, TMH, WTC, (2).
Polypropylene glycol glycerol triether, copolymer with epichlorhydrin bisphenol epoxy resin	No	(2).
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated	No	RDA, SCP.
Tridecyl alcohol, ethoxylated	No	BAS, CPC, DUP, ENJ, ETC, HCL, HIP, ICI, MIL, PPG, RDA, S, TMH, WTC, (2).
Tridecyl alcohol, propoxylated and ethoxylated	Yes	ETC, NSC, TX.
Trimethylnonyl alcohol, ethoxylated	No	UCC.
Trimethylolpropane, alkoxyated	Yes	BAS, ETC, RDA, SCP, WTC.
All other ethers and thioethers	No	BRD, ETC, HCL, OMC, RDA, SCP, SVC, WTC, (2).
Other nonionic surface-active agents:		
Cumyl phenolate isopropoxy titanium salt	No	KPI.
Formaldehyde, dicyandiamide, ethylene sulfate polymers	No	PCI.
(Mixed alkyl)phenol alkylenediaminealkanolamine formaldehyde	No	(2).
Tetra-(2,2-diallyloxymethylene)-1-butoxy titanium bis-(ditridecyl) phosphite	No	KPI.
Tetra-isopropoxy titanium (bis dioctyl) phosphite	No	KPI.
Tetra octyloxy titanium (bis-tridecyl phosphite)	No	KPI.
All other nonionic surface-active agents	No	BAS, BRD, CLU, DUP, ICI, KPI, MIL, MOA, PCI, PG, RDA, SCP, WM, (2), (2).

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 12-3
Surface-active agents: Directory of manufacturers, alphabetical by code, 1991

<i>Code</i>	<i>Name of company</i>	<i>Code</i>	<i>Name of company</i>
ACT	Climax Performance Materials Corp.	GAF	ISP Chemicals, Inc.
ACY	American Cyanamid Co.	GDC	Gresco Mfg., Inc.
AGP	Dial Corp.	GRL	Calgon Corp., Calgon Vestal Laboratories Div.
AMU	RPM American Emulsion Co., Inc.	HAL	C. P. Hall Co.
APC	Apollo Chemicals Corp.	HCL	Hoechst Celanese Corp., Sou-Tex Works
APX	Apex Chemical Corp.	HDG	Hodag Chemical Corp.
ARC	Akzo Chemicals, Inc.	HEW	Hewitt Soap Co., Inc.
ARD	Ardmore, Inc.	HIP	High Point Chemical Corp.
ARI	Atlas Refinery, Inc.	HMP	W. R. Grace & Co., Hampshire Chemicals Div. and Organic Chemical Div.
ARL	Arol Chemical Products Co.	HNT	Huntington Laboratories, Inc.
ARZ	Arizona Chemical Co.	HPC	Hercules, Inc.
BAS	BASF Corp.	HRT	Hart Products Corp.
BFP	American Ingredients Company	HXL	Hexcel Corp., Hexcel Chemical Products
BKM	Buckman Laboratories, Inc.	ICI	ICI Americas, Inc., Specialty Chemicals Div.
BLA	Astor Products, Inc., Blue Arrow Div.	JLP	J. L. Prescott Co.
BOE	Boehme Filatex, Inc.	JRG	Andrew Jergens Co.
BRD	Lonza, Inc.	JTM	JTM Products, Inc.
BRI	Burlington Industries	JTO	Jetco Chemicals, Inc.
BSW	Original Bradford Soap Works, Inc.	KPI	Kenrich Petrochemicals, Inc.
CAS	CasChem, Inc.	KTX	Kaneka Texas Corp.
CCA	Akzo Chemicals, Inc.	LEA	Leatex Chemical Co.
CCC	C.N.C. International, Inc.	LEV	Lever Brothers Co.
CCW	Morton International, Inc.	LKY	Lake States Div. of Rhineland Paper Co.
CHL	Chemol Co.	MAR	Lignotech (U.S.), Inc.
CHP	C. H. Patrick & Co., Inc.	MCP	Moretex Chemical Products, Inc.
CIN	Stockhausen, Inc.	MIL	Milliken & Co., Milliken Chemical Div.
CLD	Rhone-Poulenc, Inc.	MOA	Mona Industries, Inc.
CLU	CL Industries, Inc.	MON	Monsanto Co.
CMT	Chemithon Corp.	MRT	Morton International, Inc., Morton Chemical Div.
CON	Concord Chemical Co., Inc.	MRV	Marlowe-Van Loan Corp.
CP	Colgate-Palmolive Co.	NCC	Niacet Corp.
CPC	Grant Industries, Inc.	NES	Ruetgers-Nease Chemical Co.
CRD	Croda, Inc.	NMC	Namico, Inc.
CRT	Reilly-Whiteman, Inc.	NPR	Safeway, Inc.
DAN	Hickson Danchem Corp.	NSC	National Starch & Chemical Co.
DEX	Dexter Chemical Corp.	OC	Omega Chemicals, Inc.
DOW	Dow Chemical Co.	OMC	Olin Corp.
DUP	E. I. duPont de Nemours & Co., Inc. Chemicals & Pigments Dept.	PAT	Yorkshire Pat-Chem, Inc.
ECC	Eastern Color & Chemical Co.	PCI	Piedmont Chemical Industries, Inc.
EFH	E. F. Houghton & Co.	PEL	Pelron Corp.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.
EMK	Emkay Chemical, Inc.	PIL	Pilot Chemical Co.
ENJ	Exxon Chemical Americas		
ENO	Enenco, Inc.		
ESS	Essential Industries, Inc.		
ETC	Ethox Chemicals, Inc.		
FER	Ferro Corp., Keil Chemical Div.		
FPC	Flambeau Paper Corp.		
FTX	Finetex, Inc.		

See note at end of table.

Table 12-3—Continued
Surface-active agents: Directory of manufacturers, alphabetical by code, 1991

<i>Code</i>	<i>Name of company</i>	<i>Code</i>	<i>Name of company</i>
PNX	Murphy-Phoenix Co.	SVC	Karlshamns, USA
PPG	PPG Industries, Inc.	TCC	Sybron Chemicals, Inc.
PSP	Georgia-Pacific Corp., Bellingham Div.	TEN	BIT Manufacturing, Inc.
QCP	Quaker Chemical Corp.	TMH	Harcros Chemicals, Inc.
RAY	ITT Rayonier Liguin Products, Inc.	TNA	Ethyl Corp.
RDA	Rhone-Poulenc, Inc.	TNI	Gillette Chemical Co.
RH	Rohm & Haas Co.	TX	Texaco Chemical Co.
RSA	R.S.A. Corp.	UCC	Union Carbide Corp., Industrial Chemical Div.
S	Sandoz, Chemical Corp., Colors & Chemicals Div.	UNN	United Aniline Co.
SBC	Scher Chemicals, Inc.	USR	Uniroyal Chemical Co., Inc.
SBP	SBS Products Inc.	UTC	Unitex Chemical Corp.
SCP	Henkel Corp.	VKR	Virkler Co.
SDC	Sandoz Chemical Corp.	VND	ISP-Van Dyk, Inc.
SDW	Sterling Drug, Inc., Sterling Organics Div.	VST	Vista Chemical Inc.
SHC	Shell Oil Co., Shell Chemical Co.	WBG	Dryden Oil Co., of New England
SHX	Sherex Chemical Co., Inc.	WHW	Whittemore-Wright Co., Inc.
SLC	Soluol Chemical Co., Inc.	WM	Inolex Chemical Co.
SLM	Salem Oil & Grease Co.	WPG	West Point-Pepperell, Inc., Grifftex Chemical
SOS	SSC Industries, Inc.	Co. Sub.
SQA	Sequa Chemicals, Inc.	WTC	Witco Corp.
STP	Stepan Co.	WVA	Westvaco Corp.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 13 Pesticides and Related Products

Pesticides and related products include fungicides, herbicides, insecticides, rodenticides, and related products such as plant growth regulators, seed disinfectants, soil conditioners, soil fumigants, and synergists. The data are given in terms of 100 percent active materials; they exclude such materials as diluents, emulsifiers, and wetting agents.

U.S. production of pesticides and related products in 1991 amounted to 452 million kilograms, 19 percent less than the 557 million kilograms reported for 1990 (table 13-1). Sales in 1991 were 445 million kilograms, an increase of 1 percent, as compared with 442 million kilograms reported in 1990; the value of sales was \$4,019 million in 1991, compared with \$4,774 million in 1990, a decrease of 16 percent. Data for production of pesticides and related products during 1987-91 are shown in figure 13-1.

Production of cyclic pesticides and related products amounted to 300 million kilograms in 1991, 17 percent

less than the 361 million kilograms produced in 1990. Sales in 1991 were 242 million kilograms, valued at \$2,835 million, compared with 280 million kilograms, valued at \$3,367 million, in 1990.

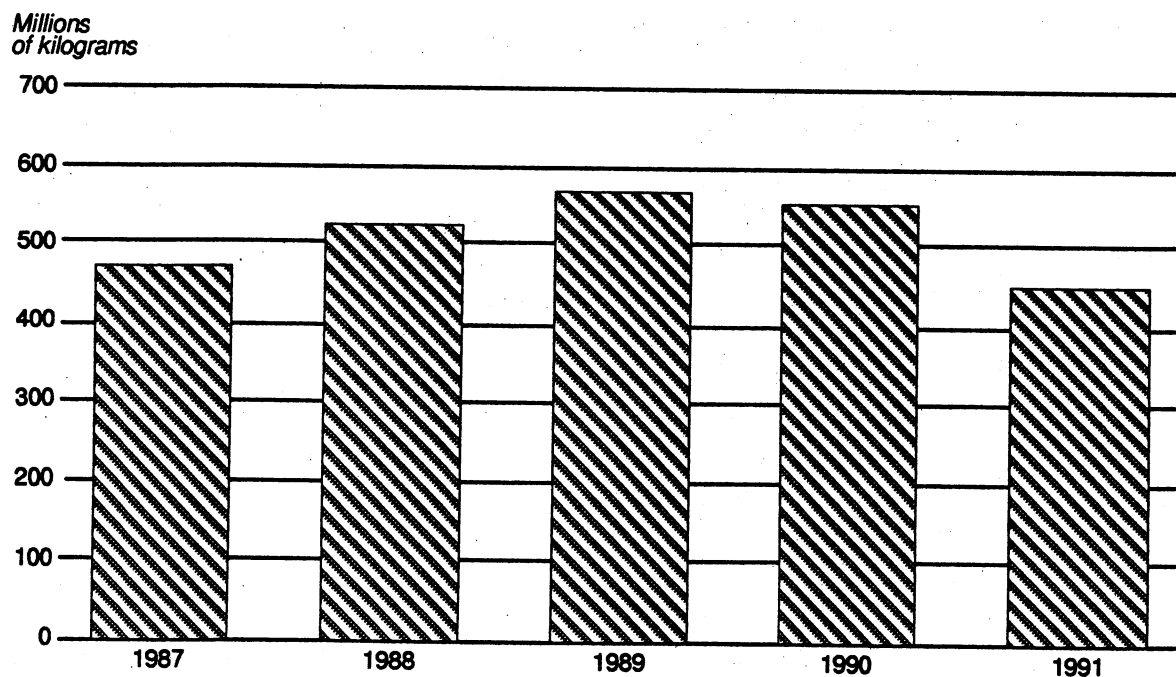
Production of acyclic pesticides and related products in 1991 amounted to 151 million kilograms, compared with 196 million kilograms reported for 1990. Sales in 1991 were 203 million kilograms, compared with 161 million kilograms reported for 1990; the value of sales was \$1,184 million in 1991, compared with \$1,407 million in 1990.

Table 13-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 13-3.

Cynthia Trainor
202-205-3354

Stephen Wanser
202-205-3363

Figure 13-1
Pesticides and related products: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 13-1
Pesticides and related products: U.S. production and sales, 1991

Pesticides and related products	Production	Sales		Average Unit value ¹
		Quantity	Value	
	<i>1,000 kilograms</i>	<i>1,000 kilograms</i>	<i>1,000 dollars</i>	<i>Per kilogram</i>
Cyclic				
Grand total	451,503	445,336	4,019,223	\$9.03
Total	300,146	242,171	2,834,941	7.49
Fungicides ²	36,504	32,340	242,187	7.49
Herbicides and plant growth regulators ³	227,278	166,594	1,814,895	10.89
Insecticides and rodenticides ⁴	33,241	40,275	761,636	18.91
All other cyclic pesticides	3,123	2,962	16,223	5.48
Acyclic				
Total	151,357	203,165	1,184,282	5.83
Fungicides ⁵	7,606	5,212	39,272	7.54
Herbicides and plant growth regulators ⁶	48,344	84,482	773,831	9.16
Insecticides, rodenticides, soil conditioners, and fumigants, total	86,319	105,023	318,062	3.03
Organophosphorus insecticides ⁷	13,325	10,512	120,692	11.48
N-Methylthiocarbamic acid (Metham)	9,937	38,588	16,784	.43
All other acyclic insecticides, rodenticides, soil conditioners, and fumigants ⁸	63,057	55,923	180,586	3.23
All other acyclic pesticides	9,088	8,448	53,117	6.29

¹ Calculated from unrounded figures.

² Includes benomyl, captan, chlorothalonil, DMTT, folpet, pipron, and others.

³ Includes alachlor, atrazine, benefin, bensulide, 2,4-D and other 2,4-D esters and salts, dicamba, dinitrophenol compounds, diuron, maleic hydrazide, molinate, NPA, picloram, prometon, triazines, trifluralin, plant growth regulators, and others.

⁴ Includes phosphorothioates and phosphorodithioates, chlorinated insecticides (heptachlor and others), insect attractants, DEET and other insect repellents, and others.

⁵ Includes dithiocarbamates.

⁶ Includes butylate, EPTC, methanearsonic acid salts, thiocarbamates, and organophosphorus herbicides, and others.

⁷ Includes acephate, disulfoton, ethion, and other organophosphorus insecticides.

⁸ Includes, methyl bromide, soil conditioners and fumigants, small quantities of rodenticides, and others.

Note.—Does not include data for the insect fumigant, p-dichlorobenzene, nor the fungicide, o-phenylphenol. These data are included in the section on "Cyclic Intermediates." It also does not include data for the fungicides, dimethyldithiocarbamic acid, sodium salt and dimethyldithiocarbamic acid, zinc salt (i.e., ziram). These data are included in the section on "Rubber-Processing Chemicals." The data for ethylene dibromide, a fumigant, are included in the "Miscellaneous End-Use Chemicals and Chemical Products" section.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 13-2

Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Cyclic:		
Fungicides:		
2-Bromo-4'-hydroxyacetophenone	No	BKM.
α -(2-Chlorophenyl)- α -(4-chlorophenyl)-5-pyrimidinemethanol	No	LIL.
α -(2-Chlorophenyl)- α -(4-fluorophenyl)-5-pyrimidinemethanol	No	LIL.
1,4-Dichloro-2,5-dimethoxybenzene (Chloroneb)	No	CHF.
5-Ethoxy-3-(trichloromethyl)-1,2,4-thiadiazole	No	USR.
Hexahydro-1,3,5-triethyl-s-triazine	No	VNC.
Hexahydro-1,3,5-tri(2-hydroxyethyl)-s-triazine	No	(?).
2-Mercaptobenzothiazole, sodium salt	No	(?).
Methyl-1-(butylcarbamoyl)-2-benzimidazolecarbamate (Benomyl)	No	DUP.
3-(2-Methylpiperidino)propyl-3,4-dichlorobenzoate (Pipron)	No	LIL, USR.
Naphthenic acid, copper salt	No	CCA, MCI, NOD, TRO.
2-n-Octyl-4-isothiazolin-3-one	No	RH.
Pentachloronitrobenzene (PCNB)	No	AMV, USR.
Pentachlorophenol, sodium salt	No	FRO.
2,4,5,6-Tetrachloroisophthalonitrile	No	SDS.
Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (DMTT)	No	BKM, MRK, RH, VCC.
2-(Thiocyanomethylthio)benzothiazole	No	BKM.
N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide (Captan)	No	ICI, (?).
All other cyclic fungicides	No	FER, NOD, (?).
Herbicides and plant growth regulators:		
4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5-(4H)-one	No	CHG, DUP.
4-Amino-3,5,6-trichloropicolinic acid (Picloram)	No	DOW.
S-Benzyl thiocarbamate	No	ICI.
4,6-Bis(isopropylamino)-2-methoxy-s-triazine (Prometon)	No	CGY.
2,4-Bis(isopropylamino)-6-(methylthio)-s-triazine (Prometryn)	No	CGY.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	No	DUP.
2-(sec-Butylamino)-4-ethylamino-6-methoxy-s-triazine	No	CGY.
2-(tert-Butylamino)-4-ethylamino-6-(methylthio)-s-triazine	No	CGY.
3-tert-Butyl-5-chloro-6-methyluracil	No	DUP.
N-Butyl-N-ethyl- α,α,α -trifluoro-2,6-dinitro-p-toluidine (Benefin)	No	DOW, LIL.
Butyl 2-[4-[[5-(trifluoromethyl)-2-pyridinyl]oxy]phenoxy]propanoate	No	(?).
1-(carboethoxy)ethyl 5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoate	No	SOC.
N-(Chloroacetyl)-N-(2,6-diethylphenyl)glycine, ethyl ester	No	RMI.
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)	No	CGY.
2-Chloro-2',6'-diethyl-N-(n-butoxymethyl)acetanilide (Butachlor)	No	MNA.
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (Alachlor)	No	MNA.
2-Chloro-N-ethoxymethyl-1-N-(2-ethyl-6-methylphenyl)-acetamide (Acctochlor)	No	MNA.

See footnotes at end of table.

Table 13-2—Continued

Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Cyclic—Continued:		
Herbicides and plant growth regulators—Continued:		
2-Chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene (Oxyfluorfen)	No	RH.
2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-triazin (Atrazine)	No	CGY, DUP.
2-[4-Chloro-6-(ethylamino)-s-triazin-2-ylamino]-2-methylpropionitrile (Cyanazine)	No	DUP.
2-Chloro-N-isopropylacetanilide (Propachlor)	No	MNA.
2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl]benzenesulfonamide	No	DUP.
2-(4-Chloro-2-methylphenoxy)propionic acid, dimethylamine salt	No	RIV.
2-(2-Chlorophenyl)methyl-4,4-dimethyl-3-isoxazolinone	No	FMN, (?).
5-[2-Chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoic acid, sodium salt	No	BAS.
3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4-(1H,3H)-dione	No	DUP.
3,6-Dichloro-2-anisic acid (Dicamba)	No	ZOC.
2,6-Dichlorobenzonitrile	No	USR.
2-(2,4-Dichlorophenoxy)propionic acid, dimethylamine salt	No	RIV.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)	No	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)	No	DUP.
2-(3,4-Dichlorophenyl)-4-methyl-1,2,4-oxadiazolidine-3,5-dione (Methazole)	No	ZOC.
1-[(2,4-Dichlorophenyl)4-propyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole	No	ICI.
3,6-Dichloropicolinic acid	No	DOW.
3',4'-Dichloropropionanilide (Propanil)	No	CED, RH.
3,7-Dichloro-8-quinolinic acid	No	BAS, NES.
N-(2,6-Difluorophenyl)-5-methyl-1H-1,2,4-triazolo-[1,5-al-pyrimidine]-2-sulfonamide	No	(?).
S-(O,O-Diisopropyl phosphorodithioate) ester of N-(α -mercaptoethyl)benzenesulfonamide (Bensulide)	No	ICI.
1,1'-Dimethyl-4,4'-bipyridinium dichloride	No	(?).
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)	No	SDS.
2,6-Dinitro-N,N-dipropyl cumidine	No	LIL.
2-(Ethylamino)-4-(isopropylamino)-6-(methylthio)-s-triazine (Ametryne)	No	CGY.
Ethyl 2-[[[(4-chloro-6-methoxypyrimidin-2-yl)amino]carbonyl]amino]sulfonyl]benzoate (Chlorimuron ethyl)	No	DUP.
S-Ethyl cyclohexylmethylthiocarbamate	No	ICI.
S-Ethyl-hexahydro-1H-azepine-1-carbothioate (Molinate)	No	ICI.
N-[3-(1-Ethyl-1-methylpropyl)-5-isoxazolyl]-2,6-dimethoxybenzamide (Flexidor)	No	LIL, RIV.
Hexahydro-1,3,5-tris(2-hydroethyl)-5-triazine	No	(?).
Methyl 3-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]sulfonyl-2-thiophene-carboxylic acid	No	DUP.
2-Methyl-4-chlorophenoxy acid dimethylamine salt (MCPA DMA)	No	DOW.
2-(2-Methyl-4-chlorophenoxy)propionic acid (MCPA)	No	DOW.

See footnotes at end of table.

Table 13-2—Continued

Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Cyclic—Continued:		
Herbicides and plant growth regulators—Continued:		
2-(2-Methyl-4-chlorophenoxy)propionic acid dimethylamine salt (MCPA DMA salt)	No	DOW.
2-(2-Methyl-4-chlorophenoxy)propionic acid, iso-octyl ester	No	DOW, RIV.
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	No	ADC, DUP.
Methyl 2-[[[(4,6-dimethoxypyrimidin-2-yl)-amino]carbonyl]amino]sulfonyl]methyl]benzoate (Bensulfuron) (Londax)	No	DUP.
Methyl 2-[[[(4,6-dimethyl-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl]benzoate	No	DUP.
Methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)-amino]carbonyl]amino]sulfonyl]benzoate (Metsulfuron methyl)	No	DUP.
Methyl 2-[[[N-(4-methoxy-6-methyl-1,3,5-triazin-2-yl)thylamino]carbonyl]amino]sulfonyl]benzoate	No	DUP.
1-Methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)-pyridone (Fluridone)	No	LIL.
N-1-Naphthylphthalamic acid (NPA)	No	USR.
7-Oxabicyclo-[2.2.1]-heptane-2,3-dicarboxylic acid, disodium salt (Endothall)	No	PAS.
Tetrahydrofurfuryl (r)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propanoate	No	USR.
Phenoxyacetic acid derivatives:		
4-Chloro-2-methylphenoxyacetic acid (MCPA)	No	DOW.
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt	No	RIV.
4-Chloro-2-methylphenoxyacetic acid, iso-octyl ester	No	RIV.
2,4-dichlorophenoxyacetic acid, esters and salts:		
2,4-Dichlorophenoxyacetic acid (2,4-D)	No	DOW.
2,4-Dichlorophenoxyacetic acid, 2-butoxyethyl ester	No	DOW.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester ..	No	DOW.
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	No	DOW, PBI, RIV.
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salts	No	DOW.
2,4-Dichlorophenoxyacetic acid, iso-octyl ester ..	No	DOW, RIV.
2,4-Dichlorophenoxyacetic acid, isopropyl ester ..	No	AMV.
2,4-Dichlorophenoxyacetic acid, lithium salt	No	GTH.
All other 2,4-dichlorophenoxyacetic acid, esters and salts	No	ICI.
Plant growth regulators:		
2-Chloro-N-(2,6-dinitro-4-(trifluoromethyl)phenyl)-N-ethyl-6-fluorobenzenemethanamine	No	CGY.
β -(4-Chlorophenyl)methyl- α -(1,1-dimethylethyl)-1,2,4-triazole-1-ethanol	No	ICI.
2-Chloro-6-(trichloromethyl)pyridine	No	DOW.
α -Cyclopropyl- α -(p-methoxyphenyl)-5-pyrimidine methanol (Ancymidol)	No	LIL.
2,3-Dihydro-5,5-dimethyl-1,4-dithiin-1,1,4,4-tetraoxide	No	NES.
1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide) (MH)	No	DRX, USR.

See footnotes at end of table.

Table 13-2—Continued

Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Cyclic—Continued:		
Plant growth regulators—Continued:		
1,1-Dimethylpiperidinium chloride	No	BAS.
Gibberellic acid	No	ABB.
α-(1-Methylethyl-x-4-trifluoro-methoxyphenyl)-5-pyrimidinemethanol (Flurprimidol)	No	LIL.
All other plant growth regulators, cyclic	No	MMM.
3,5,6-Trichloro-2-pyridinyloxyacetic acid	No	DOW.
α,α,α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin)	No	LIL.
α,α,α-Trifluoro-2,6-dinitro-N-ethyl-N-(2-methyl-2-propenyl)-p-toluidine (Ethylfluralin)	No	LIL.
All other cyclic herbicides	No	FRI, ICI, RH, SOC, ZOC, (?).
Insect attractants and repellents:		
N,N-Diethyltoluamide (DEET)	No	(?).
All other insect attractants	No	(?).
Insecticides:		
Bacillus thuringiensis	No	ABB, DUP, ZOC.
Bis(pentachloro-2,4-dicyclopentadien-1-yl)	No	ZOC.
2-(p-tert-Butylphenoxy)cyclohexyl-2-propynyl sulfite	No	USR.
Cyano(4-fluoro-3-phenoxyphenyl)methyl-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate	No	FMN.
Cyano-3-phenoxybenzyl-cis, trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxylate	No	(?).
Cyano(3-phenoxyphenyl)methyl-4-chloro-α-(1-methylethyl)benzeneacetate	No	DUP.
All other cyclic insecticides	No	FMN, ZOC.
N-cyclopropyl-1,3,5-triazine-2,4,6-triamine	No	CGY.
Cypermethrin	No	FMN.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl[(dibutylamino)thio]methylcarbamate	No	FMN.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate	No	FMN.
5,6-Dimethyl-2-dimethylamino-4-pyrimidinyl dimethyl carbamate	No	FSN.
Di-n-propylisocinchomeronate	No	MGK.
Hexakis(2-methyl-2-phenylpropyl), distinnaxane	No	DUP.
Methyl 3-(2,2-dichloroethenyl)-2,2-dimethyl-3-cyano-3-phenoxyphenylcyclopropanecarboxylate	No	FMN.
3-(Phenoxyphenyl) methyl-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethyl cyclopropanecarboxylate	No	FMN, (?).
Tetrahydro-5,5-dimethyl-2(1H)-pyrimidinone[3-[4-(trifluoromethyl)phenyl]-1-[2-[4-(trifluoromethyl)phenyl]ethenyl-2-propenylidene]hydrozone	No	FMN.
Chlorinated insecticides:		
2-Chloro-N-[[[4-(trifluoromethoxy)phenyl]amino]carbonyl]benzamide	No	CHG.
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor)	No	VEL.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor)	No	CHF.
Organophosphorus insecticides:		
O-(2,4-Dichlorophenyl) O-ethyl S-propyl phosphorodithioate	No	CHG.

See footnotes at end of table.

Table 13-2—Continued
Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Cyclic—Continued:		
Insecticides—Continued:		
O-(2-(Diethylamino)-6-methyl (4-pyrimidinyl) O,O-dimethyl phosphorothioate	No	(?)
O,O-Diethyl 0-3,5,6-trichloro-2-pyridyl phosphorothioate	No	DOW.
O,O-Dimethyl O-(2,4,5-trichlorophenyl)-phosphorothioate (Ronnel)	No	DUP.
O-Ethyl O-[4-(methylthio)phenyl] S-propyl phosphorodithioate	No	CHG.
N-(Mercaptomethyl)phthalimide S-(O,O-dimethylphosphorodithioate)	No	ICI.
O,O'-(Thiodi-4,1-phenylene)bis(O,O-dimethyl phosphorothioate (Tempfos)	No	ICI.
All other organophosphorus insecticides, cyclic	No	(?)
Rodenticides:		
3-(α -Acetonylbenzyl)-4-hydroxycoumarin (Warfarin)	No	MOT.
3-[3-(4'-Bromo[1,1'-biphenyl]-4-yl)-1,2,3,4-tetrahydro-1-naphthalenyl]-4-hydroxy-2H-1-benzopyran-2-one	No	(?)
2-Diphenylacetyl-1,3-indandione and sodium salt	No	MOT.
2-Isovaleryl-1,3-indandione	No	MOT.
2-Pivaloyl-1,3-indandione (Pindone)	No	MOT.
All other cyclic pesticides:		
α -[2-(2-n-Butoxyethoxy)ethoxy]-4,5-methylenedioxy-2-propyltoluene (Piperonyl butoxide)	No	ALP.
N,N-diallyl-2,2-dichloroacetamide	No	ICI.
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-dicarboximide	No	MGK.
1-Methyl-3,5,7-triaza-1-azonia tricyclodecane chloride	No	BKM.
2,2,5-Trimethyl-3-(dichloroacetyl)-1,3-oxazolidine	No	ICI.
All other pesticides and related products, cyclic	No	(?)
Acyclic:		
Fungicides:		
Disodium cyanodithioimidocarbonate	No	BKM.
n-Dodecylguanidine acetate (Dodine)	No	MRK.
Methylenebis(thiocyanate)	No	VIN.
Poly[oxyethylene(dimethylimino)-ethylene(dimethylimino)ethylene dichloride]	No	BKM.
Dithiocarbamic acid fungicides:		
Dimethyldithiocarbamic acid, potassium salt	No	ALC, BKM.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)	No	ALC, VCC.
Ethylene bis(dithiocarbamic acid), manganese salt with zinc ions	No	DUP.
Hydroxymethyl(methyl)dithiocarbamic acid, potassium salt	No	BKM.
N-Methyldithiocarbamic acid, potassium salt	No	BKM.
All other dithiocarbamic acid fungicides, acyclic	No	DUP.
All other acyclic fungicides	No	BKM, MRK.
Herbicides and plant growth regulators:		
S-Ethyl diisobutylthiocarbamate (Butylate)	No	ICI.
S-Ethyl dipropylthiocarbamate (EPTC)	No	ICI.
Methanearsonic acid, monosodium salt (MSMA)	No	SDS, VIN.
N-(Phosphonomethyl)glycine, isopropylamine salt	No	MNA.
S-Propyl butylethylthiocarbamate (Pebulate)	No	ICI.

See footnotes at end of table.

Table 13-2—Continued
Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Acyclic—Continued:		
Herbicides and plant growth regulators—Continued:		
S-Propyl dipropylthiocarbamate (Vernolate)	No	ICI.
Thiocyanic acid, methylene ester	No	BKM.
S,S,S-Tributyl phosphorotrithioate	No	CHG.
Plant growth regulators:		
6-benzyladenine (Bap)	No	ABB.
All other plant growth regulators, acyclic	No	USR.
Acyclic herbicides	No	DUP, SLM, VIN.
Insecticides:		
Ethyl 3,7,11-trimethyldodeca-2,4-dienoate	No	DOW, ZOC, (2).
Isopropyl-11-methoxy-3,7,11-trimethyldodeca-2,4-dienoate	No	ZOC, (2),
Methyl N',N'-dimethyl-N-[(methylcarbamoyl)oxy]-1-thiooxamidate	No	DUP.
S-Methyl-N-[(methylcarbamoyl)oxy]thioacetimidate (Methomyl)	No	DUP.
2-propynyl 3,7,11-trimethyl-(2e,4e)-dodecadienoate	No	(2).
Organophosphorus insecticides:		
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate	No	AMV.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled)	No	AMV.
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate (Disulfoton)	No	CHG.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide	No	DUP.
O,S-Dimethylacetylphosphoramidothioate (Acephate)	No	SOC.
O,O-Dimethyl-O-2,2-dichlorovinyl phosphate (DDVP)	No	AMV.
O,S-Dimethyl phosphoramidothioate	No	CHG.
O,O,O',O'-Tetraethyl S,S'-methylene bisphosphorodithioate (Ethion)	No	FMN.
All other organophosphorus insecticides, cyclic	No	(2).
Rodenticides:		
Bromethelin concentrate	No	DOW.
2-Hydroxyethyl n-octyl sulfide	No	PLC.
Sodium fluoroacetate	No	SLM, TUL.
Soil fumigants:		
1,3-Dichloropropene	No	DOW.
Methyl bromide (Bromomethane)	No	GTL, TNA.
N-Methyldithiocarbamic acid, sodium salt (Metham)	Yes	AMV, BKM, ICI.
Trichloronitromethane (Chloropicrin)	No	LCP, NLO.
All other soil fumigants, etc	No	MRT.
All other acyclic pesticides:		
3-Alkoxy-2-hydroxypropyl trimethyl ammonium chloride	No	(2).
N-Alkyl-1-naphthylmethyl ammonium chloride	No	(2).
Ammonium oxydiethylenebis (alkyl* dimethyl chloride) *Alkyl-40% C ₁₂ , 50% C ₁₄ , 10% C ₁₆	No	BKM.
Bromoacetic acid	No	VIN.
N-Cocoalkyl-1,3-propylenediamine acetate	No	(2).

See footnotes at end of table.

Table 13-2 —Continued
Pesticides and related products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Pesticides and related products	Separate statistics ¹	Manufacturers' identification codes (according to list in table 13-3)
Cyclic—Continued:		
All other acyclic pesticides—Continued:		
2-[(Hydroxymethyl)amino]-2-methylpropanol	No	TRO.
2-(Hydroxymethyl)ethanol	No	TRO.
3-Iodo-2-propynyl butylcarbamate	No	TRO.
All other pesticides and related products, acyclic	No	USR, ZOC (2).

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 13-3
Pesticides and related products: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ABB	Abbott Laboratories	MCI	Mooney Chemicals, Inc.
ADC	Anderson Development Co.	MGK	McLaughlin Gormley King Co.
ALC	Alco Chemical Corp.	MMM	Minnesota Mining & Manufacturing Co.
ALP	Alpha Laboratories, Inc.	MNA	Monsanto Co., Agricultural Group
AMV	Amvac Chemical Corp.	MOT	Motomco, Ltd.
BAS	BASF Corp.	MRK	Merck & Co., Inc.
BKM	Buckman Laboratories, Inc.	MRT	Morton International, Inc., Morton Chemical Div.
CCA	Akzo Chemicals, Inc.	NES	Ruetgers-Nease Chemical Co.
CED	Cedar Chemical Corp.	NLO	Niklor Chemical Co., Inc.
CGY	Ciba-Geigy Corp.	NOD	Huls America, Inc.
CHF	Kincaid Enterprises, Inc.	PAS	ELF Atochem North America, Inc.
CHG	Mobay Chemical Corp., Agricultural Chemicals Div.	PBI	PBI-Gordon Corp.
DOW	Dow Chemical Co.	PLC	Phillips 66 Co.
DRX	Drexel Chemical Corp.	RH	Rohm & Haas Co.
DUP	E. I. duPont de Nemours & Co., Inc. Agricultural Products	RIV	Riverdale Chemical Co.
FER	Ferro Corp., Bedford Chemical Div.	RMI	R-M Industries, Inc.
FMN	FMC Corp., Agricultural Chemical Group	SDS	ISK Biotech Corp.
FRI	Farmland Industries, Inc.	SLM	Salem Oil & Grease Co.
FRO	Vulcan Materials Co., Chemicals Div.	SOC	Chevron Corp., Chevron Chemical Co.
FSN	Nor-am Chemical Co.	TNA	Ethyl Corp.
GTH	Guth Corp.	TRO	Troy Chemical Corp.
GTL	Great Lakes Chemical Corp.	TUL	Tull Chemical Co., Inc.
ICI	ICI Americas, Inc., Agricultural Chemicals Div.	USR	Uniroyal Chemical Co., Inc.
LCP	LCP Chemicals-Maine	VCC	Vinings Industries, Inc.
LIL	Eli Lilly & Co.	VEL	Velsicol Chemical Corp.
		VIN	Vineland Chemical Co., Inc.
		VNC	Vanderbilt Chemical Corp.
		ZOC	Sandoz Crop Protection

Note.— Complete names, telephone numbers, and addresses of the above reporting companies are listed in app. A.
Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 14 Miscellaneous End-Use Chemicals and Chemical Products

This section incorporates those end-use groups which are not readily classifiable within the prior sections of this report. Both cyclic and acyclic chemicals fall within this section. Production and sales of the end-use chemicals contained within this section continue to follow a general increase since 1987, although levels in 1991 indicated leveling of economic trends.

In 1991, the production of miscellaneous end-use chemicals amounted to 13,467 million kilograms, a decrease of 10.2 percent from the calculated 14,992 million kilograms of production for 1990 (table 14-1). Production of these chemicals steadily increased throughout 1987-90 (figure 14-1). Sales in 1991 totaled 10,712 million kilograms, valued at \$9,938 million (table

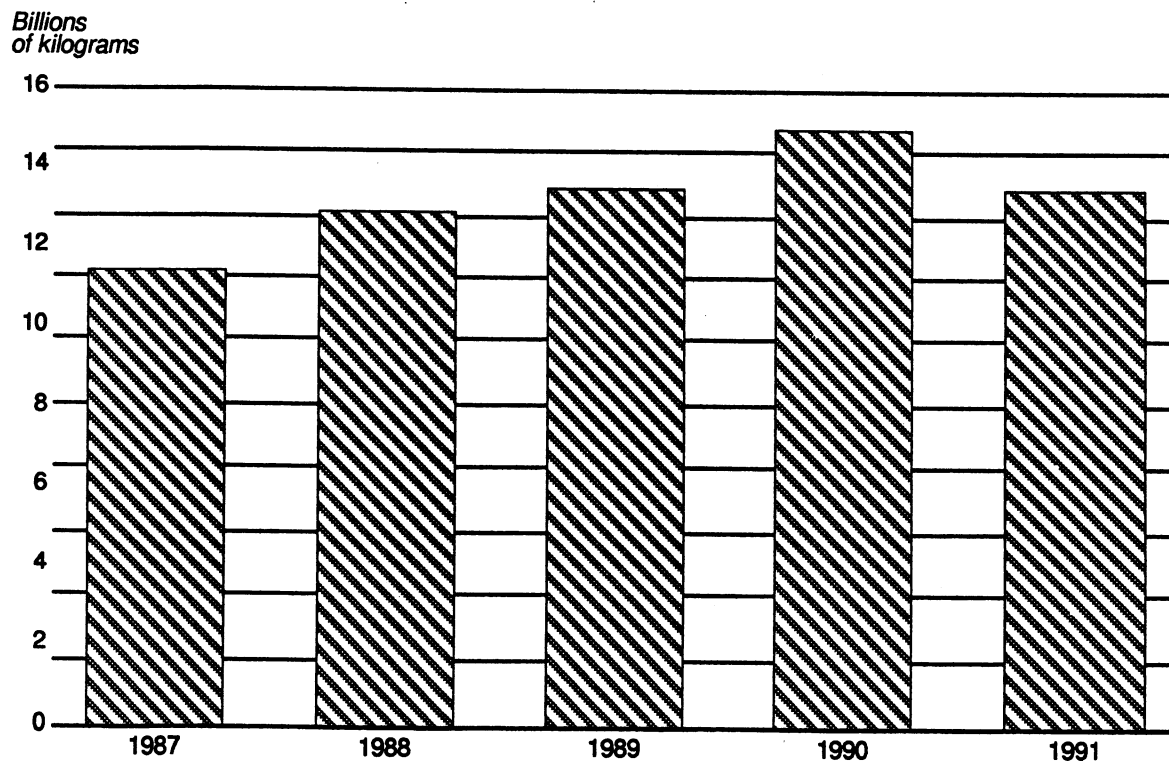
14-1). The sales quantity remained at a level nearly equal to that of 1990 with the value of sales increasing by 2.3 percent. Polymers for fibers and end uses of urea collectively accounted for 58 percent of the 1991 production of these miscellaneous end-use chemicals. The total published end-uses for urea accounted for 47 percent of the 1991 sales quantity of these chemicals.

Production of end-use chemicals used in the auto and motor fuels market indicated continued upward trends. Production of fuel additives for 1991 totaled 4,058 million kilograms, a decrease of 3.9 percent from the previous year. Approximately 95 percent of production in this category was methyl t-butyl ether.

Table 14-2 lists the products reported in this section and indicates the manufacturer(s) of each by code. These codes are identified by company name in table 14-3.

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Figure 14-1
Miscellaneous End-Use Chemicals and Chemical Products: U.S. production, 1987-91



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 14-1
Miscellaneous end-use chemicals and chemical products: U.S. production and sales, 1991

Miscellaneous end-use chemicals and chemical products	Production	Sales		Average Unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Grand total	13,466,793	10,711,931	9,938,366	\$0.93
Chelating agents, nitriloacids and salts, total	135,979	128,995	160,449	1.24
(Diethylene trinitrilo)pentaacetic acid	(²)	90	310	3.44
(Diethylene trinitrilo)pentaacetic acid, pentasodium salt	10,438	6,748	9,800	1.45
(Ethylenedinitrilo)tetraacetic acid (EDTA)	2,945	2,178	4,377	2.01
(Ethylenedinitrilo)tetraacetic acid, diammonium salt	763	732	1,063	1.45
(Ethylenedinitrilo)tetraacetic acid, disodium salt	931	730	2,977	4.01
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	47,191	50,734	44,003	.87
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	(²)	2,112	3,054	1.45
All other chelating agents, nitriloacids and salts	73,711	65,671	94,865	1.44
Enzymes:				
Bacterial amylase	(²)	(²)	22,663	(²)
Other hydrolytic enzymes	(²)	(²)	6,640	(²)
Rennin	(²)	(²)	41,070	(²)
Fuel additives, total ³	4,058,002	2,572,180	1,023,023	.40
Methyl t-butyl ether ^{4 5}	3,856,456	2,497,602	826,101	.33
All other fuel additives	201,546	74,578	196,922	2.64
Lubricating oil and grease additives, total	394,827	361,182	609,345	1.69
Oil soluble petroleum sulfonate, calcium salt	119,963	94,422	159,088	1.68
Sulfur compounds	35,626	32,267	57,432	1.78
All other lubricating oil and grease additives	239,238	234,493	392,825	1.68
Photographic chemicals	7,171	4,162	66,474	15.97
Polymers for fibers, total ⁶	2,388,293	1,603,893	5,045,489	3.15
Polyethylene terephthalate for fiber	1,065,992	(²)	(²)	(²)
All other polymers for fibers	1,322,301	1,603,893	5,045,489	3.15

See footnotes at end of table.

Table 14-1—Continued
Miscellaneous end-use chemicals and chemical products: U.S. production and sales, 1991

Miscellaneous end-use chemicals and chemical products	Production	Sales		Average Unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Polymers, water soluble, total	343,909	286,313	853,640	\$2.98
Acrylamide polymers and co-polymers	54,264	19,603	71,785	3.66
Cellulose esters and ethers	(²)	65,434	298,054	4.56
Hydroxethylcellulose	16,152	(²)	(²)	(²)
Sodium carboxymethyl cellulose	29,143	30,200	84,852	2.81
Polyacrylic acid salts, total	160,277	142,001	313,997	2.21
Sodium ammonium polyacrylate and copolymers	71,457	67,112	146,451	2.18
All other polyacrylic acid salts	88,820	74,889	167,546	2.24
All other water soluble polymers	84,073	29,075	84,952	2.92
Textile chemicals, other than surface-active agents	22,367	20,337	27,436	1.35
Urea in compounds or mixtures:				
In feed compounds	573,631	551,155	62,441	.11
In liquid fertilizer	1,400,656	1,178,232	189,903	.16
In solid fertilizer	3,474,398	3,324,050	511,817	.15
All other miscellaneous end-use chemicals and chemical products	667,560	681,432	1,317,976	1.93

¹ Calculated from unrounded figures.

² Reported data were accepted in confidence and may not be published, or no data were reported.

³ Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given with the section on "Plasticizers."

⁴ The difference between the production reported here and that shown on the *Preliminary Report on U.S. Production of Selected Organic Chemicals (including Synthetic Plastics and Resins Materials, 1991)*, results from a combination of incorrect reporting by some companies, end-of-year inventory adjustment, and rounding.

⁵ Production totals shown for this chemical include quarterly production data in instances where companies reported inaccurate annual data or failed to report annual data. Totals also include reporting by companies which failed to report on a quarterly basis.

⁶ Although production of nylon 6 and 6/6 are published in the *Preliminary Report*, revised annual data are not published because disclosure might result.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 14-2

Miscellaneous end-use chemicals and chemical products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Miscellaneous end-use chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 14-3)
Amino acids and their salts:		
Aspartic acid	No	PFZ.
N,N-Bis(2,2-acetamido)glycine	No	PIC.
Glutamic acid hydrochloride	No	LEM.
Glycine (Aminoacetic acid), non-medical	No	CHT, HMP.
Potassium glutamate	No	LEM.
Methionine and its salts:		
Methionine (animal feed grade)	No	DGC.
Methionine, hydroxy analogue, calcium salt	No	MNA.
Protein hydrolysates	No	BRS.
Sarcosine	No	HMP.
All other amino acids and salts, acyclic	No	BRS.
All other amino acids and salts, cyclic	No	AJI.
Biological stains:		
Biological stains	No	ALD.
Chelating agents, nitriloacids and salts:		
N-Alkylamine bismethylenephosphonic acid	No	DUP. (2).
N-Alkylaminobismethylene phosphonic acid salts	No	(2), (2).
(Diethylenetriamine)pentamethylenephosphonic acid	No	MYO.
(Diethylenetriamine)pentamethylenephosphonic acid, sodium salt	No	MYO.
(Diethylenetrinitrilo)pentaacetic acid	Yes	CGY, DOW, HMP.
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt	Yes	CGY, DOW, HMP, MYO.
N,N-Dihydroxyethylglycine, sodium salt	No	HMP.
Ethanol diglycine, disodium salt	No	HMP.
(Ethylenedinitrilo)tetraacetic acid		
(Ethylenediaminetetraacetic acid) (EDTA)	Yes	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt	No	DAN, DOW.
(Ethylenedinitrilo)tetraacetic acid, diammonium salt	Yes	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate	No	DAN, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium salt	Yes	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate	No	DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, magnesium salt	No	SHC.
(Ethylenedinitrilo)tetraacetic acid, manganese salt	No	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, monoammonium ferric salt	No	DOW.
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt	No	CGY, FER, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt	No	DOW.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	No	HMP, (2).
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	Yes	CGY, DOW, HMP, MYO.
(Ethylenedinitrilo)tetraacetic acid, trisodium salt	No	HMP.
Glucosheptonic acid, β-isomer, sodium salt	No	BLZ.
Glucosheptonic acid, sodium salt	No	BLZ, PFN.
Hexamethylenediaminetetra(methylenephosphonic acid), potassium salt	No	MYO.
Hydroxyethane-1-diphosphonic acid	No	MYO.
(N-Hydroxyethylethylenedinitrilo) triacetic acid	No	HMP.
(N-Hydroxyethylethylenedinitrilo) triacetic acid, iron salt	No	DOW, HMP.
(N-Hydroxyethylethylenedinitrilo) triacetic acid, magnesium salt	No	DOW.

See footnotes at end of table.

Table 14-2—Continued

Miscellaneous end-use chemicals and chemical products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Miscellaneous end-use chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 14-3)
Chelating agents, nitriloacids and salts—Continued		
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	Yes	CGY, DOW, HMP.
Hydroxyethylidene diphosphonic acid, potassium salt	No	(²).
Hydroxyethylidene diphosphonic acid, sodium salt	No	MYO, (²).
Nitriloacetic acid, zinc salt	No	HMP.
Nitrilotriacetic acid	No	HMP, MON.
Nitrilotriacetic acid, trisodium salt	No	HMP.
Nitrilo-tris-methylene triphosphonic acid	No	BKM, MYO, (²), (²).
Nitrilo-tris-methylene triphosphonic acid, sodium salt	No	MYO, (²).
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	No	(²).
Polyamine polymethane phosphonic acid	No	(²), (²).
All other chelating agents, nitriloacids and salts	No	BKM, CGY, HMP, (²), (²).
Chemical indicators:		
Chemical indicators	No	ALD, GFS, NBI, VNC.
Chemical reagents and fine chemicals:		
Chemical reagents and fine chemicals	No	ENJ, GFS, PAH, PFN, PIC, PLB, REG, REG, RSA, UPJ, UPM, (²), (²).
Enzymes:		
Hydrolytic enzymes:		
Amylases:		
α-Amylase (pancreatic)	No	GNR, LEM.
Bacterial amylase	Yes	GBF, NBI, PMP.
Fungal amylases	No	LEM.
Glucoamylase	No	GNR.
All other amylases	No	GBF, (²).
Proteases:		
Cellulase	No	GNR, NBI.
Papain	No	GBF.
Protease (bacterial)	No	GNR, NBI.
Rennin	Yes	PFZ.
All other proteases	No	GBF, PMP, SPR.
Other hydrolytic enzymes:		
Cholesterol esterase	No	BCK, GNR.
Glucose isomerase	No	(²).
Pectinase	No	GBF.
All other hydrolytic enzymes	No	GBF, GNR, JFR, (²).
Non-hydrolytic enzymes:		
Glucose oxidase	No	BCK.
Glucose-6-phosphate dehydrogenase	No	BCK.
Glycerol kinase	No	BCK.
Urease	No	BCK.
Uricase	No	BCK.
Flotation reagents:		
Phosphorodithioates, used as flotation reagents:		
Dicresylphosphorodithioic acid	No	ACY.
Dicresylphosphorodithioic acid, ammonium salt	No	ACY.
Dicresylphosphorodithioic acid, sodium salt	No	(²).
Rosin amines	No	HPC.
Thiocarbaniide (Diphenylthiourea)	No	ACY.
Xanthates and sulfides used as flotation reagent:		
Sodium n-butylxanthate	No	USR.
All other flotation reagents,	No	DAN.

See footnotes at end of table.

Table 14-2—Continued
Miscellaneous end-use chemicals and chemical products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Miscellaneous end-use chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 14-3)
Fuel additives:	Yes	
Diesel fuel additives:		
Hexyl nitrate	No	DUP.
All other diesel fuel additives, acyclic	No	TNA.
All other diesel fuel additives, cyclic	No	SM.
Fuel oil additives:		
Adipic acid-diethylenetriamine-epichlorohydrin polymer	No	(²).
Di-tert-amyl-phenyl acid phosphate	No	ALW.
4,4'-Di-sec-butylaminodiphenylmethane	No	UPM.
N,N-Dimethyl-1,3-propanediamine polymer with epichlorohydrin, sulfate	No	(²).
N,N'-Disalicylidene-1,2-propanediamine	No	DUP, FER, SM, TNA.
Formaldehyde polymer with ethylenediamine and nonyl phenol derivatives	No	(²).
Imidazoline from tall oil fatty acids and diethylenetriamine	No	(²).
Polybutylether carbamate	No	SOC.
Polyethylenepolyamine polymer with 1,4-dihydroxy-2-butyne	No	(²).
Rust preventing additives	No	ALX.
Tetrahydropyrimidine from tall oil fatty acids and propylenediamine	No	(²).
All other fuel additives, acyclic	No	DUP, PAH, UPM.
All other fuel additives, cyclic	No	TNA.
Gasoline additives:		
N,N'-Di-sec-butyl-p-phenylenediamine	No	TNA, UPM.
N,N'-Diisopropyl-p-phenylenediamine	No	DUP, TNA.
Ethylene dibromide	No	GTL, TNA.
Methyl-t-butyl ether	Yes	AMO, ASH, ATR, CGO, CCP, CNE, CO, CSD, CSP, DA, ENJ, GRS, LYP, MOC, PLC, SM, SOG, SUN, TPC, TX, VLR.
Methylcyclopentadienylmanganese tricarbonyl	No	TNA.
N-(1-Methylheptyl)ethanolamine	No	UPM.
Tetraethyl lead	No	DUP.
All other gasoline additives, cyclic	No	
Lubricating oil and grease additives:		
Phosphorodithioates (dithiophosphates):		
Alkyl imidazoline	No	QCP.
Alkyl succinic anhydride	No	(²).
Alkyl terephthalamate	No	SOC.
Bomyl phenylamine	No	SOC.
Chlorosulfurized and sulfurized compounds:		
Sulfurized lard oil	No	QCP.
Sulfurized sperm oil substitutes	No	ELC.
Di-2-ethylhexylphosphorodithioic acid	No	ELC.
Diisopropyl hydrogen phosphite	No	ALW.
Ethylene-propylene copolymer	No	TX.
Fatty acid polyamine condensate	No	SOC.
Hydrocarbon amine, sulfonate acid	No	SOC.
Hydrocarbon carboxylic acid derivatives (specify)	No	FER, (²), (²).
Hydrocarbon phosphorous acid, barium salt	No	(²).
Hydrocarbon phosphoryl derivatives	No	(²).
Oxidized hydrocarbon mixture	No	ALX, FER, (²).
Oil-soluble petroleum sulfonates:		
Oil-soluble petroleum sulfonate, barium salt	No	TNA, WTC, (²).
Oil-soluble petroleum sulfonate, calcium salt	Yes	SOC, TNA, TX, WTC, (²), (²).
Oil-soluble petroleum sulfonate, magnesium salt	No	WTC, (²).
Oil-soluble petroleum sulfonate, mixed salts	No	(²).
Oil-soluble petroleum sulfonate, sodium salt	No	PAR, WTC.
All other oil-soluble petroleum sulfonate	No	DUP, MON, SOC, TX.
Pentaerythritol esters	No	FER.

See footnotes at end of table.

Table 14-2—Continued

Miscellaneous end-use chemicals and chemical products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Miscellaneous end-use chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 14-3)
Lubricating oil and grease additives—Continued		
Phenol salts:		
Alkylphenol, calcium salt	No	SOC, TX.
Alkylphenol, calcium salt, sulfurized	No	DIX.
Alkyl phenols	No	(²).
Dodecylphenol, sulfurized, calcium salt	No	SOC.
Nonylphenol, barium salt	No	CCA, FER, WTC.
All other phenol salts	No	SOC, TNA.
Succinimides:		
Alkenyl succinimide	No	SOC, TNA, TX, (²).
All other succinimides	No	SM, (²).
Sulfur compounds:		
Aliphatic hydrocarbon sulfides	No	ELC, FER, (²).
Di-tertiary nonylpolysulfide	No	PAS.
Triisobutylene polysulfide	No	AIP.
All other sulfur compounds	No	FER, QCP, TNA, (²), (²).
Polyisobutenyl succinic anhydride	No	FER.
1,3,4-Thiadiazole, 2,5-bis(dialkyldithio) derivatives	No	ELC.
Tributyl phosphite	No	ALW.
Trimethylol propane ester	No	SCP.
Very high molecular weight (>1000) hydrocarbons	No	(²).
Zinc dialkyldithiophosphate	No	ELC, SOC, TNA, TX.
Zinc dialkylphenol dithiophosphate	No	SOC.
Zinc dibutyl phosphorodithioate	No	ELC.
Zinc dihexyl phosphorodithioate	No	ELC.
Zinc hydrocarbon dithiophosphate	No	(²).
All other phosphorodithioates used as lubricating oil and grease additives	No	ELC, (²).
All other lubricating oil and grease additives, acyclic	No	ALW, DUP, ELC, FER, QCP, SCP, SM, TNA, TX, (²).
All other lubricating oil and grease additives, cyclic	No	ENJ, FER, SM, TNA, (²), (²), (²).
Paint driers, naphthenic acid salts:		
Barium naphthenate	No	QCP.
Cadmium naphthenate	No	CCA.
Calcium naphthenate	No	MCI, NOD, TRO.
Chromium naphthenate	No	MCI.
Cobalt naphthenate	No	MCI, NOD, SHP, TRO.
Iron naphthenate	No	MCI, NOD.
Lead naphthenate	No	MCI, NOD, SHP.
Manganese naphthenate	No	MCI, NOD, SHP.
Naphthenate driers, mixed salts	No	MCI.
Rare earths naphthenate	No	NOD.
Zinc naphthenate	No	MCI, NOD, TRO.
All other paint driers, naphthenic acid salts	No	SHP.
Photographic chemicals:		
4-Diazo-2,5-diethoxymorpholinobenzene	No	ALL.
2,5-Diethoxy-4-morpholinobenzenediazonium chloride	No	ALL.
p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline zinc chloride)	No	ALL.
p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline zinc chloride)	No	ALL.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	No	EKT.
p-Morpholinyl-2,5-dibutoxybenzene diazonium chloride	No	ALL.
Phenyl-5-mercaptotetrazole	No	FMT.
1-Phenyl-3-pyrazolidone	No	CWN.
Poly(vinyl-O-sulfobenzal)	No	DUP.
4-N-(1-Pyrrolyl)-m-toluenediazonium chloride	No	ALL.
All photographic chemicals	No	ALL, AMD, CHD, DAN, DUP, FMT, (²), (²), (²), (²).

See footnotes at end of table.

Table 14-2—Continued

Miscellaneous end-use chemicals and chemical products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Miscellaneous end-use chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 14-3)
Polymers for fibers:	Yes	
Cellulose acetate	No	EKT.
Copolyurethane urea	No	DUP.
Nylon 6 and 6/6:		
Nylon 6 (Polymer for fiber, only)	No	ACS, BLY, CNP.
Nylon 6/6	No	DUP, MON.
Polyacrylonitrile and acrylonitrile copolymers	No	ACY, BKM, DUP, MON.
Polyethylene terephthalate	Yes	DUP, EKT, FBI, FRF, GYR.
Poly-p-phenylene terephthalamide	No	DUP.
All other polymers for fibers	No	HCL.
Poly-m-phenylene isophthalamide	No	DUP.
Polymers, water soluble:		
Acrylamide polymers and co-polymers:	Yes	
Acrylamide-2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	No	(²).
Acrylamide-acrylic acid copolymer, sodium salt	No	BKM, (²).
Acrylamide-trimethylaminoethyl acrylate chloride polymer	No	(²).
Acrylamide-trimethylaminoethyl methacrylate chloride	No	(²).
Adipic acid-crosslinked polyacrylamide	No	BKM, ENJ, SCP, (²), (²).
Polyacrylamide	No	ACY, ENJ, MRK, SQA, (²).
All other polyacrylamide copolymers	No	ACY, HCL, (²).
Cellulose esters and ethers:	Yes	
Hydroxyethylcellulose	No	AQU, DOW, UCC, UPJ.
Hydroxyethyl hydroxypropyl cellulose	No	(²).
2-Hydroxypropyl cellulose	No	AQU.
Methylcellulose	No	DOW.
Sodium carboxymethylcellulose (100%)	Yes	AQU, CBC, LCS, MAK.
All other cellulose ethers and esters	No	AQU, PAH, S.
Dimethylamine epichlorohydrin ethylenediamine copolymer	No	(²).
Ethyl acrylate methacrylic acid copolymer	No	ALC.
Hydroxypropyl guar gum	No	AQU.
Poly(acrylic acid, ethyl ester)	No	DUP.
Poly(acrylic acid, methyl ester/ethylene/1,1-dichlorosuccinic acid, methylene-) with ethyl acrylate	No	DUP.
Polyacrylic acid salts:	Yes	
Ammonium polyacrylate	No	CCL, RH, (²), (²).
Polyacrylate methacrylate copolymers	No	RH, (²).
Polyacrylate poly(hydroxypropylacrylate) copolymer	No	(²).
Polyacrylic acid	No	MYO, (²), (²).
Sodium ammonium polyacrylate and copolymers	Yes	ALC, BAS, BFG, DIX, RH, SCP, (²), (²).
Sodium carboxymethyl amylose	No	CCL, SOH.
Sodium carboxymethyl starch	No	(²).
Sodium polyacrylate	No	BKM, MYO, SYT, (²).
Sodium polyacrylate, grafted	No	(²).
All other polyacrylic acid salts	No	BAS, BFG, DOW, PAH, RH, (²), (²), (²).
Polyacrylonitrile, hydrolyzed	No	BKM, GPC, RH.
Polyacrylonitrile, starch hydrolyzed polymer	No	GPC.
Polyamines	No	ENJ, QCP.
Polydextrose	No	PFZ.
Poly(diallyldimethylammonium chloride)	No	CPS, MRK, (²).
All other polymers, water soluble	No	BKM, DAN, GAF, PRA, RDA, RH, SCP, SYT, (²), (²), (²), (²), (²).
Polymethacrylic acid, sodium salt	No	ALC.
Poly(1,1'-(methylimino)bis(3-chloro-2-propanol)-tetramethylethylenediamine	No	BKM.
1-Vinyl-2-pyrrolidinone, copolymers with vinyl acetate	No	DAN.

See footnotes at end of table.

Table 14-2—Continued

Miscellaneous end-use chemicals and chemical products for which U.S. production and/or sales were reported, identified by manufacturer, 1991

Miscellaneous end-use chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 14-3)
Polymers, water soluble-Continued		
1-Vinyl-2-pyrrolidinone, polymers	No	DAN, GAF.
Xanthan gum	No	PFZ.
Poly-olefins:		
Poly- α -olefins	No	SM, SOC, TNA.
Poly- α -olefins, sulfurized	No	QCP, SM.
Rare sugars:		
D-Arabinose	No	PFN.
D-Galactose	No	PFN.
D-Glucosamine hydrochloride	No	(²).
D-Maltose	No	PFN.
All other rare sugars	No	BCK.
Silicone greases:		
Silicone greases	No	DCC, SPD, SWS.
Tanning materials, synthetic:		
1-Naphthalenesulfonic acid, formaldehyde condensate and salt	No	RH, S.
2-Naphthalenesulfonic acid, formaldehyde condensate and salt	No	HMP.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated)	No	RH.
Polyoxyalkylated cyclic amines	No	MIL.
All other tanning materials, synthetic	No	SCP.
Textile chemicals, other than surface active agents:		
Alkylphenol/formaldehyde polymer	No	(²).
N,N-bis-(2-Hydroxyethyl)octadecanamide	No	CCC.
N,N-Dibenzylhydroxylamine	No	CCC.
Dicyanodiamide formaldehyde ammonium chloride polymer	No	CCC, DAN, S.
Dimethyloldihydroxyethylene urea	No	ACY, CCC, CHP, DAN, SYT.
Formaldehyde polymer with carbamate esters	No	SYT.
Hydrogenated tallow fatty acid aminoethylethanolamine condensation products	No	CCC.
Lauryl alkyl dimethylamine acetate	No	(²).
Lauryl alkyl dimethylamine phosphate	No	(²).
Melamine formaldehyde methanol polymer	No	CCC.
Melamine formaldehyde copolymer	No	ENJ.
Melamine stearyl alcohol polymer	No	SYT.
Propoxylated starches	No	SYT.
2,2',4,4'-Tetrahydroxybenzophenone	No	BAS.
Tri(behenoyloxymethyl)trimethoxymethylmelamine	No	SYT.
Urea polymers with formaldehyde and methanol	No	ACY, CCC.
All textile chemicals, other than surface active agents	No	CCC, DUP, CHP, ENJ.
Urea, by end-use markets:		
Urea, primary solution (report on 100% urea-content basis)	No	ARM, BNP, CAC, CFI, CHN, FRI, HKY, MSC, SOC, SOH, TRI, UOC, WLC, WYC.
Urea in compounds or mixtures (100% basis):		
Urea in feed compounds (100% basis)	Yes	BNP, CAC, HKY, SOH, TRI, WYC.
Urea in liquid fertilizer (100% basis)	Yes	ARM, BNP, CFI, CHN, FRI, HKY, MSC, SMP, SOC, SOH, UOC, (²).
Urea in plastics (100% basis)	No	BGP, BNP, SOH, TRI.
Urea in solid fertilizer (100% basis)	Yes	BGP, CAC, CFI, FRI, HKY, SOH, TRI, UOC, WLC, WYC.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 14-3

Miscellaneous end-use chemicals and chemical products: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ACS	Allied Signal, Inc. Engineered Materials Sector	DGC	Degussa Corp.
ACY	American Cyanamid Co.	DIX	Dixie Chemical Co., Inc.
AIP	Air Products & Chemicals, Inc.	DOW	Dow Chemical Co
AJI	Ajinomoto USA, Inc.	DUP	E. I. duPont de Nemours & Co., Inc. ED/IMG Dept. Fibers Dept.
ALC	Alco Chemical Corp.	EK	Eastman Kodak Co.:
ALD	Aldrich Chemical Co., Inc.	EKT	Tennessee Eastman Co. Div.
ALL	Alliance Chemical, Inc.	ELC	Elco Corp. Sub. of Detrex Chemical Industries, Inc.
ALW	Albright & Wilson Americas, Inc.	ENJ	Exxon Chemical Americas
ALX	Alox Corp.	FBI	Fiber Industries, Inc.
AMD	Cyclo Products, Inc.	FER	Ferro Corp.: Bedford Chemical Div. Keil Chemical Div.
AMO	Amoco Corp.	FMT	Fairmount Chemical Co., Inc.
AQU	Aqualon	FRF	Firestone Tire & Rubber Co., Firestone Fibers & Textiles Co.
ARM	LaRoche Industries, Inc.	FRI	Famland Industries, Inc.
ATR	Atlantic Richfield Co., Arco Chemical Co.	GAF	ISP Chemicals, Inc.
BAS	BASF Corp.	GBF	International Bio-Synthetics, Inc.
BCK	Beckman Instruments, Inc., Diagnostics System Group	GFS	GFS Chemicals, Inc.
BCP	Borden Chemical & Plastics Delaware . Limited	GNR	Genencor, Inc.
BFG	B. F. Goodrich Co.	GPC	Grain Processing Corp.
BKM	Buckman Laboratories, Inc.	GRS	Citgo Refining & Chemicals, Inc.
BLY	Berkley & Co., Inc.	GTL	Great Lakes Chemical Corp.
BLZ	Belzak Corp.	GYR	Goodyear Tire & Rubber Co.
BNP	Terra International, Inc.	HCL	Hoechst Celanese Corp: Fibers Industrial Div. Sou-Tex Works.
BRS	Bristol-Myers Co.	HKY	Arcadian Corp.
CAC	Cominco Fertilizers, Inc.	HMP	W. R. Grace & Co., Organic Chemicals Div. Hampshire Chemical Div.
CBC	Carbose Corp.	HPC	Hercules, Inc.
CCA	Akzo Chemicals, Inc.	JFR	George A. Jeffreys & Co., Inc.
CCC	C.N.C. International, Inc.	LEM	Napp Chemicals, Inc.
CCL	Catawba-Charlab, Inc.	LYP	Lyondell Petrochemical Co.
CFI	CF Industries, Inc.	MAK	MAK Chemical Corp.
CGO	Citgo Petroleum, Corp.	MCI	Mooney Chemicals, Inc.
CGY	Ciba-Geigy Corp.	MIL	Milliken & Co., Milliken Chemical Div.
CHD	Chemdesign, Corp.	MNA	Monsanto Co., Agricultural Group
CHN	Wil-Gro Fertilizer, Inc.	MOC	Marathon Oil Co.
CHP	C. H. Patrick & Co., Inc.	MON	Monsanto Co.
CHT	Chattem, Inc.	MRK	Merck & Co., Inc.
CNE	Oxy Petrochemicals, Inc.	MSC	Mississippi Chemical Corp.
CNP	DSM Chemicals, North America	MYO	Mayo Chemical Co., Inc.
CO	Conoco Specialty Products, Inc.	NBI	Novo Nordisk Biochem, Inc.
CPS	CPS Chemical, Co., Inc.	NOD	Huls America, Inc.
CSD	Fina Oil & Chemical Co.		
CSP	Coastal Refining & Marketing, Inc.		
CWN	Upjohn Co., Fine Chemicals		
DA	Diamond Shamrock Refining & Marketing		
DAN	Hickson Danchem Corp.		
DCC	Dow Corning Corp.		

Table 14-3—Continued
Miscellaneous end-use chemicals and chemical products: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
PAH	Parish Chemical Co.	SOH	BP Chemicals, Inc.
PAR	Pennzoil Products Co., Penreco Div.	SPD	General Electric Co., Silicone Products Div.
PAS	ELF Atochem North America, Inc.	SPR	Scientific Protein Laboratories
PFZ	Pfizer, Inc.	SQA	Sequa Chemicals, Inc.
PIC	Pierce Chemical Co.	SUN	Sun Co., Inc.
PLB	Pharmacia P-L Biochemicals, Inc.	SWS	Wacker Silicones, Corp.
PLC	Phillips 66 Co.	SYT	Synthron, Inc.
PMP	PMP Fermentation Products, Inc.	TNA	Ethyl Corp.
PRA	Para-Chem Southern, Inc.	TPC	Texas Petrochemicals Corp.
QCP	Quaker Chemical Corp.	TRI	Triad Chemical
RDA	Rhone-Poulenc, Inc.	TRO	Troy Chemical Corp.
REG	Regis Chemical Co.	TX	Texaco Chemical Co.
RH	Rohm & Haas Co.	UCC	Union Carbide Corp., Industrial Chemical Div.
RSA	R.S.A. Corp.	UOC	Union Oil Co. of California
S	Sandoz Chemical Corp., Colors & Chemicals Div.	UPJ	Upjohn Co.
SCP	Henkel Corp.	UPM	UOP Inc.
SHC	Shell Oil Co., Shell Chemical Co.	USR	Uniroyal Chemical Co., Inc.
SHP	Shepherd Chemical Co.	VLR	Valero Refining & Marketing Co.
SM	Mobil Oil Corp., Chemical Product Div. Beaumont Refinery Div.	VNC	Vanderbilt Chemical Corp.
SMP	J. R. Simplot Co.	WLC	Freeport-McMoran Resource Partners
SOC	Chevron Corp., Chevron Chemical Co.	WTC	Witco Corp.
SOG	Phibro Refining	WYC	Coastal Chem, Inc.

Note.—Complete names, telephone numbers, and addresses of the above reporting companies are listed in table 1 of the appendix.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Section 15

Miscellaneous Cyclic and Acyclic Chemicals

The term "miscellaneous chemicals" as it is used here comprises those synthetic organic products that are not included in the use groups covered by sections I-XIV of this report. They include products that are employed in a great variety of applications. The number of chemicals used extensively for only one purpose is not large. Among the products covered in this section are those used for refrigerants, aerosols, solvents, catalysts, corrosion inhibitors, additives in plastics and food products, and, especially, a wide range of acyclic chemical intermediates.

Figure 15-1 shows the trend of production of miscellaneous chemicals during 1987-91, and shows that the substantial rate of increase after 1985 came to an end in 1991. Production in 1991 was practically the same as in 1990, as was the volume of sales. However, the value of sales decreased 3.5 percent, reflecting lower prices as well as a different product mix.

U.S. production of miscellaneous cyclic and acyclic chemicals in 1991 (Table 1-15) amounted to 49.9 billion kilograms; acyclic chemicals comprised 96.4 percent of this section's total production.

Because most of the production of miscellaneous chemicals is used internally by their producers to make more advanced intermediates and other chemical products, their sales are much smaller than their production. In 1991, sales of miscellaneous chemicals were 20.5 billion kilograms, valued at \$12.5 billion, compared with 21.2 billion kilograms, valued at \$14.5 billion, in 1990. The average unit value of sales in 1991, 66.0 cents per kilogram, was 3.5 percent smaller than the previous year's 68.4 cents per kilogram.

Oxygenated hydrocarbons accounted for about 62 percent of the production of all acyclic miscellaneous chemicals, compared with 60 percent in 1990. Production of oxygenated hydrocarbons, which include organic acids, alcohols (the largest group), ketones, esters, ethers, aldehydes, epoxides, and other chemicals, was 30.0 billion kilograms in 1991, a significant increase over the 28.7 billion kilograms produced in 1990.

Essentially the same in volume in miscellaneous acyclic chemicals are the alcohols group and the

chlorinated hydrocarbons group, the latter numbering nearly 50 chemicals. Production of chlorinated hydrocarbons was about 12.0 billion kilograms in 1991, about 1.2 billion kilograms less than in 1990. Carbon tetrachloride, dichloromethane, tetrachloroethylene, 1,1,1-trichloroethane, vinyl chloride, and perchlorethylene (among the publishable items) lost ground in production in 1991. However, chloroform, methyl chloride, and some of the smaller items held their own or increased slightly. (Production of several of these chlorinated chemicals, because of their negative effect on stratospheric ozone, is being phased out over a number of years by international agreement.)

The alcohols comprise two groups—monohydric alcohols (e.g., methanol, synthetic ethyl alcohol) and polyhydric alcohols (e.g., ethylene glycol). Their production in 1991, 11.8 billion kilograms, was 15 percent larger than in 1990. The greatest gain was engendered by certain of the "all other" alcohols. Of those specifically identified, methanol, the leader, was up by 5 percent in production in 1991, whereas ethylene glycol, ranking second in production volume, was slightly down.

Virtually in a tie for third place among the major categories of miscellaneous acyclic chemicals, each with production between 4.1 and 4.5 billion kilograms in 1991, are aldehydes, nitrogenous compounds, and acids/anhydrides. All three groups declined in 1991: production of acids dropped 16 percent from the previous year, that of nitrogenous chemicals 10 percent, and aldehydes 0.8 percent. Noteworthy for increased production in 1991 were butyraldehydes, acrylic acid, dimer acid, and hydrogenated fatty acids.

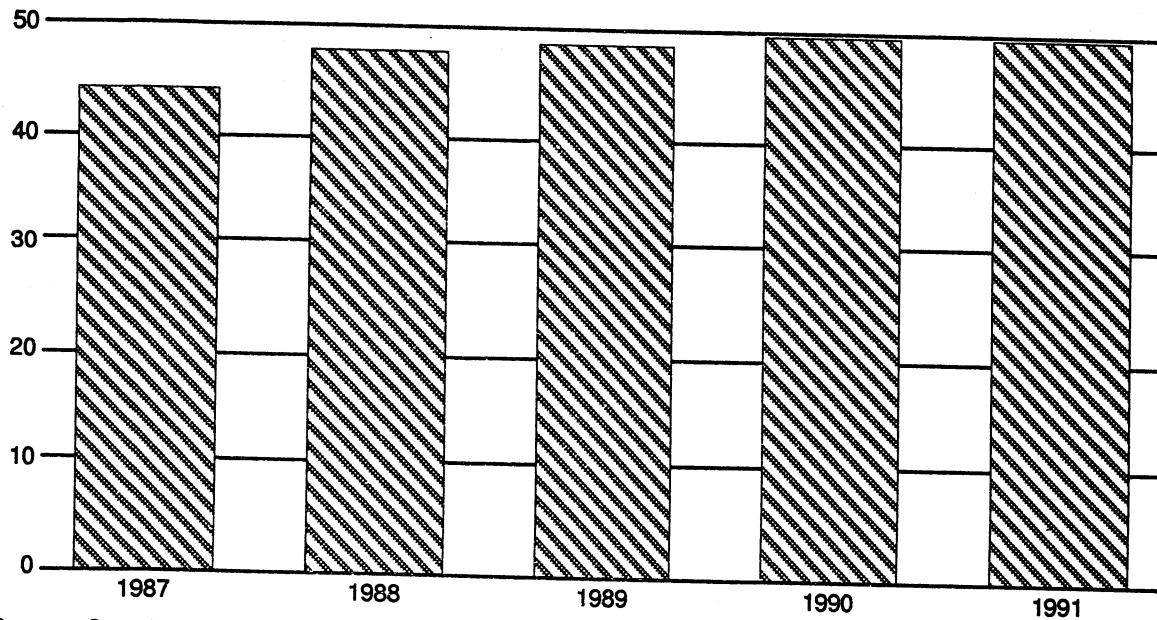
In the other groups in section 15, those that were produced in greater volume in 1991 than in 1990 include benzoyl peroxide, sodium acetate, methyl ethyl ketone, n-butyl acetate, butyl acrylate, vinyl acetate, diethylene glycol monobutyl ether, polyethylene glycol, chlorodifluoromethane (F-22), acyclic peroxides, and phosgene.

Table 15-2 lists the products in this section individually identified by manufacturer(s) codes. Table 15-3 lists those codes alphabetically and identifies the manufacturer by name.

Aimison Jonnard
202-205-3350

Figure 15-1
Miscellaneous cyclic and acyclic chemicals: U.S. production, 1987-91

*Billions
of kilograms*



Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 15-1
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Grand total	49,753,773	21,359,432	14,689,787	\$0.66
Cyclic				
Total	1,770,685	723,325	1,525,547	2.11
Benzoic acid esters	1,615	715	1,981	2.77
Benzoic acid salts, total	(²)	17,055	22,212	1.30
Potassium benzoate	(²)	3,139	5,102	1.62
Benzoyl peroxide	7,367	5,866	33,534	5.72
tert-butyl peroxybenzoate	2,905	2,956	15,683	5.31
Caprolactam	582,214	147,828	216,811	1.47
Hexamethylenetetramine	31,928	(²)	(²)	(²)
Lactones	80,202	10,611	28,127	2.65
Maleic anhydride ³	172,726	142,857	124,166	.87
Morpholine	24,162	15,427	26,119	1.69
Pinene and derivatives, total	142,645	31,520	33,908	1.08
Pine oil, natural, sulfate	2,254	1,668	1,136	.68
Pine oil, synthetic	21,539	21,375	24,288	1.14
All other pinene and derivatives	118,852	8,477	8,484	1.00
Succinic anhydride derivatives, total	(²)	9,117	20,529	2.25
Dodecenylsuccinic anhydride	2,135	1,664	3,494	2.10
Octenylsuccinic anhydride	1,161	1,062	4,000	3.77
All other succinic anhydride derivatives	(²)	6,391	13,035	2.04
All other miscellaneous cyclic chemicals	721,625	339,373	1,002,477	2.95
Acyclic				
Total	47,983,088	20,636,107	13,164,240	.64
Nitrogenous compounds				
Total	4,197,068	1,835,077	1,685,961	.92
Amides, total	72,217	75,978	141,397	1.86
Erucamide	5,314	3,978	18,455	4.64
N,N'-Ethylenebis-stearamide	14,029	14,217	20,602	1.45
All other amides	52,874	57,783	102,340	1.77
Amines, total ⁴	508,320	329,424	450,238	1.37
Butylamines, total	10,103	10,360	23,637	2.28
n-Butylamine	(²)	1,226	2,707	2.21
Di-n-butylamine	3,690	3,562	6,453	1.81
All other butylamines	(²)	5,572	14,477	2.60

See footnotes at end of table.

Table 15-1—Continued
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
Nitrogenous compounds—Continued				
Amines—Continued				
Diethylenetriamine	32,709	25,431	59,841	\$2.35
Dimethylaminopropylamine	6,445	4,299	9,900	2.30
Diethylamine	7,405	2,479	4,778	1.93
Ethylenediamine	41,453	26,177	47,580	1.82
Triethylamine	(²)	9,679	18,259	1.89
Triethylenetetramine	13,881	9,571	17,713	1.85
All other amines	396,324	241,428	268,530	1.12
Aminoethylethanolamine	11,010	(²)	(²)	(²)
Ethanolamines, total ³	298,403	223,111	195,084	.87
2,2'-Aminodiethanol (Diethanolamine)	89,934	75,440	60,215	.80
2-Aminoethanol (Monoethanolamine)	122,494	69,697	60,724	.87
2,2',2''-Nitrilotriethanol (Triethanolamine)	85,975	77,974	74,145	.95
Nitriles, total	2,330,811	809,892	583,289	.72
Acetonitrile	10,243	(²)	(²)	(²)
Acrylonitrile ³	1,200,857	768,859	508,096	.66
2-Methylactonitrile (Acetone cyanohydrin)	536,270	(²)	(²)	(²)
All other nitriles	583,441	41,033	75,193	1.83
All other nitrogenous compounds	976,307	396,672	315,953	.80
Acids, acyl halides and anhydrides				
Total	4,125,121	1,405,956	1,312,304	.93
Acetic acid, synthetic, 100%	1,639,897	483,010	199,868	.41
Acetic anhydride	(²)	154,145	142,236	.92
Acrylic acid	511,976	146,457	164,942	1.13
Dimer acid (C ₃₆ dibasic acid)	18,647	15,345	17,370	1.13
Fatty acids	13,422	13,644	9,367	.69
Fatty acids, hydrogenated ⁵	195,254	151,805	95,718	.63
Fumaric acid	(²)	11,553	14,344	1.24
Pivaloyl chloride	2,685	(²)	(²)	(²)
All other acids, acyl halides and anhydrides	1,743,240	429,997	668,459	1.55

See footnotes at end of table.

Table 15-1—Continued
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
Salts of organic acids				
Total	172,829	146,856	249,581	\$1.70
Acetic acid salts, total	23,448	10,056	20,957	2.08
Ammonium acetate	33	21	56	2.67
Potassium acetate	1,210	1,239	1,915	1.54
Sodium acetate	20,014	(²)	(²)	(²)
All other acetic acid salts	2,191	(²)	(²)	(²)
2-Ethylhexanoic acid (α -Ethylcaproic acid) salts, total	10,047	7,584	27,499	3.63
Calcium 2-ethylhexanoate	1,459	1,309	2,857	2.18
Cobalt 2-ethylhexanoate	1,640	1,437	8,214	5.72
Lead 2-ethylhexanoate	139	128	284	2.22
Manganese 2-ethylhexanoate	469	478	1,253	2.62
Zinc 2-ethylhexanoate	727	207	730	3.53
All other 2-ethylhexanoic acid salts	5,613	4,025	14,161	3.52
Lactic acid salts	276	292	959	3.29
Lauric acid salts	577	154	1,190	7.71
Octanoic acid, aluminum salt	136	(²)	(²)	(²)
Oxalic acid salts	23	46	183	3.99
Propionic acid, calcium salt	16,378	14,245	14,199	1.00
Stearic acid salts, total ⁶	64,232	62,774	93,753	1.49
Aluminum stearates, total	(²)	2,068	5,344	2.58
Aluminum monostearate	184	(²)	(²)	(²)
Aluminum tristearate	664	703	2,089	2.97
All other aluminum stearate salts	(²)	1,365	3,255	2.39
Cadmium stearate	(²)	37	229	6.19
Calcium stearate	40,546	39,943	47,195	1.18
Magnesium stearate	3,347	3,584	7,395	2.06
Zinc stearate	15,723	15,224	28,483	1.87
All other stearic acid salts	3,768	1,918	5,107	2.66
All other salts of organic acids	57,712	51,705	90,841	1.75

See footnotes at end of table.

Table 15-1—Continued
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
Aldehydes				
Total	4,514,072	1,177,127	280,153	\$0.24
n-Butyraldehyde	870,437	31,595	16,106	.51
Formaldehyde (37% by weight) ³	2,999,191	979,529	127,319	.13
All other aldehydes	644,444	166,003	136,728	.82
Ketones				
Total	1,437,649	1,133,340	736,640	.65
Acetone	1,064,701	778,430	397,225	.51
Diacetone alcohol (Hydroxymethyl pentanone)	(²)	8,803	10,793	1.23
Methyl ethyl ketone (2-Butanone)	232,761	225,565	168,574	.75
4-Methyl-2-pentanone (Methyl isobutyl ketone)	82,049	79,923	83,933	1.05
All other ketones	58,138	40,619	76,115	1.87
Alcohols, monohydric, unsubstituted				
Total	8,477,026	4,376,636	1,685,521	..39
Alcohols, C ₁₁ or lower, unmixed, total	7,801,956	4,126,041	1,353,828	.33
n-Butyl alcohol (n-Propylcarbinol)	598,641	338,502	186,834	.55
Isobutyl alcohol (Isopropylcarbinol) ³	61,226	61,232	32,721	.53
Ethyl alcohol, synthetic ⁷	124,835	268,035	139,151	.52
2-Ethyl-1-hexanol	297,975	159,846	119,874	.75
Isopropyl alcohol	608,656	498,258	270,145	.54
Methanol, synthetic	3,948,035	2,494,614	379,606	.15
Propyl alcohol (Propanol)	78,710	47,499	38,294	.81
All other alcohols, C ₁₁ or lower, unmixed	2,083,878	258,055	187,203	.73
Alcohols, C ₁₂ and higher, unmixed, total	96,611	(²)	(²)	(²)
Dodecanol (Lauryl alcohol)	(²)	4,101	7,483	1.83
All other alcohols, C ₁₂ and higher, unmixed	(²)	(²)	(²)	(²)
Mixtures of alcohols, total	578,459	(²)	(²)	(²)
Containing C ₁₁ and lower	(²)	49,224	49,765	1.01
Containing C ₁₂ through C ₁₈ ⁸	313,845	145,303	196,651	1.35
All other mixtures of alcohols	264,614	(²)	(²)	(²)

See footnotes at end of table.

Table 15-1—Continued
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
Esters of monohydric alcohols				
Total	2,948,534	1,724,640	1,420,998	\$0.82
Butylacetates, total	193,736	120,425	94,985	.79
n-Butyl acetate	167,956	95,600	76,845	.80
Isobutyl acetates	25,780	24,825	18,140	.73
Butyl acrylate	285,169	118,312	144,546	1.22
sec-Butyl chloroformate	1,013	841	2,428	2.89
Dilauryl-3,3'-thiodipropionate	625	633	2,434	3.84
Distearyl-3,3'-thiodipropionate	2,287	2,244	8,857	3.95
Ethyl acetate (100% basis) ³	117,811	108,634	82,042	.76
Ethyl acrylate	138,987	63,155	69,729	1.10
2-Ethylhexyl acrylate	48,027	41,443	56,847	1.37
Fatty acid esters, not included with plasticizers or surface-active agents, total	9,440	2,060	4,418	2.15
Methyl esters of tallow	(²)	240	219	.91
All other fatty acid esters, not included with plasticizers or surface-active agents	9,440	1,820	4,199	2.31
Isopropyl acetate	24,381	20,817	19,232	.92
Methyl methacrylate	499,790	46,410	38,482	.83
Phosphorus acid esters, not elsewhere specified	34,448	24,950	66,353	2.66
Propyl acetate	36,146	31,478	32,240	1.02
Vinyl acetate	1,239,389	973,470	546,959	.56
All other esters of monohydric alcohols	317,285	169,768	251,446	1.48
Polyhydric alcohols⁹				
Total	3,343,456	2,619,154	1,608,435	.61
1,4-Butanediol	215,951	(²)	(²)	(²)
Ethylene glycol ³	2,181,568	2,004,390	925,262	.46
Pentaerythritol	51,767	50,335	67,307	1.34
Propylene glycol	301,902	243,078	224,420	.92
Sorbitol (70%)	66,114	59,065	32,761	.55
Sorbitol, crystalline	66,349	60,621	72,415	1.19
All other polyhydric alcohols	459,805	(²)	(²)	(²)

See footnotes at end of table.

Table 15-1—Continued
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
Esters and ethers of polyhydric alcohols				
Total	1,143,285	873,754	943,177	\$1.08
Polyhydric alcohol esters, total	133,005	116,429	181,739	1.56
2-Butoxyethyl acetate	6,173	5,676	8,693	1.53
All other polyhydric alcohol esters	126,832	110,753	173,046	1.56
Polyhydric alcohol ethers, total	1,010,280	757,325	761,438	1.01
2-Butoxyethanol (Ethylene glycol monobutyl ether)	156,437	164,896	110,922	.67
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	109,070	39,048	44,809	1.15
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)	12,250	(²)	(²)	(²)
Diethylene glycol	221,185	169,271	87,266	.52
2-Ethoxyethanol (Ethylene glycol ethyl ether)	31,886	18,359	12,366	.67
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	12,797	10,814	14,171	1.31
Glycol ethers derived from propylene oxide	79,592	47,572	49,414	1.04
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	15,959	15,842	14,819	.94
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	11,959	(²)	(²)	(²)
Polyether polyols based on propylene oxide, total ..	31,439	12,364	18,853	1.52
Polypropylene glycol	(²)	8,754	13,458	1.54
Sorbitol, alkoxyated & ethoxyated	375	(²)	(²)	(²)
Polyethylene glycol	61,519	61,802	87,350	1.41
Polytetramethylene glycol ether	(²)	22,899	78,925	3.45
Tetraethylene glycol	12,782	(²)	(²)	(²)
Triethylene glycol	53,302	46,480	44,764	.96
All other polyhydric alcohol ethers	199,728	147,978	197,779	1.34
Brominated hydrocarbons				
Total	12,863	(²)	(²)	(²)
1-Bromobutane	(²)	369	938	2.54
All other brominated hydrocarbons	12,863	(²)	(²)	(²)

See footnotes at end of table.

Table 15-1—Continued
Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
Chlorinated hydrocarbons				
Total	11,998,453	4,264,596	1,048,353	\$.25
Carbon tetrachloride ³	142,944	172,911	25,292	.15
Chlorinated paraffins:				
35%-64% chlorine	39,637	39,243	26,103	.67
65% or more chlorine	7,694	7,609	7,727	1.02
Chloroform (Trichloromethane)	228,901	214,119	88,692	.41
Chloromethane (Methyl chloride) ³	415,297	74,624	27,703	.37
Dichloromethane (Methylene chloride)	176,648	140,897	48,679	.35
Ethylene dichloride (1,2-Dichloroethane) ³	6,220,003	1,439,902	139,592	.10
Tetrachloroethylene (Perchloroethylene)	108,624	165,326	36,248	.22
1,1,1-Trichloroethane (Methyl chloroform)	292,285	241,469	120,256	.50
Vinyl chloride, monomer (Chloroethylene) ³	4,024,514	1,641,925	455,996	.28
All other chlorinated hydrocarbons ⁵	341,906	126,571	72,065	.57
Fluorinated (Including other fluorohalogenated) hydrocarbons				
Total	367,335	304,716	744,582	2.44
Chlorodifluoromethane (F-22)	142,641	108,414	260,405	2.40
Dichlorodifluoromethane (F-12)	71,253	88,160	184,250	2.09
Trichlorofluoromethane (F-11)	44,916	56,046	96,316	1.72
All other fluorinated (including other fluorohalogenated) hydrocarbons	108,525	52,096	203,611	3.91
All other miscellaneous acyclic chemicals				
Total	5,245,397	774,255	1,448,535	1.87
Acyclic peroxides, total				
	37,615	32,778	197,815	6.04
2-Butanone peroxide (MEK peroxide)	2,791	2,546	23,250	9.13
All other acyclic peroxides	34,824	30,232	174,565	5.76
Expoxides, ethers and acetals, total				
	4,049,128	508,430	525,877	1.03
Ethylene oxide	2,380,363	245,346	237,317	.97
All other expoexides, ethers and acetals	1,668,765	263,084	288,560	1.10
Fats and oils, chemically modified, total¹⁰				
	17,562	16,942	17,607	1.04
Hydrogenated tallow glycerides	7,756	7,329	4,638	.63
All other fats oils, chemically modified	9,806	9,613	12,969	1.35
Hydrocarbons	13,221	(²)	(²)	(²)

See footnotes at end of table.

Table 15-1—Continued
 Miscellaneous cyclic and acyclic chemicals: U.S. production and sales, 1991

Miscellaneous cyclic and acyclic chemicals	Production	Sales		Average unit value ¹
		Quantity	Value	
	1,000 kilograms	1,000 kilograms	1,000 dollars	Per kilogram
Acyclic—Continued				
All other miscellaneous acyclic chemicals—Continued				
Organo-aluminum compounds	49,154	15,232	72,623	\$4.77
Organo-boron compounds	(²)	359	2,615	7.28
Organ-tin compounds	13,645	11,400	72,655	6.37
Phosgene (Carbonyl chloride)	318,242	(²)	(²)	(²)
Silicone fluids	60,179	43,715	237,565	5.43
All other miscellaneous acyclic chemicals	686,651	145,399	321,778	2.21
Mixtures not specifically itemized				
Total	141,286	119,651	36,275	.30
Fatty acid residues	68,111	29,532	3,171	.11
All other mixtures not specifically itemized ¹¹	73,175	90,119	33,104	.37

¹ Calculated from unrounded figures.

² Reported data are accepted in confidence and may not be published, or no data were reported.

³ The difference between the production reported here and that shown on the *Preliminary Report on U.S. Production of Selected Organic Chemicals (including Synthetic Plastics and Resin Materials), 1991*, results from a combination of incorrect reporting or non-reporting by some companies, and end-of-year inventory and other adjustments.

⁴ Statistics limited to compounds of carbon, hydrogen, and nitrogen; and exclude production and sales of fatty amines. Statistics on fatty amines are included in the section on "Surface-Active Agents."

⁵ Excludes minor amounts reported as "fatty acids" and "partially hydrogenate."

⁶ Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section on "Surface-Active Agents."

⁷ Synthetic ethyl alcohol is conventionally defined as that portion made from ethylene. Bureau of Alcohol, Tobacco, and Firearms statistics give the production from "natural" sources, mainly grain.

⁸ Includes small amount of mixtures of alcohols on both sides of the C11-C12 dividing line.

⁹ Some polyols which are used as intermediates for urethanes have been included in the section on "Plastics and Resin Materials."

¹⁰ Other than esters, salts, alcohols, acids, or acyl halides, which are tabulated in preceding groups.

¹¹ Products included here are predominately acyclic; however, unspecified amounts of mixtures containing some cyclic chemicals may also be included.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 15-2

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, cyclic:	Yes	
6-Acetoxy-2,4-dimethyl-1,3-dioxane	No	BAK, GIV, (?).
Acetylfuran	No	QKO.
Alkylphenol formaldehyde condensate, alkoxylated	No	(?).
Alkylphenol formaldehyde copolymer	No	(?).
1-(2-Aminoethyl)piperazine	No	DOW.
(2S-trans)-3-Amino-2-methyl-4-oxo-1-azetidinesulfonic acid, inner salt	No	BRS.
1-(3-Aminopropyl)morpholine	No	TX.
t-Amyl peroxybenzoate	No	WTL.
p-Amylphenol	No	(?).
α -Aspartyl-phenylalanane methyl ester	No	HXL.
Benzenephosphinic acid	No	FER.
Benzenesulfonic acid, 2,5-bis[(1,2-dioxobutyl)amino]-	No	BRD.
p-Benzoquinone	No	EKT.
Benzotriazole, potassium (&) sodium salts	No	(?).
Benzotriazole, substituted	No	CGY.
Benzoyl peroxide	Yes	AZT, CAD, NOC, PAS, RCI, WTL.
Benzyl alcohol	No	KLM.
Benzyl chloroformate	No	HCC, VCM.
Benzyl 4-hydroxy benzoate	No	CHD.
Benzoic acid esters:	Yes	
Benzoic acid, butyl ester (Butyl benzoate)	No	PCI, UTC.
Benzoic acid, C ₁₂ -C ₁₅ ester	No	FTX.
Benzoic acid, isodecyl ester	No	VEL.
Methyl-4-hydroxybenzoate	No	CHD.
Resorcinol monobenzoate	No	EKT.
Sucrose benzoate	No	VEL.
All other benzoic acid esters	No	(?).
Benzoic acid salts:		
Barium benzoate	No	FER.
Cadmium benzoate	No	CCA.
Potassium benzoate	Yes	CHO, HFT, KLM, PFZ.
Sodium benzoate	No	CHO, HCP, HFT, JRC, KLM.
All other benzoic acid salts	No	FER.
α, α -Bis(t-butylperoxy)diisopropylbenzene	No	WTL.
Bis[p-chlorobenzoyl]peroxide	No	CAD.
1,2-Bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazine	No	ASL.
Bis(2,4-dichlorobenzoyl) peroxide	No	CAD.
Bis(α, α -dimethylbenzyl)peroxide	No	WTL.
1,3-Bis(2-hydroxyethyl-5,5-dimethyl)-2,4-imidazolidinedione	No	BRD.
2,2-Bis(4-hydroxyphenyl)4-methylpentane	No	ASL.
Bis(perfluoroalkyl)bis(alpha-monochlorohydril)-pyromellitate	No	HCL.
Bisphenol epichlorohydrin	No	BAS.
Bis(triphenylsilyl)chromate	No	(?).
Brominated diphenyl ethers	No	TNA.
Bromochloro-5,5'-dimethyl hydantoin	No	BRD, GTL.
2-Bromo-6-methoxynaphthylene	No	HFT.
β -Bromo- β -nitrostyrene	No	GIV.
2-Butoxyethyl benzoate (Butyl cellosolve benzoate)	No	(?).
tert-Butylhydroquinone	No	EKT.
2 (and 3)-tert-Butyl-4-methoxyphenol (Butylated hydroxyanisole, or, BHA)	No	EKT, UPM.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, cyclic-Continued		
Butylmorpholine	No	TX.
tert-Butyl peroxybenzoate	No	AZT, NOC, PAS, WTC, WTL.
Camphene	Yes	SCM.
Campholenic aldehyde	No	PAS.
Caprolactam (2-Oxohexamethylenimine)	No	ACS, BAS, CNP.
Caprolactam magnesium bromide	Yes	FER.
Carbobenzoxy-L-azetidinone sodium salt	No	BRS.
Cellulose acetate hexahydrophthalate	No	(?)
Cellulose acetate phthalate	No	EK, WTC.
Centralite-1	No	(?)
Chlorothioxanthone	No	PSG.
Cumene hydroperoxide	No	BTL, WTL.
α-Cumyl peroxyneodecanoate	No	PAS, WTC.
α-Cumyl peroxyneohexanoate	No	WTL.
Cyanuric acid	No	MON.
Cyclic adducted amine curing agents	No	VEL.
Cyclic silizane	No	PCR.
Cyclohexane carbonitrile	No	DUP.
1,4-Cyclohexanedicarboxylic acid	No	EKT.
Cyclohexanethiol	No	PAS.
2-Cyclohexene-1-octanoic acid, 5 (and 6)-carboxy-4-hexyl, C ₂₁ H ₃₆ O ₄	No	WVA.
Cyclohexylamine	No	HCL.
1,4-Cyclohexylenedimethanol	No	EKT.
Cyclohexyl methacrylate	No	CPS.
Decabromodiphenyl ether (DBDP)	No	GTL, TNA.
Diamino cyclohexane	No	HXL.
1,1-Di(t-amyloxy)cyclohexane	No	PAS, WTL.
1,4-Diazobicyclo(2.2.2)octane	No	(?)
Dibenzylglycerol	No	DIX.
2,6-Di-tert-butyl-p-cresol (BHT, or, Butylated hydroxytoluene)	No	UCC, USR.
Di-t-butyl diperoxy phthalate	No	WTL.
2,5-Di-tert-butylhydroquinone	No	EKT.
2,6-Di-t-butyl-4-nonylphenol	No	RDA.
1,1-Di(t-butyl peroxy) cyclohexane	No	AZT, PAS.
1,1-Di(t-butyl peroxy) cyclohexane	No	WTL.
1,1-Di(t-butyl peroxy)-3,3,5-trimethyl cyclohexane	No	PAS.
1,1-Di(t-butyl peroxy)-3,3,5-trimethyl cyclohexane	No	WTL.
2,4-Di-t-butyl phenyl 3,5-di-t-butyl hydroxybenzoate	No	FER.
1,3-Dichloro-5,5-dimethylhydantoin	No	BRD.
1,3-Dichloro-5-ethyl-5-methyl-2,4-imidazolidinedione	No	BRD.
Dicumyl peroxide	No	PAS.
Dicyclopentadienyl acrylate	No	RDA.
Dicyclopentadienylchromium (Chromocene)	No	(?)
3-Diethylamino-6-methyl-7-(2,4-dimethylanilino) fluoran	No	ESA.
N,N'-Diethyl-N,N'-diphenylurea	No	VCM.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline (Ethoxyquin)	No	MNA.
Dihydro-2,5-furandione	No	BCC.
2,5-Dihydrothiophene-1,1-dioxide (Sulfolene)	No	PLC.
1,3-Dihydroxymethyl-5,5-dimethyl-2,4-imidazolidinedione	No	BRD.
4,4-Dihydroxymethyl-2-oxazoline	No	ANG.
Diiodomethyl-p-tolylsulfone	No	ANG.
1,3-Diisopropylbenzene	No	EKT.
1,4-Diisopropylbenzene	No	EKT.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, cyclic-Continued		
Diisopropyl/naphthalene sulf. acid amine salts	No	(?)
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	No	ASL
4,4-Dimethyl oxazolidene	No	ANG, EFH.
1,2-Di-(3-methylphenoxy ethane)	No	CHD.
N,N-Dimethylphenyl urea	No	(?)
Dimethyl piperazine	No	TX.
Dimorpholine diethyl ether	No	TX.
Di-tert-octyl hydroquinone	No	EKT.
Dioxane (1,4-Diethylene oxide)	No	FER.
Dioxolanone	No	(?)
1,4-Dioxycycloheptadiene	No	SCP.
1,2-Diphenoxyethane	No	ASL, CHD.
Diphenyl-t-butylhexyl phosphite	No	WTC.
Diphenyl carbonate	No	VCM.
Diphenylisodecyl phosphite	No	WTC.
Diphenylisooctyl phosphite	No	WTC.
Dipropylene glycol salicylate	No	EKT, SBC.
Di(tetrahydrofuryl)propane	No	QKO.
Dodecyl pyridinium chloride	No	TLC.
6-Ethoxy-12-dihydro-2,2,4-trimethyl quinoline	No	MON.
Ethylene-bis-tetrabromophthalimide	No	TNA.
Ethyleneimine (Aziridine)	No	SCN.
2-Ethylhexyl-1-p-dimethylaminobenzoate	No	VND.
2-Ethylhexyl-p-methoxy cinnamate	No	VND.
2-Ethylhexyl salicylate	No	BDS, VND.
4-Ethyl-4-hydroxymethyloxazoline	No	ANG.
Ethylidene norbornene	No	UCC.
4-Ethylmorpholine	No	TX.
o-Ethylphenol	No	ASL.
2-(Formylamino)-L-oxo-4-thiazole acetic acid	No	BRS.
Furan derivatives:		
2-Furaldehyde (Furfural)	No	QKO.
Furanacrolein	No	EKT.
Furfuryl amine	No	QKO.
Furoic acid	No	QKO.
Methyl furan	No	QKO.
Tetrahydrofurfuryl alcohol	No	QKO.
All other furan derivatives	No	QKO.
Hexabromocyclodecane	No	GTL.
Hexabromocyclododecane	No	TNA.
Hexahydro-1,3-isobenzofurandione	No	BCC.
Hexahydro-5-methyl-1,3-isobenzofurandione	No	BCC.
Hexahydrophthalic anhydride	No	DIX.
Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine	No	ANG.
Hexamethylenetetramine	Yes	BOR, HMP, PLS, WCL
Homomenthol salicylate	No	WTC.
Hydrindantin	No	PIC.
Hydroquinone, di(β-hydroxyethyl) ether	No	EKT.
p-Hydroxybenzoic acid, butyl ester	No	KLM.
p-Hydroxybenzoic acid, ethyl ester (Ethyl paraben)	No	KLM.
p-Hydroxybenzoic acid, methyl ester	No	KLM.
p-Hydroxybenzoic acid, propyl ester	No	KLM.
N-(Hydroxyethyl)piperazine	No	SCP.
Hydroxymethyl-bis-oxazoline	No	ANG.
Hydroxymethyl-5,5-hydantoin	No	BRD.
α-D-p-Hydroxyphenylglycine methyl ester K	No	BOC.
1,2,3-Indantrione monohydrate (Ninhydrin)	No	PIC.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, cyclic-Continued		
Isobornyl acrylate	No	RDA.
Isobornyl methacrylate	No	RDA.
Isooctyl-3,5-di-t-butyl-4-hydroxyhydrocinnamate	No	ASL.
Isophoronitrile	No	HMP.
Lactones:	Yes	
Butyrolactone	No	ATR, BAS, GAF.
Caprolactone	No	UCC.
Diketene	No	BRD, EKT.
Lead/copper salicylate/resorcylate	No	SHF.
Lignin amine	No	ARC.
5-Lithiosulfoisophthalic acid	No	EKT.
Maleic anhydride	No	AMO, ART, ASH, DKA, MON.
p-Menthane	No	SCM.
p-Menthane hydroperoxide	No	SCM.
Methoxyethyl morpholine	No	TX.
4-Methoxyphenol	No	ASL, EKT.
Methylbenzene sulfonate	No	EK.
Methyl-p-benzoquinone	No	EK.
Methyl-N-(L-caroyd(hydrobenzyl)-b-amino crotonate, sodium salt	No	BRS.
2-Methylcyclohexylamine	No	AIP.
3-(N-Methyl-N-cyclohexylamino)-6-methyl-7-anilino fluoran	No	GTL.
Methyl gallate	No	BRS.
4-Methylmorpholine	No	TX.
1-Methyl-2-pyrrolidone, monomer	No	ATR, BAS, GAF.
2- and 5-Methyl resorcinol	No	WYK.
Methyl tetrahydrofuran	No	QKO.
Methyltetrahydrophthalic anhydride	No	DIX.
Methylvinyl cyclic siloxane	No	PCR, (2).
Morpholine	Yes	AIP, BAS, TX, (2).
Morpholine salt of gluconic acid	No	(2).
Morpholine salt of p-toluene sulfonic acid	No	AMB.
Naphthenic acid/polyamine condensates	No	(2).
4-(2-Nitrobutyl) morpholine	No	ANG.
N-Nitrosophenylhydroxylamine, ethanolamine salt	No	MAL.
Octabromodiphenyl oxide	No	GTL.
Pentabromodiphenyl oxide	No	GTL.
Pentaerythritol tribenzoate	No	VEL.
Phenol-sulfonated formaldehyde rosin	No	HCL.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	No	SCP, UCC.
Phenoxyethyl acrylate	No	CPS.
2-Phenoxypropanol	No	WTC.
Phenyl acid phosphate	No	ALW.
1-Phenyl-2-hydroxy-2-methyl-propanone-1	No	CWN.
Phenylpropanolamine	No	ORT.
Phosphonate ester, cyclic	No	ALW.
Phthalic acid, lead salt, (Dibasic)	No	ALI.
Picramic acid, sodium salt	No	SDC.
Pinene and derivatives:	Yes	
Pinane	No	SCM.
Pinane hydroperoxide	No	SCM.
2-Pinanol (cis and trans)	No	SCM.
Pinanols/pinol mixtures	No	SCM.
α-Pinene	No	NCI, SCM.
β-Pinene	No	NCI, SCM.
α-Pinene oxide	No	PAS.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, cyclic—Continued		
Pinene and derivatives—Continued		
Pinene, sulfate	No	ARZ, HPC.
Pinene, wood	No	HPC.
Pine oil, natural, sulfate	Yes	ARZ, NCI, SCM.
Pine oil, synthetic	Yes	ARZ, NCI, SCM.
Piperonal, sodium bisulfite complex	No	VEL.
Polyglycols-toluene diisocyanate reaction product	No	(²).
Propanedioic acid, diethylmethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidine ethanol	No	(²).
Propylene glycol dibenzoate	No	VEL.
Propyl gallate	No	EKT.
Rosin acid salts:		
Calcium resinate	No	ARZ.
Calcium zinc resinate	No	ARZ.
Zinc resinate	No	ARZ.
All other rosin acid salts	No	GP.
Salicylic acid, lead salt	No	SHP.
Salicylic acid magnesium salt	No	KLM.
Styrene oxide	No	UCC.
Succinic anhydride derivatives:	Yes	
Dodecylsuccinic anhydride	Yes	BCC, DIX, HMY, MIL.
Dodecylsuccinic anhydride	No	MIL.
n-Hexadecylsuccinic anhydride	No	HMY.
iso-Hexadecyl succinic anhydride	No	DIX.
Iso-octadecylsuccinic anhydride	No	DIX, HMY.
Nonylsuccinic anhydride	No	HMY.
Octadecyl succinic anhydride	No	HMY, MIL.
Octenylsuccinic anhydride	Yes	DIX, HMY, MIL.
TPSA/polyamine condensates	No	(²).
All other succinic anhydride derivatives	No	SM, TNA.
Tall oil acyl chloride	No	CCC.
Tall oil, chemically modified	No	FOC, (²), WVA, (²).
Tall oil, diethanolamine salt	No	QCP.
Tall oil fatty acid nitrile	No	ARZ.
Tall oil fatty acids, polymerized	No	SHX, WVA.
Tall oil monohydric esters	No	ARZ.
Tall oil monomer	No	WTC.
Tall oil: Pentaerythritol tallate	No	EFH.
Tall oil, triethanolamine salt	No	QCP.
Tannic acid, N.F.	No	MAL.
Tall oil salts (linoleic-rosin acid salts):		
Barium zinc tallate	No	WVA.
Cadmium tallate	No	CCA.
Calcium manganese tallate	No	MCI, SHP.
Calcium tallate	No	(²).
Cobalt manganese tallate	No	MCI, SHP.
Cobalt tallate	No	MCI, SHP.
Copper tallate	No	MCI.
Lead tallate	No	MCI.
Manganese tallate	No	MCI, SHP.
Potassium tallate	No	QCP.
Stannous dioctyl tallate	No	PAS.
Zinc tallate	No	CCA, MCI.
All other tall oil salts, (Linoleic-rosin acid salts)	No	CCA, QCP, SHP, (²).
Terpene hydrocarbons, monocyclic (Solvenol)	No	HPC, NCI, SCM.
Tetrabromobisphenol A	No	GTL, TNA.
Tetraethylene glycol diheptanoate	No	WM.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, cyclic-Continued		
2-Tetrahydrofurfurylamine	No	QKO.
1,2,3,4-Tetrahydronaphthalene (Tetralin)	No	DUP.
Tetrahydrothiophene	No	PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)	No	PLC, (2).
Thiophene	No	PAS.
Tolytriazole, potassium salt	No	(2).
Triallyl trimellitate	No	RDA.
Triazine	No	QCP.
3,4,4'-Trichlorocarbaniide	No	MON.
Trichloromelamine	No	GFS.
1,3,5-Trichloro-s-triazine-2,4,6-(1H,3H,5H)trione (Trichloroisocyanuric acid)	No	MON, OMC.
Tri(2,4-ditertiarybutylphenyl) phosphite	No	WTC.
Tri(methoxymethyl) tri(stearoxymethyl) melamine	No	WPG.
3,3,5-Trimethylcyclohexanol (m-homomenthol)	No	ARS.
3,5,5-Trimethyl-2-cyclohexene-1-one (Isophorone)	No	ENJ, UCC, (2).
Trinitrophenyl methyl nitramine (Nitramine)	No	PAH.
Triphenyl phosphine	No	PAS.
Triphenyl phosphite	No	WTC.
1-Vinyl-2-pyrrolidinone—other copolymers	No	GAF.
1-Vinyl-2-pyrrolidinone-methylacrylic acid, dimethylamine ethyl ester, copolymer	No	GAF.
1-Vinyl-2-pyrrolidinone, monomer	No	GAF.
1-Vinyl-2-pyrrolidinone—vinyl acetate copolymer	No	GAF.
All other cyclic chemicals	No	ALW, ARS, ASL, BRD, CCA, CWN, EK, EK, EK, EKT, HXL, LYP, MCK, PAH, PAS, PIC, QCP, REG, RSA, S, SCP, SDC, SHP, TNA, TX, UCC, (2), (2), (2), (2), (2), (2), (2).
Miscellaneous chemicals, acyclic:		
Nitrogenous compounds:		
Acetaldehyde dimethylhydrazone	No	DIX.
Acetamidoethanol (N-Acetyl-ethanolamine)	No	SBC.
Allyl ureido monomer	No	RDA.
Amides:		
Acrylamide monomer	No	ACY, (2).
1,1'-Azobisformamide	No	USR.
Behenamide	No	ASL, WTC.
Bis[2-(octadecylamido)ethyl]-N-(2-cyanoethyl)-N-ethyl ammonium ethyl sulfate	No	SBC.
Chloromethylene dimethyliminium (Amide chloride)	No	VCM.
Coconut oil amide	No	ARC, FER.
N,N-Dimethylacetamide	No	DUP, MON.
N,N-Dimethylacetoacetamide	No	EKT.
Dimethylaminopropyl methacrylamide	No	TX.
N,N-Dimethylformamide	No	DUP.
Erucamide	Yes	ARC, SYP, WTC.
N,N'-Ethylenebis-oleamide (Oleic acid-ethylenediamine condensate (Amine/acid ratio = 1/2))	No	BRD, CCW, WTC.
N,N'-Ethylenebis(stearamide)	Yes	BRD, CCW, WTC.
Ethylene(12)hydroxystearamide	No	CAS.
Methane sulfonamide	No	PAS.
N-Methylacetamide	No	ARC, ARS, EKT.
Oleamide (Octadecene amide)	No	SYP, WTC.
Oleic amide, N,N-bis(hydroxyethyl)-,(Z)-	No	QCP.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Nitrogenous compounds-Continued		
Amides-Continued		
Oleoylpalmitamide	No	HXL, WTC.
Oxamide	No	HML, (2).
n-Propylamidethanol	No	PAS.
Ricinoleamide	No	ARC.
Soya amide, N,N-bis(hydroxyethyl)	No	QCP.
Stearamide (Octadecane amide)	No	SYP, WTC.
Stearylceramide	No	HXL, WTC.
Stearyl stearamide	No	WTC.
Tallow amide	No	QCP.
Tallow amide, hydrogenated	No	ARC.
All other amides	No	AIP, BRD, DOW, HAL, MIL, QCP, REG, SK, (2), (2).
Amines:	Yes	
t-Alkylamines, primary, mixed	No	BRD, RH.
Alkylamines:		
Diallylamine	No	HCL.
Triallylamine	No	HCL.
Bis-hexamethylenetriamine amine	No	DUP, MON.
Butylamines:		
n-Butylamine, mono	Yes	AIP, HCL, PAS.
sec-Butylamine, mono	No	BAS, FER, PAS.
tert-Butylamine, mono	No	MON.
Di-n-butylamine	Yes	AIP, HCL, PAS.
Diisobutylamine	No	HCL.
Tri-n-butylamine	No	AIP, HCL, PAS.
n-Butylethylamine	No	AIP.
N-Coco-N,N-dimethylamines	No	BRD.
Di-t-butylenediamine	No	HCL.
Diethylenetriamine	Yes	DOW, TX, UCC.
Di-2-ethylhexylamine	No	HCL.
Diisopropylamine	No	AIP.
Dimethylaminopropylamine	Yes	AIP, BAS, HCL, TX.
N,N-Dimethylethylamine	No	BAS.
N-Dodecyl-N,N-dimethylamine	No	BRD.
Ethylamines:		
Diethylamine	Yes	AIP, HCL, PAS, UCC.
Ethylamine, mono-	No	AIP, HCL, PAS, UCC.
Triethylamine	Yes	AIP, HCL, PAS, UCC.
N-Ethyl-1,2-dimethylpropylamine	No	BAS.
Ethylenediamine	Yes	DOW, TX, UCC.
(2-Ethylhexyl)amine, mono-	No	HCL, PAS.
N-Ethyl-2-methylallylamine	No	HCL.
Fatty amines	No	WTH.
N-Hexadecyl-N,N-dimethylamine	No	BRD.
1,6-Hexanediamine (Hexamethylenediamine)	No	MON.
n-Hexylamine	No	CXI, PAS.
Isopropylamines:		
Isopropylamine, mono	No	AIP, HCL, UCC.
Methylamines:		
Dimethylamine	No	AIP, DUP, IMC, UCC.
Methylamine, mono-	No	AIP, DUP, IMC.
Trimethyl amine	No	AIP, DUP, IMC.
tert-Octylamine	No	RH.
n-Octylamine, mono	No	GAF, HCL.
Pentaethylenehexamine	No	DOW, UCC.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Nitrogenous compounds-Continued		
Amines—Continued		
Pentylamines (amylamines):		
Dipentylamine	No	PAS.
Pentylamine, mono-	No	PAS.
Tripentylamine	No	PAS.
Propylamines:		
Dipropylamine	No	AIP, HCL, PAS.
Propylamine, mono-	No	PAS.
Tripropylamine	No	AIP, PAS.
N,N,N',N'-Tetrabutylhexanediamine	No	MON.
N-Tetradecyl-N,N-dimethylamine	No	BRD.
Tetraethylenepentamine	Yes	DOW, UCC.
Tetramethylethylenediamine	No	BKM.
Triethylenediamine	No	TX.
Triethylenetetramine	No	DOW, TX, UCC.
All other amines	No	AIP, ANG, BRD, HCL, MON, SCP, UCC.
5-Amino-1,3-bis(2-ethylhexyl-5-methyl)-hexahydropyrimidine	No	ANG.
2-Aminoethanol hydrochloride	No	OMC, (²).
2-Aminoethanol (Monoethanol amine) sulfite	No	EVN.
Aminoethoxyethanol	No	TX.
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	Yes	DOW, UCC, (²).
(2-Aminoethyl)aminoethanol, reaction product with octadecanoic acid	No	BRI.
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate)	No	EVN.
2-Amino-2-ethyl-1,3-propanediol	No	ANG.
2-Amino-2-(hydroxymethyl)-1,3-propanediol [Tris(hydroxymethyl)aminomethane]	No	ANG, VNC.
2-Amino-2-methyl-1,3-propanediol	No	ANG.
2-Amino-2-methyl-1-propanol	No	ANG, VNC.
tert-Butylaminoethyl methacrylate	No	CPS, RDA.
tert-Butyldiethanolamine	No	PAS.
tert-Butyl urea	No	PAS.
Carbohydrazide	No	OMC.
3-Chloro-2-hydroxypropyl trimethyl ammonium chloride (1-Propaminium, 3-chloro-2-hydroxy-N,N, N-trimethyl-, chloride)	No	DGC.
Choline	No	RH.
Diallyldimethyl ammonium chloride	No	CPS.
Di-amine derivatives of dimer acids	No	WTC.
2-Dibutylaminoethanol	No	PAS.
Dibutylaminomethanol	No	(²).
Diethanolamine salt of oleic acid	No	QCP.
2-Diethylaminoethanol (N,N-Diethylethanolamine)	No	PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol	No	PAS, UCC.
Diethylaminoethylacrylate, dimethyl sulfate, quaternary salt	No	CPS.
2-Diethylaminoethyl methacrylate	No	CPS, DUP.
Diethylhydroxylamine	No	PAS.
1,3-Diethyl-2-thiourea	No	PAS.
2-Diisopropylaminoethanol (N,N-Diisopropylethanolamine)	No	PAS, UCC.
Dimethylamine epichlorohydrin copolymer	No	CPS.
2-Dimethylaminoethanol (N,N-Dimethylethanolamine)	No	PAS, TX, UCC.
Dimethylaminoethyl acrylate	No	CPS.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Nitrogenous compounds-Continued		
Dimethylaminoethyl acrylate, dimethyl sulfate, quaternary salt	No	CPS.
Dimethylaminoethylacrylate, methyl chloride, quaternary salt	No	CPS, RDA.
Dimethylaminoethyl chloride	No	SK.
Dimethylaminoethyl methacrylate	No	CPS, RDA.
Dimethylaminoethylmethacrylate, dimethyl sulfate, quaternary salt	No	CPS.
Dimethylaminoethylmethacrylate, methyl chloride, quaternary salt	No	RDA, UCC.
Dimethylaminomethanol	No	(²).
1-(Dimethylamino)-2-propanol	No	PAS.
Dimethylaminopropyl chloride	No	SK.
3,7-Dimethyl-2,6-octadien-1-oxime	No	SCM.
3,7-Dimethyl-6-octen-1-oxime	No	SCM.
2,4-Dioxypyrimidine (Uracil)	No	PCR.
Ethanolamines:	Yes	
Diethanolamine	Yes	CNE, DOW, OMC, TX, UCC.
Monoethanolamine	Yes	CNE, DOW, OMC, TX, UCC.
Triethanolamine	Yes	CNE, DOW, OMC, TX, UCC.
2-Ethylaminoethanol (Ethylmonoethanolamine)	No	PAS.
2-Ethylhexyl nitrate	No	BUC.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	No	(²).
2-Ethyl-2-nitro-1,3-propanediol	No	SDW.
Fatty acid, alkanolamine ester	No	(²).
Hexamethylenediamine adipate (Nylon salt)	No	DUP, MON, (²).
Hexylamine ethoxylate	No	CXI.
N-(2-Hydroxyethyl)-12-hydroxystearamide	No	CAS.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-(hydroxymethyl)nitromethane)	No	ANG.
Iminodiacetic acid	No	HMP.
Isopropanolamines:		
Diisopropanolamine	No	DOW, UCC.
Dimethyl isopropanolamine	No	PEL.
Monoisopropanolamine	No	DOW.
Triisopropanolamine	No	DOW.
2-Isopropylaminoethanol	No	PAS.
3-Methoxypropylamine	No	BAS, PAS.
Methylaminoacetaldehyde dimethyl acetal (MAADMA)	No	ASL.
2-Methylaminoethanol (N-Methylethanolamine)	No	TX, UCC.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)	No	DOW, PAS, TX, UCC.
2-Methyl-2-nitro-1-propanol	No	ANG.
Mixed higher glycol amine (MHGA)	No	AIP.
Nitrated lard oil	No	SM.
Nitriles:	Yes	
Acetonitrile	Yes	BKC, DUP, SC, (²), (²).
Acrylonitrile, monomer	Yes	ACY, DUP, MON, SC, SOH.
Adiponitrile	No	DUP, MON.
6-Aminocapronitrile	No	(²).
2,2'-Azobis(dimethyl pentane nitrile)	No	DUP.
2,2'-Azobis(2-methyl butane nitrile)	No	DUP.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile)	No	DUP.
n-Butyronitrile	No	EKX.
Coconitrile	No	ARC.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Nitrogenous compounds-Continued		
Nitriles-Continued		
Cyanoacetic acid (Malonic nitrile)	No	NOD.
1,2-Dibromo-2,4-dicyanobutane	No	PCW.
3-Ethoxypropionitrile	No	DIX.
Ethyl cyanoacetate	No	NOD.
Hexadecylnitrile	No	ARC.
Isobutyronitrile	No	EKX.
Lauronitrile (Dodecyl nitrile)	No	ARC.
3-Methoxypropionitrile	No	(²).
Methyl cyanoacetate	No	NOD.
Methyl glutaronitrile	No	(²).
2-Methylactonitrile (Acetone cyanohydrin)	Yes	CYR, DUP, RH, SOH.
Octadecenenitrile (Oleonitrile)	No	ARC.
Octadecylnitrile	No	ARC.
Propionitrile	No	MON.
Soya nitrile	No	ARC.
Tallow nitrile	No	ARC, SHX.
Tallow nitrile, hydrogenated	No	ARC.
3,3'-Thiodipropionitrile	No	EVN.
Trichloroacetoneitrile	No	OMC.
All other nitriles	No	HMP, HXL, WTC.
Nitroethane	No	ANG, VNC.
Nitromethane	No	ANG, VNC.
1-Nitropropane	No	ANG, VNC, (²).
2-Nitropropane	No	ANG, (²), VNC.
Polyoxypropylene triamine	No	TX.
Propylene imine	No	ARS.
3-Stearylamidopropyl dimethylammonium lactate ...	No	WM.
Tetraethyl ammonium bromide	No	RSA.
Tetramethylammonium chloride	No	RSA.
Triethanolamine hydrochloride	No	WPG.
Triethanolamine, sulfuric - phosphoric acid salts ...	No	(²).
Triethylamine, nitric acid salt	No	(²).
Triethylenetetramine, propoxylated	No	HXL.
Zinc bis(monoethanolamine)dichloride	No	(²).
All other nitrogenous compounds, acyclic	No	AIP, ANG, ASL, CCC, EK, HXL, NES, OMC, RDA, RSA, SK, TX, UCC, VCM, WTL, (²), (²), (²).
Acids, acid anhydrides, and acyl halides:	Yes	
Acetic acid, synthetic (100%)	Yes	AIP, EKT, HCL, SC, UCC, USI.
Acetic anhydride, other than recovered acetic anhydride by the vapor-phase process (100%) ...	Yes	EKT, HCL, UCC.
D-(-)-3(Acetylthio)-2-methylpropanoyl chloride	No	BRS.
Acrylic acid	Yes	BAS, HCL, RH, UCC.
Adipic acid	No	DUP, MON.
Anhydride-acid mixture	No	HCL.
Azelaic acid	No	SCP.
Bromopropionic acid	No	HFT.
Butyric acid	No	EKT, HCL, PEN.
Butyric anhydride	No	EKT.
Butyryl chloride	No	TLC.
Castor oil fatty acids, dehydrated	No	CAS.
Chloroacetic acid, mono	No	HAR, NCC, PFZ.
Citric acid	No	ADM, PFZ.
Crotonic acid (2-Butenoic acid)	No	EKT.
Decanoyl chloride	No	SDC.
2,2-Dichloroacetyl chloride	Yes	WTL.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic—Continued		
Acids, acid anhydrides, and acyl halides—Continued		
Dimer acid (C ₃₆ aliphatic dibasic acid)	No	ARZ, SCP, WTC.
Dimethyl propionic acid	No	IMC.
Dithiodiglycolic acid	No	EVN.
Dithiodipropionic acid	No	EVN.
Dodecanedioic acid	No	DUP.
Dodecanoic acid (Lauric acid)	No	ARC.
2-Ethylhexanoic acid (α -Ethylcaproic acid)	No	EKT, UCC.
2-Ethylhexanoyl chloride	No	PAS, PPG, WTC, WTL.
Fatty acids	Yes	CAS, DRL, PG, SHX, WTC.
Fatty acids, hydrogenated	Yes	BRD, CAS, DRL, SHX, SYP, WTC, (?).
Fatty acids, partially hydrogenated	No	SYP, WTC.
Formic acid, 90%	No	HCL.
Fumaric acid	Yes	HAR, MON, PFZ.
Gluconic acid, technical	No	PFZ, PMP.
Glycolic acid (Hydroxyacetic acid)	No	DUP.
Heptanoic acid	No	HCL.
Hexadecanoic acid (Palmitic acid)	No	ARC.
n-Hexanoic acid	No	ARC.
Isoascorbic acid (Erythorbic acid)	No	PFZ.
Isobutyric acid	No	EKX.
Isobutyric anhydride	No	EKT.
Itaconic acid (Methylenesuccinic acid)	No	PFZ.
Lactic acid, 100%	No	SC, WTL.
Lauroyl chloride	No	PPG.
Levulinic acid	No	QKO.
Malic acid	No	HAR.
Mercaptoacetic acid (Thioglycolic acid)	No	EVN.
3-Mercaptopropionic acid	No	EVN, WTC.
Mercaptosuccinic acid (Thiomalic acid)	No	EVN.
Methacrylic acid	No	DUP, RH.
Methanesulfonic acid	No	PAS.
Methanesulfonyl chloride	No	PAS.
Neo-C ₉ -C ₁₂ acids	No	ENJ.
Neodecanoic acid	No	ENJ.
Neodecanoyl chloride	No	PAS, WTC, WTL.
Neoheptanoyl chloride	No	PAS, WTC, WTL.
Neopentanoic/neoheptanoic acids	No	ENJ.
Nonanoic acid (Pelargonic acid)	No	HCL, SCP.
Octanoic acid (Caprylic acid)	No	ARC.
Oleic acid	No	ARC, DRL, WTC.
Oxidized Fischer-Tropsch wax	No	SQA.
Pivaloyl chloride	Yes	PAS, PPG, WTC, WTL.
Polyacrylic acid	No	BFG, BKM, RH.
Propionic acid	No	HCL, UCC.
Ricinoleic acid (Hydroxyoleic acid)	No	BDS.
Sebacic acid	No	WTH.
Stearic acid (Octadecanoic acid)	No	ARC.
Stearoyl chloride	No	PPG.
Tetradecanoic acid (Myristic acid)	No	ARC.
3,3'-Thiodipropionic acid	No	EVN.
Thiodisuccinic acid	No	EVN.
Trifluoroacetic acid	No	HOC.
Trifluoroacetic anhydride	No	HOC.
Trifluoroacetyl chloride	No	HOC.
Trimer dibasic acids	No	WTC.
Valeric acid	No	UCC.
All other acids, acid anhydrides, and acyl halides	No	BRD, DUP, ENJ, PAH, SK, UCC, WVA.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Salts of organic acids:		
Acetic acid salts:	Yes	
Aluminum acetate	Yes	
Ammonium acetate	No	NCC.
Barium acetate	Yes	ARC, BKC, (?).
Calcium acetate	No	BKC.
Chromium acetate	No	CHO, HFT, NCC.
Cobalt acetate	No	SHP.
Cobalt manganese acetate	No	SHP.
Copper acetate	No	SHP.
Hydrazine acetate	No	BKC.
Lead acetate	No	FMT.
Lead subacetate	No	BKC.
Magnesium acetate	No	BKC.
Manganese acetate	No	BKC, EKT, SHP.
Nickel acetate	No	SHP.
Potassium acetate	No	SHP.
Sodium acetate	Yes	BKC, HCP, JRC, NCC, PEL.
Sodium diacetate	Yes	BKC, HCP, JRC, MAL, NCC, UCC, (?).
Zinc acetate	No	HCP, JRC, NCC.
Zirconium acetate	No	BKC, SHP.
All other acetic acid salts	No	TZC.
Adipic acid, ammonium salt	No	SHP.
Adipic dihydrazide	No	ACS.
3-Allyloxy-2-hydroxypropane sulfonic acid, sodium salt	No	FMT.
2-Butoxyethoxy acetic acid	No	
Citric acid salts:		
Ammonium citrate	No	RDA.
Dimethylhexanoic acid, calcium carbonate salt	No	SDC.
Potassium citrate	No	(?).
Sodium citrate	No	CCA.
Diammonium dithiodiglycolate	No	HAR, HXL, PFZ.
2-Ethylhexanoic acid (alpha-ethylcaproic acid) salts:		BRI, HAR, HXL.
Barium 2-ethylhexanoate	Yes	EVN.
Bismuth 2-ethylhexanoate	No	
Cadmium 2-ethylhexanoate	No	WTC.
Calcium 2-ethylhexanoate	No	SHP.
Cerium 2-ethylhexanoate	Yes	CCA, WTC.
Chromium 2-ethylhexanoate	No	CCA, FER, MCI, NOD, TRO, WTC.
Cobalt 2-ethylhexanoate	No	MCI, SHP.
Cobalt-potassium 2-ethylhexanoate	No	MCI, SHP.
Copper 2-ethylhexanoate	Yes	CCA, MCI, NOD, SHP, TRO.
Iron 2-ethylhexanoate	No	MCI.
Lead 2-ethylhexanoate	No	MCI, NOD.
Manganese 2-ethylhexanoate	No	CCA, NOD.
Molybdenum 2-ethylhexanoate	Yes	CCA, NOD, SHP.
Nickel 2-ethylhexanoate	Yes	CCA, MCI, NOD, SHP, TRO.
Potassium 2-ethylhexanoate	No	MCI.
Rare earths 2-ethylhexanoate	No	MCI, SHP.
Sodium 2-ethylhexanoate	No	CCA, MCI, PEL, WTC.
Stannous 2-ethylhexanoate	No	MCI.
Zinc 2-ethylhexanoate	No	CCA.
Zirconium 2-ethylhexanoate	No	FER.
All other 2-ethylhexanoic acid salts	No	CCA, MCI, NOD, SHP, TRO, WTC, (?).
Fish oil, C ₁₄ -C ₂₂ menhaden, lead salts	No	CCA, MCI, TRO.
	No	MCI, NOD.
	No	ELC.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Salts of organic acids-Continued		
Formic acid salts:		
Ammonium formate	No	RSA.
Calcium formate	No	IMC.
Sodium formate, technical	No	BKC, PST.
Gluconic acid salts:		
Sodium gluconate	No	PFN, PFZ, PMP.
All other gluconic acid salts	No	JRC.
Glycolic acid, potassium salt	No	HCP.
Glycolic acid, sodium salt	No	HCP, JRC.
2-Hydroxyethane.sulfonic acid, sodium salt	No	RDA.
Isoascorbic acid, sodium salt (Sodium erythorbate) ..	No	PFZ.
Tertiary- α -alkylcarboxylic acid salts (isocarboxylic acid salts):		
Calcium t- α -alkylcarboxylate	No	MCI.
Cobalt t- α -alkylcarboxylate	No	MCI.
Cobalt/iron alkylcarboxylate	No	MCI.
Cobalt/manganese/zirconium alkylcarboxylate	No	MCI.
Cobalt/potassium/zirconium alkylcarboxylate	No	MCI.
Cobalt/zirconium t- α -alkylcarboxylate	No	MCI.
Copper t- α -alkylcarboxylate	No	MCI.
Iron t- α -alkylcarboxylate	No	MCI.
Lead t- α -alkylcarboxylate	No	MCI.
Manganese t- α -alkylcarboxylate	No	MCI.
Mixed t- α -alkylcarboxylic acid salts	No	MCI.
Zinc t- α -alkylcarboxylate	No	MCI.
Zirconium t- α -alkylcarboxylate	No	MCI.
All other t- α -alkylcarboxylic acid salts (isocarboxylic acid salts)	No	MCI.
Isooctanoic acid salts:		
Isooctanoic acid, manganese salt	No	CCA.
Lactic acid salts:		
Ammonium lactate	No	WM.
Potassium lactate	No	PFN.
Sodium lactate (Nalac)	No	BFP.
Lauric acid salts:		
Barium cadmium laurate	No	WTC.
Barium laurate	No	SYP.
Cadmium laurate	No	SYP.
Dibutyltin dilaurate	No	PAS, WTC.
Lauric acid, zinc salt	No	SYP.
Mercaptoacetic acid (thioglycolic acid) salts:		
Ammonium mercaptoacetate	No	EVN, WTC.
Sodium mercaptoacetate	No	EVN.
Methanesulfonic acid, zinc salt	No	PCW.
N-Methyl taurine, sodium salt (2-Methyl-2- aminoethanesulfonic acid, sodium salt)	No	RDA.
Neodecanoic acid, diethanolamine salt	No	QCP.
Neodecanoic acid salts:		
Bismuth neodecanoate	No	MCI, SHP.
Calcium neodecanoate	No	MCI, SHP.
Cobalt manganese neodecanoate	No	SHP.
Cobalt-manganese-zirconium neodecanoate	No	MCI.
Cobalt neodecanoate	No	MCI, SHP.
Lead-cobalt neodecanoate	No	MCI.
Lead neodecanoate	No	MCI.
Lithium neodecanoate	No	MCI.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Salts of organic acids-Continued		
Neodecanoic acid salts-Continued:		
Manganese neodecanoate	No	MCI, SHP.
Neodecanoic acid, potassium salt	No	MCI, QCP.
Rare earths neodecanoate	No	MCI, SHP.
Zinc neodecanoate	No	SHP.
Zirconium neodecanoate	No	MCI, SHP.
All other neodecanoic acid salts	No	MCI.
Octanoic-acid (caprylic acid) salts:		
Aluminum octanoate	Yes	NOC, SYP, WTC.
Oxalic acid salts:		
Ammonium oxalate	Yes	
Copper oxalate	No	BKC, HML.
Potassium oxalate	No	SHP.
Sodium oxalate	No	BKC, HML.
All other oxalic acid salts	No	HML.
Palmitic acid salts:		
Pelargonic acid, barium salt (Barium nonoate)	No	SYP.
Pelargonic acid, calcium salt (Calcium nonoate)	No	SYP.
Phosphorodithioic acid salts (dithiophosphates):		
Sodium di-sec-butyl/diethyl phosphorodithioate	No	ACY.
Sodium di-sec-butyl phosphorodithioate	No	ACY, ELC.
Sodium diethyl phosphorodithioate	No	ACY, ELC.
Sodium diisobutyl phosphorodithioate	No	ELC.
Sodium diisopropyl phosphorodithioate	No	ACY.
Propionic acid salts:		
Ammonium propionate	No	KMI.
Calcium propionate	Yes	CHO, DVR, HFT, KMI, NCC.
Sodium propionate	Yes	CHO, HFT, NCC.
All other propionic acid salts	No	MCK.
Ricinoleic acid salts:		
Lithium ricinoleate	No	CAS.
Protein hydrolyzates, sodium salts	No	SDC.
Ricinoleic acid, magnesium salt	No	CAS.
Stearic acid salts		
Aluminum stearates:	Yes	
Aluminum distearate	Yes	
Aluminum monostearate	Yes	MAL, NOD, SHP, SYP.
Aluminum tristearate	Yes	MAL, NOD, SYP.
Barium stearate	Yes	MAL, NOC, NOD, SYP, WTC, (?).
Cadmium stearate	No	NOD, SYP, WTC.
Calcium stearate	Yes	FER, SYP, WTC.
Cobalt stearate	Yes	FER, MAL, NOC, NOD, SCP, SQA, SYP, WTC.
Lead stearate, dibasic	No	MCI, SHP.
Lithium stearate	No	ALI.
Magnesium stearate	Yes	NOC, SYP, WTC.
Manganese stearate	No	MAL, MCI, NOD, SYP, WTC.
Potassium stearate	No	SHP.
Sodium stearate	No	WTC.
Strontium stearate	No	WTC.
Zinc stearate	No	WTC.
All other stearic acid salts	Yes	CCC, MAL, NOC, NOD, PLS, SYP, WTC.
Thioacetic acid, potassium salt	No	FER, MCI.
All other salts of organic acids	No	RSA.
Aldehydes:		
Acetaldehyde	No	BRD, CCA, EK, EKT, FER, SK, (?).
Acrolein (Acrylaldehyde)	Yes	EKX, HCL, UCC.
Butyraldehyde	No	UCC.
Crotonaldehyde	Yes	BAS, EKX, HCL, UCC.
2-Ethylhexanal (α -Ethylcaproaldehyde)	No	EKT.
	No	EKX, UCC.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Aldehydes-Continued		
Formaldehyde (37% HCHO by Weight)	Yes	AQU, BCP, BOR, CBD, DGC, DUP, GAF, GP, HCL, IMC, MON, PST, WCL
Glutaraldehyde	No	UCC.
Glyoxal	No	ACY, BAS.
Isobutyraldehyde	No	BAS, EKX, HCL, UCC.
n-Nonylaldehyde (Nonanal)	No	HCL.
Propionaldehyde	No	EKX, HCL, UCC.
Valeraldehyde (Pentanal)	No	UCC.
All other aldehydes, acyclic	No	ASL, UCC.
Ketones:		
Acetone	Yes	ACS, ART, ATR, BTL, DOW, ENJ, GE, GGC, SHC, TX, UCC.
5-Chloro-2-pentanone	No	SDW.
1-Chloropinacolone	No	CHG.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	No	EKX.
2-Heptanone (Methyl amyl ketone)	No	EKT.
3-Heptanone (Ethyl butyl ketone)	No	UCC.
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	Yes	HCL, SHC, UCC.
Isovalerone (Diisobutyl ketone)	No	EKT, UCC.
Methyl ethyl ketone	Yes	ENJ, HCL, LYP, SHC, UCC.
5-Methyl-2-hexanone (Methyl isoamyl ketone)	No	EKT.
Methyl isobutyl ketone	Yes	EKT, ENJ, SHC, UCC.
Methylisopropyl ketone	No	EKX.
Methyl nonyl ketone (2-Undecanone)	No	ARC.
4-Methyl-3-penten-2-one (Mesityl oxide)	No	UCC.
Methylpropyl ketone	No	EKT.
Methylpseudoionone	No	NCI, SCM.
2-Octanone (Hexyl methyl ketone)	No	UPM, WTH.
2,4-Pentanedione (Acetylacetone)	No	UCC.
3-Pentanone (Diethyl ketone)	No	UCC.
Pseudoionone	No	NCI, SCM.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	No	UCC.
All other ketones	No	ASL.
Alcohols, monohydric, unsubstituted:		
Alcohols, C ₁₁ or lower, unmixed (95% or more pure):	Yes	
Allyl alcohol	No	ATR.
Amyl alcohols:		
2-Methyl-1-butanol	No	UCC.
3-Methyl-1-butanol (isoamyl alcohol)	No	CPS.
1-Pentanol	No	UCC.
Butyl alcohols:		
n-Butyl alcohol (n-Propylcarbinol)	Yes	BAS, EKX, GAF, HCL, SHC, UCC, VST.
sec-Butyl alcohol (Methylethylcarbinol)	No	ENJ, SHC.
tert-Butyl alcohol (Trimethylcarbinol)	No	ATR, (2).
Isobutyl alcohol (Isopropylcarbinol)	Yes	BAS, CPS, EKX, HCL, SHC, UCC, (2).
1-Decanol	No	TNA, VST.
2,2-Dimethylbutanol (Isohexyl alcohol)	No	ENJ.
Ethyl alcohol, synthetic	Yes	DOW, EKX, HCL, SHC, UCC, USI, VST.
2-Ethyl-1-hexanol	Yes	ART, BAS, EKX, SHC, UCC.
n-Hexyl alcohol	No	TNA, VST.
Isodecyl alcohol	No	ENJ.
Isoheptyl alcohol	No	ENJ.
Isononyl alcohol	No	ENJ.
Iso-octyl alcohol	No	ENJ.
Isopropyl alcohol	Yes	ATR, ENJ, LYP, SHC, UCC PLC, TOC, (2).

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic—Continued		
Alcohols, monohydric, unsubstituted—Continued		
Alcohols, C₁₁ or lower, unmixed (95% or more pure)		
-Continued		
Methanol, synthetic	Yes	AIP, BCP, DUP, EKT, ENJ, GGC, HCL, LYP, UCC.
2-Methyl-1-pentanol	No	UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol) ...	No	UCC.
1-Octanol	No	TNA, VST.
2-Octanol (sec-Capryl alcohol)	No	WTH.
Propyl alcohol (Propanol)	No	ATR, EKX, HCL, UCC.
2-Propyn-1-ol (Propargyl alcohol)	No	GAF.
Undecanol (Linear C ₁₁ alcohol)	No	BAS, ENJ.
All other alcohols, unmixed C ₁₁ or lower	No	SHC, UCC.
Alcohols C₁₁ or higher, unmixed (95% or more pure):		
Dodecyl alcohol (Lauryl alcohol)	Yes	PG, TNA, VST.
Eicosyl alcohol (Arachidyl alcohol ₉ i.e., 20-carbon)	No	ENJ.
1-Hexadecanol (Cetyl alcohol)	No	ENJ, PG, TNA, VST.
Isooctadecanol	No	SHX.
1-Octadecanol (Stearyl alcohol)	No	ENJ, PG, TNA, VST.
cis-9-Octadecen-1-ol (Oleyl alcohol)	No	SHX.
1-Tetradecanol (Myristyl alcohol)	No	PG, VST.
1-Tridecanol	No	ENJ.
All other alcohols, unmixed C ₁₁ or higher	No	EKT.
Mixtures of alcohols:		
Alcohol mixtures, C ₁₁ or lower only	Yes	BAS, ENJ, PG, SHC, TNA, UCC, VST.
Alcohol mixtures, C ₁₂ through C ₁₈ only	Yes	PG, SHC, SHX, TNA, VST.
Fatty alcohols, C ₈ -C ₃₀	No	(²).
All other mixtures of alcohols, C ₁₂ and higher	No	VST.
Alcohol mixtures, other	No	ENJ, VST.
Esters of monohydric alcohols:		
C ₁₂ -C ₁₅ alcohol-lactates	No	VND.
Allyl methacrylate	No	CPS.
Amyl acetates:		
Amyl acetate (n-Pentyl acetate)	No	UCC.
Butyl acetates:		
n-Butyl acetate	Yes	BAS, EKT, HCL, UCC.
Isobutyl acetate	Yes	BAS, EKT, EKX, HCL, UCC.
Butyl acrylate	Yes	BAS, HCL, RH, UCC, WTL.
sec-Butyl chloroformate	Yes	PAS, PPG, VCM.
Butyl lactate	No	CPS.
Butyl mercaptopropionate	No	EVN.
Butyl methacrylate	No	DUP, RH.
Butyl oleate	No	ELC.
n-Butyl perchlorocrotonate	No	MAL.
Carboxyethyl acrylate	No	RDA.
Cetylcicosyl methacrylate	No	RH.
Cetyl lactate	No	VND.
Dialkyl dicarbonate	No	SYT.
Dibutyl maleate	No	ART, NOD.
Didecyl adipate	No	QCP.
Diethyl carbonate (Ethyl carbonate)	No	PPG.
Di(2-ethyl-1-hexyl) maleate	No	CHP.
Diethyl maleate	No	ACY.
Diethyl oxalate (Ethyl oxalate)	No	(²).
Dilauryl-3,3'-thiodipropionate	Yes	CCW, EVN, WTC.
Dimethyl carbonate	No	PPG.
Diocetyl maleate	No	NOD.
Distearyl-3,3'-thiodipropionate	Yes	ACY, CCW, EVN, WTC.
Dithiobis(stearyl propionate)	No	EVN.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Esters of monohydric alcohols-Continued		
Ditridecyl maleate	No	EFH.
Di(tridecyl)-3,3'-thiodipropionate	No	EVN, WTC.
Dodecylpentadecyl methacrylate	No	RH.
2-Ethoxyethyl acetate	No	CNE, UCC.
Ethyl acetate (85%)	Yes	HCL.
Ethyl acetate (100% basis)	No	EKX, MON, UCC.
Ethyl acetoacetate	No	BRD, EKT.
Ethyl acrylate	No	HCL, RH, UCC.
Ethyl chloroformate	No	PPG.
Ethyl 3-ethoxy propionate	No	EKT, TX.
2-Ethyl-1-hexyl acetate	Yes	EKT.
2-Ethyl-1-hexyl acrylate	No	BAS, HCL, UCC, WTL.
2-Ethylhexyl chloroformate	No	PAS, PPG, VCM.
2-Ethyl-1-hexyl methacrylate	No	DUP.
Ethyl maleate, mono	No	RDA.
Ethyl methacrylate	No	DUP.
Ethyl sulfate (Diethyl sulfate)	No	UCC.
Fatty acid esters, not included with plasticizers or surface active agents:	Yes	
Diisopropyl dimerate	No	SBC.
Diisostearyl dimerate	No	SBC.
Docosanyl docosenoate	No	SBC.
2-ethylhexyl stearate	No	BRI.
Hexadecyl hexadecanoate (Palmitic palmitate)	No	SCP.
Isocetyl stearate	No	VND.
Isodecyl mercaptoacetate	No	EVN.
Isodecyl neopentanoate	No	BDS.
Isostearyl isostearate	No	SBC.
Methyl behenate	No	WTC.
Methyl esters of cottonseed oil	No	CHL.
Methyl esters of lard oil	No	CHL, FER.
Methyl esters of tallow	Yes	CHL, FER, WTC. (?).
Methyl 12-hydroxystearate	No	CAS.
Methyl oleate	No	CHL.
Methyl pentachlorostearate	No	VCM.
Methyl pivalate	No	(?).
Methyl stearate	No	CHL, VND, WTC.
Myristyl myristate	No	RDA, SBC.
Myristyl stearate	No	WTC.
Stearyl stearate	No	RDA.
1-Tetradecylpropionate	No	BRD.
Tridecyl stearate	No	WTC.
Fatty acid esters, not included with plasticizers surface-active agents, all other	No	SHX.
Hexyl acetate	No	ENJ.
Hexyl acrylate	No	CPS.
Hexyl neopentanoate	No	SBC.
Isobutyl acrylate	No	BAS.
Isobutyl chloroformate	No	PPG, VCM.
Isobutyl isobutyrate	No	EKX.
Isobutyl methacrylate	No	RH.
Isodecyl acrylate	No	CPS, RDA.
Isodecyl methacrylate	No	EVN, RH.
Iso-octyl mercaptoacetate	No	CCW, EVN.
Iso-octyl-3-mercaptopropionate	No	EVN.
Isopropyl acetate	Yes	EKT, HCL, UCC.
Isopropyl chloroformate	No	PPG, VCM.
Isostearyl neopentanoate	No	SBC, VND.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Esters of monohydric alcohols-Continued		
Lauryl acrylate	No	CPS.
Lauryl lactate	No	VND.
Lauryl methacrylate	No	CPS, RH.
1-Methoxy-2-ethyl acetate	No	EKX.
2-Methoxyethyl acrylate	No	CPS.
Methyl acetoacetate	No	BRD, EKT.
Methyl acrylate	No	HCL.
Methyl butyrate	No	PD.
Methyl chloroformate	No	PPG.
Methyl 3,3-dimethyl-4-pentenoate	No	FMN.
Methyl formate	No	HCL.
Methyl methacrylate	No	CYR, DUP, RH.
Methyl pivaloylacetate	No	EKT.
Methyl sulfate (Dimethyl sulfate)	No	DUP, NOD.
Myristyl lactate	No	CAS, VND.
Octadecyl-3-mercaptopropionate	No	EVN.
Phosphorus acid esters:	Yes	
Alkoxyated acid phosphate	No	ALW.
Bis-(2-chloroethyl)-2-chloroethylphosphonate	No	ALW.
Bis(2-ethylhexyl)hydrogen phosphite	No	ALW.
Butyl acid phosphate	No	ALW, HK.
Chloroalkyl diphosphate ester, neutral	No	ALW.
Chloroalkyl phosphate ester	No	ALW.
Dibutyl butylphosphonate	No	ALW.
Dibutyl hydrogen phosphite	No	ALW.
Diethylhexyl phosphoric acid	No	ALW.
Diethyl phosphorochloridothionate	No	TNA.
Dimethyl hydrogen phosphite	No	ALW.
Dimethyl methylphosphonate	No	ALW.
2-Ethylhexyl hydrogen phosphate	No	ALW.
Iso-octyl hydrogen phosphate	No	ALW.
Methyl dihydrogen phosphate	No	HK.
Mixed dialkyl hydrogen phosphates, amine salts	No	ELC.
mono(2-Ethylhexyl)-2-ethylhexylphosphonic acid	No	ALW, ASL.
Stearyl acid phosphate	No	HK.
Tetraisopropylmethylenediphosphonate	No	ALW.
Trialkyl thiophosphite	No	GE.
Triethyl phosphite	No	ALW, ICI.
Triethyl phosphonacetate	No	AMV.
Triisodecylphosphite	No	DVC, WTC.
Triisooctyl phosphite	No	ALW, GE.
Triisopropyl phosphite	No	ALW.
Trimethyl phosphite	No	ALW, ICI.
Tris(2-chloroethyl)phosphate	No	PEL.
Tris(2-chloroethyl) phosphite	No	ALW.
Tris-2-chloropropyl phosphate	No	ALW, PEL.
Tris(1,3-dichloro-2-propyl) phosphate	No	ALW.
All other phosphorus acid esters	No	ALW, DVC, (2).
Propyl acetate	Yes	BAS, EKT, HCL, UCC.
n-Propyl chloroformate	No	PAS, WTL.
Stearyl methacrylate	No	CPS, RH, TX.
Tetraethyl orthosilicate (Tetraethyl silicate)	No	UCC.
Titanic acid esters:		
Bis[2-(bis[2-hydroxyethyl]amino)ethyl] diisopropyl titanate	No	DUP.
Bis(ethyl-3-oxobutanato)bis(2-propanolato) titanium	No	DUP.
Di(hydroxy)bis(ammoniumlactato)titanium	No	DUP.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic—Continued		
Esters of monohydric alcohols—Continued		
Titanic acid esters—Continued		
Tetrabutyl titanate	No	DUP.
Tetraisopropyl titanate	No	DUP.
Tetrakis(2-ethylhexyl)titanate	No	DUP, NOD.
Triethanolamine titanate	No	NOD.
All other titanic acid esters	No	DUP.
Triethyl orthoacetate	No	NOD.
Triethyl orthoformate	No	NOD.
Triethyl orthopropionate	No	NOD.
Trimethyl orthoacetate	No	NOD.
Trimethyl orthoformate	No	NOD.
Vinyl acetate, monomer	Yes	DUP, HCL, UCC, USI.
All other monohydric alcohol esters	No	BAS, BRD, DUP, EKT, ENJ, MON, PAH, SBC, SCP, VND, (?), (?), (?), (?).
Polyhydric alcohols:		
2,2-Bis(bromomethyl)-1,3-propanediol	No	TNA.
2-Bromo-2-nitropropanediol	No	ANG.
1,2(and 1,3)-Butanediol	No	HCL.
1,4-Butanediol	Yes	BAS, DUP, GAF.
2-Butene-1,4-diol	No	GAF.
2-Butyne-1,4-diol	No	BAS, GAF.
3-Chloro-1,2-propanediol (Glycerol α -chlorohydrin)	No	DIX, EVN.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	Yes	BAS, EKX.
Ethylene glycol	No	BAS, CNE, CXI, DOW, EKX, HCL, PDG, PLC, SHC, TX, UCC, (?).
2-Ethyl-1,3-hexanediol	No	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane)	No	HCL.
Glycerol, synthetic only	No	DOW, SYP.
1,6-Hexanediol	No	BAS, CXI.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylolethane)	No	IMC.
Mannitol	No	ICI.
3-Mercapto-1,2-propanediol (Thioglycerol)	No	EVN.
2-Methyl-2,4-pentanediol (Hexylene glycol)	No	ATR, SHC, UCC.
2-Nitro-2-ethyl-1,3-propanediol	No	ANG.
2-Nitro-2-methyl-1,3-propanediol	Yes	ANG.
Pentaerythritol	No	AQU, HCL, PST.
1,5-Pentanediol	No	BAS.
Propylene glycol (1,2-Propanediol)	No	ATR, DOW, OMC, PLC, TX, UCC.
Sorbitol (70% by Weight)	No	ADM, BRD, EHC, ICI, PFZ, RQT.
Sorbitol, crystalline	No	ICI, PFZ, RQT.
Starch, hydrolyzed and hydrogenated	No	RQT.
2,2,4-Trimethyl-1,3-pentanediol	No	EKX.
All other polyhydric alcohols	No	BAS, BRD, ICI, (?), (?).
Esters and ethers of polyhydric alcohols:		
Polyhydric alcohol esters:		
2-(2-Butoxyethoxy)ethyl acetate	Yes	CNE, EKT, UCC.
2-Butoxyethyl acetate	No	CNE, EKT, UCC.
1,3-Butylene glycol diborate	No	USB.
1,3-Butylene glycol diborate/hexylene glycol boric anhydride	No	USB.
1,3-Butylene glycol dimethacrylate	No	CPS.
Diethylene glycol adipate	No	HAL.
Diethylene glycol chloroformate	No	PPG.
Diethylene glycol dimethacrylate	No	CPS.
Dipropylene glycol monomethyl ether acetate	No	ATR, (?).

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Esters and ethers of polyhydric alcohols-Continued		
Polyhydric alcohols-Continued		
2-(2-Ethoxyethoxy)ethyl acetate	No	EKT.
Ethylene glycol diacetate	No	EKT.
Ethylene glycol dimercaptoacetate	No	EVN.
Ethylene glycol dimethacrylate	No	CPS.
2-Ethyl-2(hydroxymethyl)-1,3-propanediol trimethacrylate (TMP methacrylate)	No	BRD.
Glycerides, mixed C ₁₄₋₁₈ and C ₁₆₋₁₈ , mono- and di-	No	BRD, SHX, WTC.
Glyceryl diacetate (Diacetin)	No	HAL.
Glyceryl monothioglycolate	No	EVN, WTC.
Glyceryl triacetate (Triacetin)	No	EKT.
Hydroxyethyl acrylate	No	DOW, RH.
Hydroxyethyl methacrylate	No	RDA, RH.
Hydroxypropyl acrylate	No	DOW, RH.
Hydroxypropyl methacrylate	No	RH.
1-Methoxy-2-propyl acetate	No	ATR, (2).
Neopentylglycol hydroxypivalate	No	EKX.
Neopentyl glycol oleate	No	QCP.
Neopentyl glycol vegetable oil ester	No	QCP.
Pentaerythritol tetrakis (3-Mercaptopropionate)	No	EVN.
Pentaerythritol tetraoctanoate	No	BRD.
Pentaerythritol tetrastearate	No	BRD, HPC.
Propylene carbonate	No	ATR.
Propylene glycol dicaprylatecaprate	No	TX.
Sucrose octa-acetate	No	HFT.
Trimethylolpropane tallowate (TMP tallowate)	No	QCP.
Trimethylolpropane triacrylate	No	CPS.
Trimethylolpropane trimethacrylate	No	CPS.
Trimethylolpropane trioleate (TMP trioleate)	No	EFH, QCP.
Trimethylolpropane tris-3-mercaptopropionate	No	EVN.
2,2,3-Trimethyl-1,3-pentanediol monoisobutyrate	No	EKX.
Tripropylene glycol diacrylate	No	CPS.
All other polyhydric alcohol esters	No	BRD, EK, GPI, HAL, TX, UCC.
Polyhydric alcohol ethers:	Yes	
Bis(2-butoxyethyl)ether (Diethylene glycol di-n-butyl ether)	No	FER.
Bis(2-ethoxyethyl)ether (Diethylene glycol diethyl ether)	No	FER.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether)	No	FER.
2-Butoxyethanol (Ethylene glycol monobutyl ether)	Yes	CNE, DOW, EKX, SHC, UCC.
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	Yes	CNE, DOW, EKX, SHC, UCC.
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)	Yes	CNE, DOW, UCC.
1-Butoxyethoxy-2-propanol	No	UCC.
i-Butyraldehyde trimer	No	(2).
Diethylene glycol	Yes	BAS, CNE, CXI, EKX, HCL, OMC, PDG, SHC, TX, UCC, USI.
Diethylene glycol mono-n-propyl ether	No	EKX, UCC.
Dimethoxyethane (Ethylene glycol dimethyl ether)	No	FER.
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	Yes	CNE, EKX, OMC, UCC.
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	Yes	CNE, EKX, OMC, UCC.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Polyhydric alcohol ethers-Continued		
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	No	CNE, OMC, UCC.
Ethylene glycol di-tributyl ether	No	EKX.
Ethylene glycol di-triethyl ether	No	EKX, FER.
Glycerol monoallyl ether	No	RDA.
2-[2-(Hexyloxy)ethoxy]ethanol	No	UCC.
2-Methoxyethanol (Ethylene glycol monomethyl ether)	No	CNE, OMC, UCC.
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	No	CNE, DOW, OMC, UCC.
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	Yes	CNE, OMC, UCC.
2-(2-Methoxyethoxy)ethyl-2-methoxyethyl ether (Triethylene glycol dimethyl ether)	Yes	FER, OMC.
Methoxypolyethylene glycol	No	PPG, RDA, UCC, (?).
Paraformaldehyde	No	HCL.
Polyethylene glycol	Yes	ABB, BAS, DOW, OMC, PPG, SCP, SHX, UCC, (?).
Polyethylene glycol butyl ether, propoxylated	No	ICI.
Polyethylene glycol dimethyl ether	No	DAN, SCP, SHX.
Polyglycols, ethylene glycol and glycol ether, mixed	No	HCL, UCC, (?).
Polyoxyalkylene glycol	No	OMC.
Polyoxypropylene polyoxyethylene glycol, mixed	No	UCC.
Polytetramethylene glycol ether	Yes	BAS, DUP, QKO.
Poly(1,1,1-trichlorobutane-2-ol)ethylene glycol dextrose ether	No	DOW.
Glycolethers derived from propylene oxide:		
Dipropylene glycol	No	ATR, EKX, OMC, PLC, TX.
Dipropylene glycol monomethyl ether (3-(3-ethoxypropoxy)propanol)	No	ATR, OMC.
Ethylene glycol di-tri-propyl ether	No	EKX.
Propylene glycol t-butyl ether	No	ATR, (?).
Propylene glycol, mixed ethers	No	EKX.
Propylene glycol monobutyl ether	No	OMC.
Propylene glycol monomethyl ether (1-Methoxy-2-propanol)	No	ATR, OMC.
Tripropylene glycol	No	ATR, DOW, UCC, (?).
Tripropylene glycol monomethyl ether (3-(3-[3-Methoxypropoxy]propoxy)propanol)	No	ATR, OMC.
All other propylene glycol ethers (and propylene glycols)	No	(?).
Polyether polyols based on propylene oxide:		
Polypropylene glycol	Yes	BAS, DOW, OMC, PPG, RDA, TX, (?).
Polypropylene glycol butyl ether (Polypropoxy butyl ether)	No	PPG.
Polypropylene glycol butyl ether, ethoxylated (Polypropoxy butyl ether, ethoxylated)	No	BAS, PPG.
Polypropylene glycol glycerol triether (Polypropoxyglyceryl triether)	No	PPG, RDA.
1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with oxirane	No	(?).
All other polyether polyols based on propylene oxide	No	EKX, TX.
Propoxyethanol (Ethylene glycol monopropyl ether)	No	EKX.
Propylene glycol, alkoxyated	No	(?).

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' Identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Polyhydric alcohol ethers-Continued		
Sorbitol, alkoxylated	No	ICI, (2).
Sorbitol, ethoxylated	No	PPG, (2).
Sorbitol monooleate	No	WTC.
Sorbitol monostearate	No	WTC.
Tetraethylene glycol	Yes	CNE, DOW, EKX, UCC.
Tetra/penta glycols, mixed	No	CXI.
2,2'-Thiodiethanol (Thiodiglycol)	No	MRT, PLC, RDA.
Triethylene glycol	Yes	CNE, CXI, DOW, EKX, HCL, PDG, SHC, TX, UCC.
All other polyhydric alcohol ethers	No	DUP, MIL, PAH, SCP, SM, UCC, (2).
Brominated, chlorinated and fluorinated hydrocarbons:		
Brominated (including bromochlorinated) hydrocarbons:	Yes	
Brominated hydrocarbons, C ₁₂ -C ₁₈	No	DVC.
1-Bromobutane (n-Butyl bromide)	Yes	DAZ, GTL, UCC.
Bromochloromethane	No	TNA.
Bromodecane (Decyl bromide)	No	HMY.
Bromodocosane	No	HMY.
Bromoethane (Ethyl bromide)	No	GTL.
Bromomethane (Methyl bromide)	No	TNA.
1-Bromo-3-methyl-2-butene	No	SD.
1-Bromo-octadecane	No	HMY.
1-Bromopentane (n-Amyl bromide)	No	DAZ.
1-Bromopropane (n-Propyl bromide)	No	DAZ, GTL.
2,3-Dibromobutane	No	HMY.
Dibromomethane (Methylene bromide)	No	TNA.
All other brominated (Including bromochlorinated) hydrocarbons	No	FER, TNA.
Chlorinated (not otherwise halogenated) hydrocarbons:	Yes	
Carbon tetrachloride	Yes	
Chlorinated paraffins (C ₁₀ -C ₃₀):	Yes	
Chlorinated paraffins, 35-64% chlorine	Yes	DVC, FER, HK.
Chlorinated paraffins, less than 35% chlorine	No	SHC.
Chlorinated paraffins, 65% or more chlorine	No	DVC, FER, HK.
1-Chlorobutane (n-Butyl chloride)	No	ALW.
Chloroform	Yes	DOW, FRO, HK, LCP.
Chloromethane (Methyl chloride)	Yes	DCC, DOW, FRO, HK, LCP, SPD, VST.
3-Chloropropene (Allyl chloride)	No	DOW, SHC.
Decyl chloride	No	BRD.
1,2-Dichloroethane (Ethylene dichloride)	Yes	ALW, BFG, DOW, FOR, FRO, GGC, HK, PLC, PPG, SHC, VST, WLK.
1,2-Dichloropropane (Propylene dichloride)	No	DOW.
2,3-Dichloropropene	No	SHC.
n-Dodecyl chloride	No	BRD.
Ethyl chloride (Chloroethane)	No	DOW, DUP, PPG.
2-Ethylhexyl chloride	No	ALW.
Hexadecyl chloride	No	BRD.
Methylene chloride (Dichloromethane)	Yes	DOW, FRO, HK, LCP.
Octadecyl chloride	No	BRD.
Octyl chloride	No	BRD.
Perchloroethylene (Tetrachloroethane)	Yes	DOW, FRO, HK, PPG.
n-Tetradecyl chloride	No	BRD.
Tetrahydroalloocimanyl hydrochloride (Tetrahydro-dimethylatriene hydrochloride)	No	NCI.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Brominated, chlorinated and fluorinated hydrocarbons-Continued		
Chlorinated (not otherwise halogenated) hydrocarbons-Continued		
1,1,1-Trichloroethane (Methyl chloroform)	Yes	DOW, FRO, PPG.
1,1,2-Trichloroethane (Vinyl trichloride)	No	DOW.
Trichloroethylene	No	DOW, PPG.
1,2,3-Trichloropropane	No	DOW.
Vinyl chloride, monomer (Chloroethylene)	Yes	BCP, BFG, DOW, FOR, GGC, HK, PLC, PPG, VST, WLK.
Vinylidene chloride, monomer (1,1-Dichloroethylene)	No	DOW, PPG.
All other chlorinated (Not otherwise halogenated) hydrocarbons	No	BRD.
Fluorinated (including other fluorohalogenated) hydrocarbons:	Yes	
Bromochlorodifluoromethane	No	GTL.
2-Bromo-2-chloro-1,1,1-trifluoroethane (Halothane) ..	No	HOC.
Bromodifluoromethane	No	GTL.
Bromotrifluoromethane	No	DUP, GTL.
1-Chloro-1,1-difluoroethane (F-142b)	No	PAS.
Chlorodifluoromethane (F-22)	Yes	ACS, DUP, LRO, PAS.
2-Chloro-1,1,1,2-tetrafluoroethane (F-124)	No	(?).
Chlorotrifluoroethylene (Trifluorovinyl chloride) ..	No	ACS.
2-Chloro-1,1,2-trifluoroethyl methyl ether	No	OH.
Chlorotrifluoromethane (F-13)	No	DUP, GTL.
Dibromodifluoromethane	No	GTL.
1,2-Dibromo-1,1,2,2-tetrafluoroethane	No	(?).
Dichlorodifluoromethane (F-12)	Yes	ACS, DUP, LRO, PAS.
1,1-Dichloro-1-fluoroethane (141b)	No	PAS.
Dichlorotetrafluoroethane (F-114)	No	ACS, DUP, PAS.
Dichloro-trifluoroethane (F-123)	No	HOC.
1,1-Difluoroethane	No	DUP.
Hexafluoropropylene, monomer	No	DUP.
1-Iodoperfluorohexane	No	DUP.
1,2,2,2-Tetrafluoroethane (F-134a)	No	HOC.
Tetrafluoroethylene (F-1114)	No	DUP.
Tetrafluoromethane (F-14)	No	DUP.
Trichlorofluoromethane (F-11)	Yes	ACS, DUP, LRO, PAS.
Trichlorotrifluoroethane (F-113)	No	ACS, DIX, DUP.
Trifluoropropene	No	GTL, HOC.
Vinyl fluoride, monomer	N	DUP.
Vinylidene fluoride, monomer	No	PAS.
All other fluorinated (including other fluorohalogenated hydrocarbons)	No	DUP, HOC, REG. (?).
Other miscellaneous acyclic chemicals:	Yes	
Iodinated (not otherwise halogenated) hydrocarbons:		
Ethylhexyl iodide (Iodoethyl hexane)	No	RSA.
Iodobutane	No	RSA.
Iodoethane (Ethyl iodide), non-medical	No	RSA.
Iodomethane (Methyl iodide)	No	RSA.
All other iodinated (Not otherwise halogenated) hydrocarbons	No	RSA.
Acetylacetonates:		
Aluminum acetylacetonate	No	MCK.
Titanium acetylacetonate	No	NOD.
All other acetylacetonates	No	MCK.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic—Continued		
Other miscellaneous acyclic chemicals—Continued		
Acyclic peroxides:	Yes	
Acetylacetone peroxide	No	CAD, PAS.
tert-Amyl hydroperoxide	No	PAS, WTC, WTL
t-Amylperoxy acetate	No	WTL
t-Amylperoxy neodecanoate	No	WTL
t-Amylperoxy pivalate	No	WTL
2-Butanone peroxide (MEK peroxide)	Yes	CAD, PAS, WTC, WTL
n-Butyl-4,4-bis[t-butylperoxy]valerate	No	PAS, WTL
t-Butyl-2-ethylhexyl monoperoxydicarbonate	No	PAS, WTL
tert-Butyl hydroperoxide	No	ATR, NOC, PAS, WTC, WTL
tert-Butyl peroxide (Di-tert-butyl peroxide)	No	PAS, WTC, WTL
tert-Butyl peroxyacetate	No	AZT, PAS, WTL
tert-Butyl peroxy-2-ethylhexanoate	No	AZT, PAS, WTC, WTL
tert-Butyl peroxyisobutyrate	No	PAS, WTL
tert-Butyl peroxyisopropylcarbonate	No	PAS, WTL
tert-Butyl peroxy maleic acid	No	PAS, WTL
tert-Butyl peroxyneodecanoate	No	PAS, WTC, WTL
tert-Butyl peroxyneodecanoate	No	PAS, WTC, WTL
tert-Butyl peroxyneodecanoate	No	AZT, PAS, WTC, WTL
Decanoyl peroxide	No	PAS, WTL
Di(sec-butyl)peroxydicarbonate	No	PAS, WTL
Di-(2-ethylhexyl) peroxydicarbonate	No	PAS, WTC, WTL
2,5-Dihydroperoxy-2,5-dimethylhexane	No	PAS, WTL
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane	No	AZT, PAS, WTL
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3	No	AZT, PAS, WTL
2,5-Dimethyl-2,5-di(2-ethylhexanoyl peroxy)hexane	No	PAS, WTC, WTL
2,5-Dimethyl-2,5-dihydroperoxy hexane	No	WTL
1,1-Dimethyl-3-hydroxybutylperoxyneohexanoate	No	PAS.
1,1-Dimethyl-3-hydroxybutylperoxyneohexanoate	No	WTL
Di-n-propyl peroxydicarbonate	No	PAS, WTL
Ethyl-3,3-di(t-amylperoxy)butyrate	No	PAS, WTL
Ethyl 3,3-di(t-butyl peroxy) butyrate	No	PAS, WTL
Lauroyl peroxide	No	PAS, WTL
2,4-Pentanedione peroxide	No	WTL
Peroxyacetic acid (Peracetic acid)	No	(?)
Succinyl peroxide	No	PAS, WTL
Tertiary amyl per-2-ethylhexanoate	No	WTC, WTL
All other acyclic peroxides	No	WTL
Brominated pentaerythritol	No	TNA.
2-Butenedioic, monomethyl ester, polymer with methoxyethene	No	TNI.
Carbon disulfide	No	AKZ, PAS.
Carboxylic acid alkoxylates	No	(?)
Epoxides, ethers, and acetals:	Yes	
Bis(2-chloroethyl)ether (Dichlorodiethyl ether)	No	BKM.
Butylene oxide	No	DOW.
sec-Butyl ether	No	ENJ.
Butyl vinyl ether	No	GAF.
Chloromethyl methyl ether	No	RH.
2,2-Dichloro-1,1-difluoroethyl methyl ether	No	OH.
Dimethyl disulfide	No	PAS.
Dimethyl sulfide	No	PAS.
Dimethyl sulfone	No	AUS.
Epichlorohydrin	No	DOW, SHC.
Ethylene oxide	Yes	BAS, CNE, DOW, EKX, HCL, OMC, SHC, SUN, TX, UCC, USI.
Ethyl ether	No	EKX, USI.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Other miscellaneous acyclic chemicals-Continued		
Epoxides, ethers, and acetals-Continued		
Ethyl vinyl ether	No	GAF.
Glycidol (2,3-Epoxy-1-propanol)	No	DIX.
Glycidyl ethers:		
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)	No	CPS.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	No	CPS, (2).
tert-Butyl glycidyl ether	No	CPS.
All other glycidyl ethers	No	(2).
Isopropyl ether	No	ENJ, SHC.
Methylal (Dimethoxymethane)	No	HCL.
Methyl vinyl ether	No	GAF, UCC.
Poly(oxy-1,2-ethanediyl), α -(1-oxotetradecyl)-	No	SCP.
Propylene oxide	No	ATR.
1,1,3,3-Tetramethoxypropane	No	NOD.
Tri- and tetraacrylate monomers	No	SQA.
All other epoxides, ethers, acetals	No	GAF, PAS, UCC.
2-(Ethylmercapto)ethanol	No	DVC.
Fats and oils, chemically modified:		
Brominated vegetable oil	No	DOM.
Castor oil, hydrogenated	No	CAS.
Castor oil, polymerized	No	CAS.
Chlorinated fatty materials	No	FER.
Hydrogenated menhaden fish oil	No	CHL, WTC.
Hydrogenated tallow glycerides	Yes	BRD, CHL, WTC.
Palm oil, hydrogenated	No	BRD.
Tallow, partially hydrogenated	No	CHL.
Vegetable glycerides, hydrogenated	No	BRD, WTC.
All other fats and oils, chemically modified	No	ARC, AUS, CAS, CJO, SCP, SM.
Glutaraldehyde bis(sodium bisulfite)	No	FMT.
Hydrocarbons:		
n-Decane	No	HMY, PLC.
3,3-Dimethylbutene	No	PLC.
n-Dodecane	No	HMY, PLC.
Hexadecane	No	HMY.
Myrcene	No	SCM, (2).
n-Octadecane	No	HMY.
n-Octane	No	HMY, PLC.
n-Tetradecane	No	HMY.
All other hydrocarbons	No	DUP.
2-Mercaptoethanol	No	MRT, RDA.
Methylethyl sulfide	No	PAS.
Methyl sulfide (Dimethyl sulfide)	No	PLC.
Methyl sulfoxide (Dimethyl sulfoxide)	No	GAY.
Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, sodium salt	No	WTC.
Organo-aluminum compounds:		
Aluminum di-sec-butoxide acetoacetic ester chelate	No	CHT.
Aluminum diisobutoxy ethyl acetoacetate	No	KCH.
Aluminum diisopropoxide acetoacetic ester chelate	No	CHT, KCH.
Aluminum [1,3-butanediolato(2-O,O')(ethyl-3-oxobutanoato-O ¹ ,O ³ -hydroxy T-4)	No	CHT.
Aluminum isoctoxide, diisopropoxide	No	KCH.
Aluminum isopropoxide (Aluminum isopropylate)	No	CHT, KCH.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Other miscellaneous acyclic chemicals-Continued		
Organo-aluminum compounds-Continued		
Aluminum tri-sec-butoxide	No	CHT.
Diethylaluminum chloride	No	TNA, TSA.
Diethylaluminum iodide	No	TNA, TSA.
Diisobutylaluminum chloride	No	TNA.
Diisobutylaluminum hydride	No	TNA, TSA.
Diisobutylaluminum oxide	No	TSA.
Di-n-propylaluminum chloride	No	TSA.
Ethylaluminum dichloride	No	TNA, TSA.
Ethylaluminum sesquichloride	No	TNA, TSA.
Isobutylaluminum	No	TSA.
Isobutylaluminum chloride	No	TNA.
Isopropenylaluminum	No	TSA.
Oxoaluminum isopropoxide	No	KCH.
Oxoaluminum stearate	No	CHT, KCH.
Oxyaluminum octanoate	No	CHT, KCH.
Polyol aluminum chelate	No	SQA.
Sodium dihydro-bis(2-methoxyethoxy) aluminate	No	HXL.
Tri-n-butylaluminum	No	TNA, TSA.
Triethylaluminum	No	TNA, TSA.
Tri-n-hexyl aluminum	No	TNA, TSA.
Triisobutylaluminum	No	TNA, TSA.
Trimethylaluminum	No	TNA, TSA.
Tri-n-octylaluminum	No	TNA, TSA.
Tri-oxyaluminum tri-isopropoxide	No	CHT.
All other organo-aluminum compounds	No	CHT, KCH, TNA, TSA.
Organo-boron compounds:	Yes	
Diethanolamine-borate	No	EFH.
N-Methyl-methanamine with borane (1:1)	No	(²).
2-Methyl-2-propanamine with borane(1:1)	No	(²).
Mixed alcohol borates	No	SCM.
Trimethoxyboroxine	No	(²).
Trimethyl borate	No	MHI.
N,N,N-Trimethyl methanaminium octahydrotriborate	No	(²).
All other organo-boron compounds	No	ADC, FER, HCL, TSA, (²).
Organo-lithium compounds:		
n-Butyllithium	No	FTE.
sec-Butyllithium	No	FTE.
Lithium hydroxystearate	No	WTC.
Organo-magnesium compounds:		
Butyl ethyl magnesium	No	TSA.
Di-n-butylmagnesium	No	TSA.
Di-n-hexyl magnesium	No	TSA.
Magnesium methylate	No	SOI.
Organo-nickel compounds	No	FER.
Organo-silicon compounds:		
N-Aminoethylaminopropyl trimethoxysilane	No	DCC, NOD.
Chloromethyldimethylchlorosilane	No	PCR.
α-Chloropropyltrichlorosilane	No	DCC, NOD.
Chloropropyltrimethoxysilane	No	DCC, UCC.
Chlorotrimethylsilane	No	DCC.
Dichlorodimethylsilane	No	DCC.
Dichloromethylsilane	No	DCC.
Dichloromethylvinylsilane	No	DCC, PCR, (²).
Diisobutyl dimethoxychloro silane	No	NOD.
Divinytetramethyldisilazane	No	PCR.

See footnotes at end of table.

Table 15-2—Continued

Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Other miscellaneous acyclic chemicals-Continued		
Organo-silicon compounds-Continued		
Divinyl tetramethyldisiloxane	No	NOD, (2).
α -Glycidoxypropyltrimethoxysilane	No	NOD, UCC.
Hexamethyldisilazane	No	DCC, NOD, PCR.
Hexamethyldisiloxane	No	PCR.
Hexyltrichlorosilane	No	PCR.
Isobutyltrimethoxysilane	No	DCC, NOD.
Mercaptopropyltrimethoxysilane	No	NOD, UCC.
α -Methacryloxypropyltrimethoxysilane	No	UCC.
Methyltrimethoxysilane and polymethyltrisiloxane	No	DCC, UCC.
N-Octyltriethoxy silane	No	PCR.
Polyoxyalkene silicones	No	UCC.
Silicone fluids	Yes	DCC, SPD, SWS, UCC.
Silicone resins for mold release agents	No	ALW.
Tetramethyldisiloxane	No	PCR, (2).
Trichloromethylsilane	No	DCC.
Trichloropropylsilane	No	DCC.
Trichlorovinylsilane	No	UCC.
Tris(2-methoxyethoxy)vinyl silane	No	NOD.
Tris(pentamethyldisiloxanyl)-3-methacrylatopropylsilane	No	(2).
Vinylmethylchlorosilane	No	PCR, (2).
Vinyltriethoxysilane	No	NOD, UCC.
Vinyl trimethoxy silane	No	NOD.
All other organo-silicon compounds	No	DCC, NOD, PCR, PCR, SCP, UCC, (2), (2), (2).
Organo-tin compounds:	Yes	
Dibutyltin bis(butylmaleate)	No	CCA, WTC.
Dibutyltin bis(isooctylmercaptoacetate)	No	PAS, WTC.
Dibutyltin bis(mercaptolaurate)	No	PAS.
Dibutyltin carboxylates	No	FER.
Dibutyltin dichloride	No	PAS, WTC.
Dibutyltin oxide	No	PAS.
Dimethyltin dichloride	No	WTC.
Dimethyltin-IOTG	No	WTC.
Ester tin mercaptoesters	No	CCA.
Monomethyl tin	No	WTC.
Organotin mercaptides	No	CCA, CCW, PAS.
All other organo-tin compounds	No	PCR, (2).
Organo-zinc compounds:		
Diethylzinc	No	TSA.
All other organo-zinc compounds	No	TSA.
Perfluoroalkyl polyether	No	DUP.
Phosgene (Carbonyl chloride)	Yes	DUP, ICI, OMC, PPG, VDM.
Polyalphaolefins	No	TNA.
Polyepichlorohydrin	No	(2).
Polyhexafluoropropylene oxide	No	DUP.
Polymethacrylic acid esters	No	DUP, WTL.
Poly(oxyalkylene glycol)—polymer with polymethylene-polyphenylene isocyanate-urethane prepolymer	No	GLC.
Potassium 2-methyl-2-butanol	No	(2).
Potassium 2-methyl-2-propanol	No	(2).
Sodium methoxide (Sodium methylate)	No	HK, OMC.
Trifluoroethanol	No	HOC.
Zirconium compounds	No	KCH.

See footnotes at end of table.

Table 15-2—Continued
Miscellaneous chemicals for which U.S. production and/or sales were either reported or estimated, identified by manufacturer, 1991

Miscellaneous cyclic and acyclic chemicals	Separate statistics ¹	Manufacturers' identification codes (according to list in table 15-3)
Miscellaneous chemicals, acyclic-Continued		
Other miscellaneous acyclic chemicals-Continued		
All other miscellaneous acyclic chemicals	No	AIP, ANG, BDS, BRD, DPW, EK, EKT, HXL, MCK, MRF, PAH, PAS, PIC, RSA, SCP, TCC, TNA, TSA, TUL, USR, (2), (2).
Mixtures not specifically itemized:	Yes	
Alcohols, monohydric, and their esters, C ₈ and higher	No	EKX.
Butyl formcel	No	HCL.
Celtone	Yes	HCL.
Fatty acid residues	No	ARZ, BRD, DRL, SHX, SYP, WTC.
Gluconic acid and salts, mixed	No	PMP.
Glycol residues	No	OMC.
Methyl formcel	No	HCL, NOD.
Oxo process bottoms	No	CXI.
Propionic blends	No	HCL.
Rosin/fatty acid mixtures	No	ARZ.
Rosin/fatty acid/pitch mixtures	No	ARZ.
Terpene residues	No	ARZ.
All other mixtures not specifically itemized	No	ARC, CNE, HCL, LYP, MON, PLC, SCP.

¹ Chemicals for which separate statistics are reported in this section are indicated by 'yes.' Chemicals for which data are accepted in confidence and may not be published are indicated by 'no.'

² The manufacturer did not consent to be identified with the designated products.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

Table 15-3
Miscellaneous cyclic and acyclic chemicals: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
ABB	Abbott Laboratories	CCC	C.N.C. International, L.P.
ABB	Abbott Laboratories	CCW	Morton International, Inc., Speciality Chemicals Group
ACS	Allied Signal Inc., Engineered Material Sector	CGY	Ciba-Geigy Corp.
ACY	American Cyanamid Co.	CHD	Chemdesign Corp.
ADC	Anderson Development Co.	CHG	Mobay Chemical Corp., Agricultural Chemicals Div.
ADM	Archer Daniels Midland Co.	CHL	Chemol, Inc.
AIP	Air Products & Chemicals, Inc.	CHO	Ducon
AKZ	Akzo Chemicals, Inc.	CHP	C. H. Patrick & Co., Inc.
ALI	Anzon, Inc.	CHT	Chattem, Inc.
ALW	Albright & Wilson, Americas, Inc.	CJO	C. J. Osborn Chemical, Inc.
AMB	American Bio-Synthetics Corp.	CNE	Oxy Petrochemicals, Inc.
AMO	Amoco Corp.	CNP	DSM Chemicals, North America, Inc.
AMV	Amvac Chemical Corp.	CPS	CPS Chemical Co., Inc.
ANG	Angus Chemical Co.	CWN	Upjohn Co., Fine Chemicals
AQU	Aqualon Co.	CXI	Chemical Exchange Industries, Inc.
ARC	Akzo Chemicals, Inc.	CYR	CYRO Industries
ARS	Arsynco, Inc., Sub. Div. of Aceto Corp.	DAN	Hickson Danchem Corp.
ART	Aristech Chemical Corp.	DAZ	Diaz Chemical Corp.
ARZ	Arizona Chemica Co.	DCC	Dow Corning Corp.
ASH	Ashland Chemical, Inc.	DGC	Degussa Corp.
ASL	Specialtychem Products Corp.	DIX	Dixie Chemical Co., Inc.
ATL	Atlantic Industries, Inc.	DKA	Miles, Inc.
ATR	Arco Chemical Co.	DOM	Dominion Products, Inc.
AUS	Ausimont N.V.	DOW	Dow Chemical Co.
AZT	Aztec Catalyst Co.	DPW	Deepwater Iodides, Inc.
BAS	BASF Corp.	DRL	Unichema North America
BCC	Buffalo Color Corp.	DUP	E. I. duPont de Nemours & Co., Inc. Chemicals & Pigments Dept. Petrochemicals Dept. Polymer Products Dept.
BCP	Borden Chemical & Plastics Delaware Limited	DVC	Dover Chemical Corp. Sub. of ICC Industries, Inc.
BDS	Fragrance Resources, Inc.	DVR	Diversified Technology, Inc.
BFG	B.F. Goodrich Co.	EFH	E. F. Houghton & Co.
BFP	American Ingredients Company	EHC	Ethichem Corp.
BKC	J. T. Baker Chemical Co.	EK	Eastman Kodak Co.:
BKM	Buckman Laboratories, Inc.	EKT	Tennessee Eastman Co. Div.
BOC	Biocraft Laboratories, Inc.	EKX	Texas Eastman Co. Div.
BOR	Borden, Inc., Packaging & Indus. Prod. Div.	ELC	Elco Corp. Sub. of Detrex Inc.
BRD	Lonza, Inc.	ENJ	Exxon Chemical Americas
BRI	Burlington Industries	EVN	W. R. Grace & Co., Organic Chemicals Div. Evans Chemetics
BRS	Bristol-Myers Squibb Co.	FER	Ferro Corp.: Bedford Chemical Div. Grant Chemical Div. Keil Chemical Div.
BTL	BTL Specialty Resin Corp.		
BUC	Synalloy Corp., Blackman Uhler Chemical Div.		
CAD	Akzo Chemicals, Inc.		
CAS	Caschem, Inc.		
CBD	Neste Resins Corp.		
CCA	Akzo Chemicals, Inc.		

See footnotes at end of table.

Table 15-3—Continued
Miscellaneous cyclic and acyclic chemicals: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
FMN	FMC Corp., Agricultural Chemical Group	KLM	Kalama Chemical, Inc.
FMT	Fairmount Chemical Co., Inc.	KMI	Kemin Industries, Inc.
FOC	Handschy Industries, Inc., Ink and Chemical Div.	LCP	LCP Chemicals, Hanlin Group, Inc., West Virginia, Inc.
FOR	Formosa Plastics Corporation Louisiana	LRO	Laroche Chemicals, Inc.
FRO	Vulcan Materials Co., Chemicals Div.	LYP	Lyondell Petrochemical Co.
FTE	Cyprus Foote Mineral Company	MAL	Mallinckrodt, Inc.
FTX	Finetex, Inc.	MCI	Mooney Chemicals, Inc.
GAF	ISP Chemicals, Inc., Div. of GAF Chemicals	MCK	MacKenzie Chemical Works, Inc.
GAY	Gaylord Chemical Corp.	MHI	Morton International, Inc.
GE	General Electric Co., Specialty Chemical Group	MIL	Milliken & Co., Milliken Chemical Div.
GFS	GFS Chemical, Inc.	MNA	Monsanto Co., Agricultural Group
GGC	Georgia-Gulf Corp.: Houston Div. Plaquemine Div.	MON	Monsanto Co.
GIV	Givaudan Corp.	MRF	Morlex, Inc.
GLC	General Latex & Chemical Corp.	MRT	Morton International, Inc., Specialty Chemical
GP	Georgia-Pacific Corp., Resins Operations	NCC	Niacet Corp.
GPI	Grindsted Products, Inc.	NCI	Union Camp Corp., BBA Div.
GTL	Great Lakes Chemical Corp.	NES	Ruetgers-Nease Chemical Co.
HAL	C. P. Hall Co.	NOC	Norac Co., Inc. Mathe Div.
HAR	Haarman Reimer Corp., Food Ingredients Div.	NOD	Huls America, Inc.
HCC	Hatco Corp.	OH	Anaquest
HCL	Hoechst Celanese Corp: Chemical Group Inc. Fibers Industrial Division Sou-TEX Works	OMC	Olin Corp.
HCP	Honig Chemical & Processing Corp.	ORT	Roehr Chemicals, Inc., Div. of Aceto Corp.
HFT	Syntex Agribusiness, Inc.	PAH	Parish Chemical Co.
HK	Occidental Chemical Corp., ED & S Div.	PAS	ELF Atochem North America, Inc.
HML	Hummel Crofton, Inc.	PCI	Piedmont Chemical Industries, Inc.
HMP	W. R. Grace & Co., Hampshire Chemicals Div. & Organic Chemicals Div.	PCR	PCR, Inc.
HMY	Humphrey Chemical Co.	PCW	Pfister Chemical, Inc.
HOC	Halocarbon Products Corp.	PD	Parke-Davis, Div. of Warner-Lambert Co.
HPC	Hercules, Inc.	PDG	P.D. Glycol
HXL	Hexcel Corp., Hexcel Chemical Products	PEL	Pelron Corp.
ICI	ICI Americas, Inc.: Agricultural Chemical Div. Rubicon, Inc. Specialty Chemical Div.	PEN	Penick Corp.
IMC	Pitman-Moore	PFN	Pfanstiehl Laboratories, Inc.
JRC	Jarchem Industries, Inc.	PFZ	Pfizer, Inc.
KCH	Rhone-Poulenc Chemicals	PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.
		PIC	Pierce Chemical Co.
		PLC	Phillips 66 Co.
		PLS	Plastics Engineering Co.
		PMP	PMP Fermentation Products, Inc.
		PPG	PPG Industries, Inc.
		PSG	PMC, Inc., PMC Specialities Group, Inc.
		PST	Perstorp Polyols, Inc.
		QCP	Quaker Chemical Corp.
		QKO	QO Chemicals, Inc.
		RCI	Reichhold Chemicals, Corp.

See footnotes at end of table.

Table 15-3—Continued
Miscellaneous cyclic and acyclic chemicals: Directory of manufacturers, alphabetical by code, 1991

Code	Name of company	Code	Name of company
RDA	Rhone-Poulenc, Inc.	TNA	Ethyl Corp.
REG	Regis Chemical Co.	TNI	Gillette Chemical Co.
RH	Rohm & Haas Co.	TOC	Tenneco Methanol Co.
RQT	Roquette Corporation	TRO	Troy Chemical Corp.
RSA	R.S.A. Corp.	TSA	Akzo Chemicals, Inc.
S	Sandoz Chemical Corp.	TUL	Tull Chemical Co., Inc.
SBC	Scher Chemicals, Inc.	TX	Texaco Chemical Co.
SC	Sterling Chemicals, Inc.	TZC	Magnesium Elektron, Inc.
SCM	SCM Corp., Gildco Organics	UCC	Union Carbide Corp., Industrial Chemicals Div.
SCN	Schenectady Chemicals, Inc.	UPM	UOP, Inc.
SCP	Henkel Corp.	USB	U. S. Borax & Chemical Corp.
SD	Sterling Drug, Inc.	USI	Quantum Chemical Corp., USI Div.
SDC	Sandoz Chemicals Corp.	USR	Uniroyal Chemical Co., Inc.
SDW	Sterling Drug, Inc., Sterling Organics Div.	UTC	Unitex Chemical Corp.
SHC	Shell Oil Co., Shell Chemical Co.	VCM	Vanchem, Inc.
SHP	Shepherd Chemical Co.	VDM	Van De Mark Chemical Co., Inc.
SHX	Sherex Chemical Co., Inc.	VEL	Velsicol Chemical Corp.
SK	Smithkline Beecham Chemicals	VNC	Vanderbilt Chemical Corp.
SM	Mobil Oil Corp.: Chemical Products Div.	VND	ISP-Van Dyk, Inc.
SOH	BP Chemicals, Inc.	VST	Vista Chemical Co.
SOI	Speciality Organics, Inc.	WCL	Wright Chemical Corp.
SPD	General Electric Co., Silicone Products Div.	WLK	Westlake Corp.
SQA	Sequa Chemicals, Inc.	WM	Inolex Chemical Co.
SUN	Sun Co., Inc.	WPG	West Point-Pepperell, Inc., Grifftex Chemical Co. Sub.
SWS	Wacker Silicones	WTC	Witco Corp.
SYP	Synthetic Products Co.	WTH	Union Camp Corp., Chemical Division
SYT	Synthron, Inc.	WTL	ELF Atochem North America, Inc., Organic Peroxides Div.
TCC	Sybron Chemicals, Inc.	WVA	Westvaco Corp.
TLC	Twin Lake Chemical, Inc.	WYK	Wyckoff Chemical Co., Inc.

Note.—Complete names, telephone number, and addresses of the above reporting companies are listed in app. A.
 Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

APPENDIX A
DIRECTORY OF MANUFACTURERS

Table A-1**Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991**

(Names of synthetic organic chemicals manufacturers that reported production and/or sales to the U.S. International Trade Commission for 1991 are listed below alphabetically, together with their identification codes as used in the 15 individual sections of this report)

<i>Identification code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
ABB	Abbott Laboratories	708-937-8343	1401 Sheridan Rd., N. Chicago, IL 60064-4000.
ILI	Acme Steel Co	708-849-2500	13500 S. Perry Ave., Riverdale, IL 60627.
ACO	Adco Chemical Co	201-589-0880	49 Rutherford St., Newark, NJ 07105.
AES	Advanced Elastomer Systems, L.P.	314-453-5300	540 Maryville Centre Dr., St. Louis, MO 63141.
CCS	Advanced Resins, Inc	303-245-8148	569 24 1/4 Rd., Grand Junction, CO. 81505.
AIP	Air Products & Chemicals, Inc	215-481-4911	7201 Hamilton Blvd, Allentown, PA 18195-1501
AJY	Ajay Chemicals, Inc	404-943-6202	1400 Industry Rd., Powder Springs, GA 30073.
AJI	Ajinomoto USA, Inc	201-488-1212	4020 Ajinomoto Dr., Raleigh, NC 27610.
AKZ	Akzo Chemicals, Inc.	312-906-7500	P.O. Box 100, Axis, AL 36505.
ARC	Akzo Chemicals, Inc.	312-906-7500	300 S. Riverside Plaza, Chicago, IL 60606.
CCA	Akzo Chemicals, Inc.	312-906-7500	500 Jersey Ave, New Brunswick, NJ 08903.
CAD	Akzo Chemicals, Inc	312-906-7500	2153 Lockport-Olcott Rd., Burt, NY 14028.
TSA	Akzo Chemicals, Inc	713-479-8411	P.O. Box 600, Deer Park, TX 77536.
FRP	Akzo Coatings, Inc	912-367-3616	P.O. Box 349, Baxley, GA 31513.
REL	Akzo Coatings, Inc	502-459-9110	4730 Crittenden Dr., Louisville, KY 40209.
AKZ	Akzo Coatings, Inc	502-459-9110	1313 Windsor Ave., Columbus, OH 43211.
IOV	Akzo/Resins & Vehicles	708-481-8900	21625 Oak St., Matteson, IL 60443.
ALW	Albright & Wilson, Americas, Inc	804-550-4300	100 Lakeridge Pkwy., Ashland, VA 23005.
ALC	Alco Chemical	615-629-1405	909 Mueller Dr., Chattanooga, TN 37406.
ALD	Aldrich Chemical Co., Inc	414-273-3850	1001 W. St. Paul Ave., Milwaukee, WI 53233.
ACH	Allco Chemical Corp	214-733-6841	17304 N. Preston Dr., Suite 800, TX 75252.
ALG	Allegheny Chemical Corp	814-772-3965	Gillis Ave., Ridgway, PA 15853.
ALL	Alliance Chemical, Inc	201-945-5400	Linden Ave., Ridgefield, NJ 07657.
ACS	Allied Signal Inc:		
	Engineered Materials Sector	201-455-4911	P.O. Box 1087, Morristown, NJ 07962.
	Engineered Plastic Div	201-455-2000	Columbia Rd. & Park Ave., Morristown, NY 07960.
BME	Friction Materials Div	518-270-0200	P.O. Box 238, Troy, NY 12180.
ALX	Alox Corp	716-282-1295	3943 Buffalo Ave., Niagara Falls, NY 14303.
ALP	Alpha Laboratories, Inc	303-756-1338	1685 S. Fairfax St., Denver, CO 80222.
APH	Alpha Resins Corp	901-853-2450	P.O. Box 670, Collierville, TN 38017.
HES	Amerada Hess Corp. (Hess Oil Virgin Island Corp.)	201-750-6000	1 Hess Plaza, Woodbridge, NJ 07095-0961.
AMB	American Bio-Synthetics Corp	414-384-7017	710 W. National Ave., Milwaukee, WI 53204.
ACY	American Cyanamid Co	201-831-2768	One Cyanamid Plaza, Wayne, NJ 07470.
BFP	American Ingredients, Co	816-561-9050	3947 Broadway, Kansas City, MO 64111.
API	American Polymers, Inc	508-756-1010	P.O. Box 366, Oxford, MA 01540.
ASY	American Synthetic Rubber Corp	502-449-8300	4500 Campground Rd., Louisville, KY 40216.
SPO	Ameripol Synpol Co., Div. of Uniroyal Goodrich Tire Co	216-762-4442	146 South High St. Akron, OH 44308-1493.
HVG	Ametek, Inc., Haveg Div Uniroyal Goodrich Tire Co	302-995-0400	900 Greenbank Rd., Wilmington, DE 19808.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
AMO	Amoco Corp	312-856-6111	200 E. Randolph Dr., Chicago, IL 60680-0703.
AMV	Armvac Chemical Corp	213-264-3910	4100 E. Washington Blvd., Los Angeles, CA 90023.
OH	Anaquest	608-273-0019	2005 W. Beltline Hwy., Madison, WI 53713.
ADC	Anderson Development Co	517-263-2121	1415 E. Michigan St., Adrian, MI 49221.
ANG	Angus Chemical Co	708-498-6700	2211 Sanders Rd., Northbrook, IL 60085.
ALI	Anzon, Inc., Lead Div	215-531-6010	2545 Aramingo Ave., Philadelphia, PA 19125.
APX	Apex Chemical Co	908-354-5420	200 S. First St., Elizabeth, NJ 07206.
APC	Apollo Chemical Corp	919-226-1161	1105 Southerland St., Graham, NC 27253.
APO	Apollo Colors, Inc	708-564-9190	3000 W. Dundee Rd., Suite 415, Northbrook, IL 60062.
AQU	Aqualon Co	302-996-2000	2711 Centerville Rd., Wilmington, DE 19850-5417.
HKY	Arcadian Corp	901-351-6500	6750 Poplar Ave., Suite 600, Memphis, TN 38138-7419.
ARD	Ardmore, Inc	201-481-2406	29 Riverside Ave., Newark, NJ 07104.
ARN	Arenol Chemical Corp	201-526-5900	189 Meister Ave., Somerville, NJ 08876.
ART	Aristech Chemical Corp	412-433-2747	600 Grant St., Pittsburgh, PA 15230-0250.
ARZ	Arizona Chemical Co	904-785-6700	1001 E. Business Hwy. 98, Panama City, FL 32401.
ALS	Armco, Steel Co.	513-425-5000	703 Curtis St., Middletown, OH 45044.
ARP	Armour Pharmaceutical Co	815-932-6771	P.O. Box 511, Kankakee, IL 60901.
ARO	ARNCO	213-567-0587	5141 Firestone Place, Southgate, CA 90280.
ARL	Arol Chemical Products Co	201-344-1510	649 Ferry St., Newark, NJ 07105.
ARS	Arsynco, Inc., Sub Div. of Aceto Corp	516-627-6000	One Hollow Lane, Lake Success, NY 11042-1215.
ASH	Ashland Chemical Inc	614-889-3333	P.O. Box 2219, Columbus, OH 43216.
	Ashland Petroleum Co	606-329-3333	P.O. Box 391, Ashland, KY 41114.
BLA	Astor Products, Inc., Blue Arrow Div	904-783-5352	5244 Edgewood Ct., Jacksonville, FL 32205.
ATR	Atlantic Richfield Co.,	215-359-2000	3801 West Chester Pike, Newtown Square, PA 19073.
	Arco Chemical Co.		
ARI	Atlas Refinery, Inc	201-589-2002	142 Lockwood St., Newark, NJ 07105.
AUX	Auralux Corp	203-886-2616	P.O. Box 113, Yantic, CT 06389.
AUS	Ausimont N.V	201-292-6250	44 Whippany Rd., Morristown, NJ 07962.
AZT	Aztec Catalyst Co.	713-682-5300	2190 N. Loop West, Suite 400 Houston, TX 77018.
BAS	BASF Corp.		
	Chemicals Div	201-316-2937	1255 Broad St., Clifton, NJ 07015.
TEN	BIT Manufacturing, Inc	615-496-3331	1 Ocoee St., Copperhill, TN 37317.
SOH	BP Chemicals, Inc	216-586-4141	200 Public Square 31-N-4105, Cleveland, OH 44114 - 2375.
SIF	Commerical Composites	606-282-2623	7310 Turfway Rd., Suite 300, Florence, KY 41042.
SIC	Commerical Composites	213-757-1801	12333 South Van Ness Ave., Hawthorne, CA 90250.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identification code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
SIO	BP Oil Co	419-226-2300	1150 South Metcalf St., Lima, OH 45804.
BTL	BTL Speciality Resin Corp	419-244-5856	2112 Sylvan Ave., Toledo, OH 43606.
BKC	J. T. Baker Chemical Co	908-859-2151	222 Red School Lane, Phillipsburg, NJ 08865.
BFC	Barker Fine Color, Inc.	606-261-0200	38 Elm St., Lodlov, KY 41016.
BIB	Beckman Instruments, Inc	415-859-1510	1050 Page Mill Rd., Palo Alto, CA 94304.
BCK	Diagnostic Systems Group	619-438-9151	2470 Faraday Ave., Carlsbad, CA 92008. NJ 07424.
BCM	Belding Heminway Co	212-944-6040	P.O. Box 130, Hendersonville, NC 28793.
BLZ	Belzak Corp	201-773-0602	850 Bloomfield Ave., Clifton, NJ 07012.
BLY	Berkley & Co., Inc.	712-336-1520	One Berkley Dr., Spirit Lake, IA 51360.
BTS	Bethlehem Steel Corp	215-694-4522	1170 8th Avenue, Bethlehem, PA 18016.
BOC	Biocraft Laboratories, Inc	201-703-0400	12 Industrial Park, Waldwick, NJ 07463.
NUT	Bioproducts, Inc	502-962-0700	4820 Jennings Lane, Louisville, KY 40218.
BOE	Boehme Filatex, Inc	919-342-6631	Rt. 11 Box 5, Reidsville, NC 27320.
BOT	Boots Pharmaceuticals, Inc.	708-405-7400	300 Tristate Int'l Ctr., Suite 200, Lincolnshire, IL 60069-4422
BOR	Borden, Inc.: Packaging & Industrial Products Div.	614-225-4400	180 E. Broad St., Columbus, OH 43215.
BCP	Borden Chemical & Plastics Delaware Limited Partnership	504-673-6121	Box 427, Geismar, LA 70734.
BMC	Brin-Mont Chemicals, Inc	919-292-0566	3921 Spring Garden St., Greensboro, NC 27407.
BRS	Bristol-Myers Squibb Co	212-546-4000	345 Park Ave., New York, NY 10154.
BRU	M. A. Bruder & Sons, Inc	215-353-5100	52nd & Grays Ave., Philadelphia, PA 19143.
BKM	Buckman Laboratories, Inc	901-278-0330	1256 N. McLean Blvd., Memphis, TN 38108.
BCC	Buffalo Color Corp	716-827-4500	P.O. Box 7027., Buffalo, NY 14240.
BRI	Burlington Industries, Inc.	919-379-2000	3330 W. Friendly Ave., Greensboro, NC 27406.
BUR	Burroughs Wellcome Co	919-248-3000	3030 Cornwallis Rd., Research Triangle Park, NC 27709.
CDR	CDR Pigments & Dispersions	513-771-1900	410 Glendale Milford Rd., Cincinnati, OH 45215.
CFI	CF Industries, Inc	708-438-9500	One Salem Lake Dr., Long Grove, IL 60047.
CLU	CL Industries, Inc	217-662-2136	P.O. Box 218, Georgetown, IL 61846.
CCC	C.N.C. International, Inc	401-769-6100	20 Priviledge St., Woonsocket, RI 02895.
PS	CPS Corp	716-366-6010	3257 Middle Rd., Dunkirk, NY 14048.
CPS	CPS Chemical Co., Inc	908-727-3100	Old Water Works, Rd., Old Bridge, NJ 08857.
CYR	CYRO Industries	201-770-3000	100 Valley Rd., MT. Arlington, NJ 07856.
GRL	Calgon Corp., Calgon Vestal Laboratories Div.	314-535-1390	5035 Manchester Ave., St. Louis, MO 63110.
CMB	Cambridge Industries Co	201-465-4565	7-33 Amsterdam St., Newark, NJ 07103.
HCF	Cape Industries	919-341-5500	P.O. Box 327, Wilmington, NC 28402.
CBC	Carbose Corp	814-443-1611	100 Maple St., Somerset, PA 15501.
CGL	Cargill, Inc	612-475-7634	P.O. Box 5630, Minneapolis, MN 55428.
CHC	Carpenter Chemical Co	804-359-0800	5016 Monument Ave., Richmond, VA 23230.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
BSC	Cascade Resins, Inc	503-343-2111	P.O. Box 1989, Eugene, OR 97401.
CAS	Caschem, Inc	201-858-7900	40 Avenue A, Bayonne, NJ 07002.
CCL	Catawba-Charlab, Inc	704-523-4242	5046 Old Pineville Rd., Charlotte, NC 28217.
CED	Cedar Chemical Corp	501-572-3701	Highway 242 South, West Helena, AR 72390.
CNT	Certainfeed Corp	215-341-7000	P.O. Box 860, Valley Forge, PA 19482.
CPR	Certified Processing Corp	201-923-5200	U.S. Highway #22, Hillside, NJ 07205.
CHT	Chatterm, Inc	615-821-4571	1715 W. 38th St., Chattanooga, TN 37409.
CHD	Chemdesign Corp	508-345-9999	99 Development Rd., Fitchburg, MA 01420.
CFX	Chemfax, Inc	601-863-6511	10045 Three River Rd., Gulfport, MS 39502.
CXI	Chemical Exchange Industries, Inc	713-526-8291	3813 Buffalo Speedway, Houston, TX 77098.
CMT	Chemithon Corp	206-937-9954	5430 W. Marginal Way, SW., Seattle, WA 98106.
CHL	Chemol Co	919-333-3050	2410 Randolph Ave., Greensboro, NC 27406.
SOC	Chevron Corp., Chevron Chemical	415-842-5500	6001 Bollinger Canyon Rd., San Ramon, CA 94583.
CGY	Ciba-Geigy Corp	914-478-3131	444 Saw Mill River Rd., Ardsley, NY 10502.
CGO	Citgo Petroleum Corp	918-495-4000	P.O. Box 1562, Lake Charles, LA 70602.
GSR	Citgo Refining & Chemicals, Inc	512-882-8871	1801 Nuceces Bay Blvd., Corpus Christi, TX 78469.
CGU	Citizens Gas & Coke Utility	317-264-8802	3133 Southeastern Ave., Indianapolis, IN 46203.
CLK	Clark Oil & Refining Corp	314-854-9696	8182 Maryland Avenue, St. Louis, MO 63105.
ACT	Climax Performance Materials Corp	708-458-8450	7666 W. 63rd St., Summit, IL 60501.
WYC	Coastal Chem, Inc	307-637-2700	P.O. Box 1287, Cheyenne, WY 82003.
CSP	Coastal Refining & Marketing Inc	713-877-1400	Nine Greenway Plaza, Houston, TX 77046.
CP	Colgate-Palmolive Co	212-310-2000	300 Park Ave., New York, NY 10022.
CIC	Color Chem International Corp	404-396-1230	5145 Meadow Creek Dr., Atlanta, GA 30338.
CAC	Cominco Fertilizers, Inc	509-747-6111	W. 601 Riverside Ave., Spokane, WA 99201.
CNI	Conap, Inc	716-372-9650	1405 Buffalo St., Olean, NY 14760.
CON	Concord Chemical Co., Inc	609-966-1526	17th & Federal Sts., Camden, NJ 08105.
CO	Conoco, Inc	713-293-1000	P.O. Box 2197, Houston, TX 77252.
CKC	Cook Composites and Polymers Co.	816-391-6000	919 East 14th Ave., N. Kansas City, MO, 64141-6389.
CPV	Cook Paint & Varnish Co	816-391-6000	P.O. Box 419389, Kansas City, MO 64141.
HEU	Cookson Pigments, Inc	201-242-1800	256 Vanderpool St., Newark, NJ 07114.
COP	Coopers Creek Chemical Corp	215-828-0375	River Rd., West Conshohocken, PA 19428.
CPY	Copolymer Rubber & Chemical Corp.	504-355-5655	P.O. Box 2591, Baton Rouge, LA 70821.
CMS	Cosmic Plastics, Inc	818-365-3249	27939 Beale Court, Valencia, CA 91355.
CRD	Croda, Inc	201-644-4900	7 Century Dr., Parsippany, NJ 07054.
CK	Crompton & Knowles Corp	215-775-8000	P.O. Box 341, Reading, PA 19603.
CCP	Crown Central Petroleum Corp	410-539-7400	1 N. Charles St., Baltimore, MD 21203.
USM	Crown Metro, Inc	803-299-1331	Echelon Road, Donaldson Centre, Greenville, SC 29606.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
CTR	Customs Resins Div. of Bemis Co., Inc.	502-826-7641	P.O. Box 933, Henderson, KY 42420.
AMD	Cyclo Products, Inc.	213-582-6411	1922 E. 64th St., Los Angeles, CA 90001.
FTE	Cyprus Foote Mineral Co.	215-889-9605	301 Lindenwood Dr., Suite 301, Malvern, PA 19355.
CNP	DSM Chemicals North America, Inc.	404-849-6000	1 Columbia Nitrogen Rd., Augusta, GA 30903.
POP	Daicolor Pope, Inc.	201-777-0200	33 Sixth Ave., Paterson, NJ 07524.
DPI	Dart Polymers, Inc., Sub. of Dart Container Corp.	717-656-2236	60 E. Main St., Leola, PA 17540.
DGO	Day-Glo Color Corp.	216-391-7070	4515 St. Clair Ave., Cleveland, OH 44103.
DPW	Deepwater, Inc.	714-751-3522	P.O. Box 17599, Irvine, CA 92713.
DGC	Degussa Corp.	201-641-6100	65 Challenger Rd., Ridgefield Park, NJ 07660.
DRR	Delta Resins & Refractories, Inc.	414-462-1200	6263 N. Teutonia Ave., Milwaukee, WI 53209.
DNS	Dennis Chemical Co.	314-771-1800	2700 Papin St., St. Louis, MO 63103.
HYA	Dexter Corp: Aerospace Material Div.	415-687-4201	2850 Willow Pass Road, Pittsburgh, CA 94565.
DXA	Automotive Div.	603-474-5541	One Dexter Dr., Seabrook, NH 03874.
HYC	Dexter Electronic Material Div.	203-627-9051	211 Franklin St., Olean, NY 14760.
DEX	Dexter Chemical Corp.	212-542-7700	845 Edgewater Rd., Bronx, NY 10474.
MID	Dexter Speciality Coatings.	708-623-4200	E. Water St., Waukegan, IL 60085.
AGP	Dial Corp.	602-248-2800	2000 Aucutt Rd., Montgomery, AL 60538.
DA	Diamond Shamrock Refining & Marketing.	512-641-6800	P.O. Box 696000, San Antonio, TX 78269-6000.
DAZ	Diaz Chemical Corp.	716-638-6321	40 Jackson St., Holley, NY 14470.
DVR	Diversified Technology, Inc.	904-673-4136	1625 State Ave., Holly Hill, FL 32117.
DIX	Dixie Chemical Co., Inc.	713-863-1947	300 Jackson Hill, Houston, TX 77007.
DRC	Dock Resins Corp.	908-862-2351	1512 W. Elizabeth Ave., Linden, NJ 07036.
DOM	Dominion Products, Inc.	718-499-3050	882 - 3rd Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Corp. Sub. of ICC Industries, Inc.	216-343-7711	W. 15th & Davis Sts., Dover, OH 44622.
DOW	Dow Chemical Co.	517-636-6125	2020 Willard H. Dow Center, Midland, MI 48674.
DCC	Dow Corning Corp.	517-496-4000	P.O. Box 994, Midland, MI 48686-0994.
DRX	Drexel Chemical Corp.	901-774-4370	2487 Pennsylvania St., Memphis, TN 38109.
ABP	Drummond Co., Inc.	205-945-6301	P.O. Box 10246, Birmingham, AL 35202.
WBG	Dryden Oil Co.	508-791-3201	694 Millbury St., Worcester, MA 01607.
CHO	Ducoa.	618-654-2070	115 Executive Dr., Suite 104, Highland, IL 62249.
DUP	E. I. duPont de Nemours & Co., Inc.	302-774-1000	1007 Market St., Wilmington, DE 19898.
DSC	Dye Specialties, Inc.	201-866-9504	100 Plaza Center, Secaucus, NJ 07096.
DYG	Dynagen, Inc., Sub. of General Tire.	915-335-7511	2000 East Poole Rd., Odeessa, TX 79766.
AGI	EMS-American Grilon, Inc.	803-481-9173	Industrial Park & Corporate Hwy., Sumter, SC 29151.
EPC	EPC Partners, Ltd.	713-880-6500	P.O. Box 4324, Houston, TX 77210.
EPI	Eagle Pitcher Industries Inc., Orthane Div.	817-387-0585	P.O. Box 1389, Denton, TX 76202.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
ECC	Eastern Color & Chemical Co	401-331-9000	35 Livingston St., Providence, RI 02904.
EK	Eastman Kodak Co	716-724-4000	343 State St., Rochester, NY 14650.
EKT	Tennessee Eastman Co. Div	615-229-2000	P.O. Box 511, Kingsport, TN 37662.
EKX	Texas Eastman Co. Div	903-237-5122	P.O. Box 7444, Longview, TX 75607.
ESA	East Shore Chemical Co.	616-726-3106	1221 E. Barney Ave., Muskegon, MI 49443.
ELN	Elan Chemical Co	201-344-8014	268 Doremus Ave., Newark, NJ 07105.
ELC	Elco Corp. Sub. of Detrex Chemical Industries, Inc.	216-749-2605	1000 Beltline Rd., Cleveland OH 44109.
PAS	Elf Atochem North America	215-587-7000	Three Parkway, Philadelphia, PA 19102.
RSN	Polymer Div	215-587-7000	1112 Lincoln Rd., Birdsboro, PA 19508.
WTL	Organic Peroxides Div	716-877-1740	1740 Military Rd., Buffalo, NY 14240.
USM	Emhart Corp., Bostik Div	508-777-0100	Boston St., Middleton, MA 01949.
EKO	Empire Coke Co	205-323-2400	1927 1st Ave., N., Suite 900, Birmingham, AL 35203.
ENO	Enenco, Inc	901-684-7000	755 Crossover Lane, Suite 216, Memphis, TN 38117.
HSH	Engelhard Corp	201-632-6000	3400 Band Street, Louisville, KY 40212.
SAR	Esschem, Inc	215-521-3800	Governor Printz Blvd., Essington, PA 19029.
ESS	Essential Industries, Inc	414-538-1122	28391 Essential Rd., Merton, WI 53056.
EHC	Ethichem Corp	201-933-7880	150 Grand St., Carlstadt, NJ 07072.
ETC	Ethox Chemicals, Inc	803-277-1620	P.O. Box 5094, Station B, Greenville, SC 29606.
TNA	Ethyl Corp	804-788-5537	330 S. 4th St., Richmond, VA 23217.
EVL	Eval Company of America	708-719-4610	1001 Warrenville Rd., Suite 201, Lisle, IL 60532.
ENJ	Exxon Chemical Americas	713-870-6000	P.O. Box 3272, Houston, TX 77253-3272.
	FMC Corp:		
FMN	Agricultural Chemical Group	215-299-6000	1735 Market St., Philadelphia, PA 19103.
FMB	Chemical Products Group	215-299-6000	1735 Market St., Philadelphia, PA 19103.
FMC	Nitro Div	215-299-6000	1735 Market St., Philadelphia, PA 19103.
FAB	Fabricolor Manufacturing Corp	201-742-3900	24-1/2 Van Houten St., Paterson, NJ 07509.
FMT	Fairmount Chemical Co., Inc	201-344-5790	117 Blanchard St., Newark, NJ 07105.
FRI	Farmland Industries, Inc	816-459-6000 816-238-8111	P.O. Box 308, Lawrence, KS 66044. 1417 Lower Lake Rd., St. Joseph, MO 64502.
FER	Ferro Corp.:		
	Bedford Chemical Div	216-641-8580	7050 Krick Rd., Walton Hills, OH 44146.
	Grant Chemical Div	504-654-6801	P.O. Box 263, Baton Rouge, LA 70821.
	Keil Chemical Div	219-931-2630	3000 Sheffield Ave., Hammond, IN 46320.
FBI	Fiber Industries, Inc	704-357-2000	5146 Parkway Plaza Blvd., Charlotte, NC 28217.
CSD	Fina Oil & Chemical Co.	214-750-2400	8350 N. Central Expressway, Dallas, TX 75206.
FTX	Finetex, Inc	201-797-4686	P.O. Box 216, Elmwood Park, NJ 07407.
	Firestone Tire & Rubber Co.:		
FRF	Firestone Fibers & Textile Co	216-379-7000	P.O. Box 450, Hopewell, VA 23860.
FRS	Firestone Synthetic Rubber & Latex Co. Div.	216-379-7495	P.O. Box 26611, Akron, OH 44319-0006.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
CI	Firmenich, Inc	609-452-1000	P.O. Box 5880, Princeton, NJ 08543.
FST	First Chemical Corp	601-762-0870	P.O. Box 1427, Pascagoula, MS 39581.
FPC	Flambeau Paper Corp	715-762-5235	200 N. First Ave., Park Falls, WI 54552.
FLM	Fleming Laboratories, Inc	704-372-5613	2215 Thrift Rd., Charlotte, NC 28234.
FOR	Formosa Plastics Corp-USA	201-992-2090	P.O. Box 271, Baton Rouge, LA 70821.
BDS	Fragrance Resources, Inc	908-264-6767	275 Clark St., Keyport, NJ 07735.
FLN	Franklin International, Inc	614-443-0241	2020 Bruck St., Columbus, OH 43207.
WLC	Freeport-McMoran Resource Partners.	504-582-4000	1615 Poydras St., New Orleans, LA 70112.
COO	H.B. Fuller Co	508-694-5421	820 Woburn St., Wilmington, MA 01887.
FLH	H.B. Fuller Co	612-645-3401	4450 Malsbary Rd., Blue Ash, OH 45242.
EEP	Furon Co	714-831-5350	Main & Orchard Sts., Mantua, OH 44255.
GFS	GFS Chemicals, Inc	614-881-5501	P.O. Box 245, Columbus, OH 43065.
GLX	Galaxie Chemical Corp	201-279-0558	26 Piercy St., Paterson, NJ 07524.
GAN	Ganes Chemicals, Inc	201-507-4336	630 Broad St., Carlstadt, NJ 07072
GAY	Gaylord Chemical Corp	504-649-5464	P.O. Box 1209, Slidell, LA 70459-1209
GNT	Gencorp Polymers Products Latex Unit.	216-869-4200	165 S. Cleveland Ave., Mogadore, OH 44260.
GNR	Genencor, International Inc General Electric Co.:	716-256-5200	4 Cambridge Place, Rochester, NY 14618.
GE	Electromaterials Div	614-622-5310	1350 S. Second St., Coshocton, OH 43812.
SPD	Silicone Products Div	518-233-3377	260 Hudson River Rd., Waterford, NY 12188.
GEP	Speciality Chemicals Group	413-448-6681	One Plastic Ave., Pittsfield, MA 01201.
GLC	General Latex and Chemical Corp	617-576-8000	P.O. Box 498, Ashland, OH 44805.
GRG	P.D. George Co	314-621-5700	5200 N. Second St., St. Louis, MO 63147.
GGC	Georgia Gulf Corp:		
	Houston Div	713-920-4306	3503 Pasadena Freeway, Pasadena, TX 77503.
	Plaquemine Div	404-395-4500	400 Perimeter Center Terrace, Suite 595, Atlanta, GA 30348.
	PVC Compound Div	404-395-4500	P.O. Box 629, Plaquemine, LA 70765-0624.
GP	Georgia-Pacific Corp.:		
	Bellingham Div	206-733-4410	P.O. Box 1236, Bellingham, WA 98227.
	Resins, Inc	404-521-4000	133 Peachtree St. NE., Atlanta, GA 30303.
TNI	Gillette Chemical Co	617-421-7000	3500 W. 16th St., N. Chicago, IL 60064.
GIV	Givaudan Corp	201-365-8000	100 Delawanna Ave., Clifton, NJ 07014.
GLD	Glidden Company	216-344-8000	925 Euclid Ave., Cleveland OH 44115.
BFG	B. F. Goodrich Co	216-447-7802	6100 Oak Tree Blvd., Cleveland, OH 44131.
GYR	Goodyear Tire & Rubber Co W. R. Grace & Co.:	216-796-2121	1144 E. Market St., Akron, OH 44316.
EVN	Organic Chemicals Div., Evans Chemetics.	617-861-6600	55 Hayden Ave., Lexington, MA 02173.
GRD	Organic Chemicals Div., Chemicals & Polymers Div.	617-861-6600	55 Hayden Ave., Lexington, MA 02173.
HMP	Organic Chemicals Div., Hampshire Chemicals Div.	617-861-6600	55 Hayden Ave., Lexington, MA 02173.
GON	Organic Chemicals Div., Nitroparaffins.	617-861-6600	55 Hayden Ave., Lexington, MA 02173.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
GPC	Grain Processing Corp	319-264-4211	1600 Oregon Street, Muscatine, IA 52761-0349.
CPC	Grant Industries, Inc	201-791-6700	P.O. Box 360, Elmwood Park, NJ 07407.
GTL	Great Lakes Chemical Corp	317-497-6100	U.S. Hwy. 52 NW., Lafayette, IN 47906.
GDC	Gresco, Mfg. Inc	919-475-8101	216 E. Holly Hill Rd., Thomasville, NC 27360.
GPI	Grinstead Products, Inc	913-764-8100	200 Industrial Parkway Industrial Airport, KS 66031.
GGI	Grow Group, Inc	410-939-1234	1354 Old Post Rd., Havre De Grace, MD 21078.
GRV	Guardsman Products, Inc	616-452-5181	1350 Steele Ave. SW., Grand Rapids, MI 49507.
GSS	Gulf States Steel, Inc	205-543-6201	174 South 26th St., Gadsden AL 35904-1935.
GTH	Guth Corp	414-644-6461	P.O. Box 347, Slinger, WI 53086.
HAR	Haarmann & Reimer Corp	201-467-5600	70 Diamond Rd., Springfield, NJ 07081.
	Food Ingredients Div.	219-262-6916	1127 Myrtle St., Elkhart, IN 46515.
HAL	C. P. Hall Co	708-594-5952	7300 S. Central Ave., Chicago, IL 60638.
HOC	Halocarbon Products Corp	201-262-8899	887 Kinderkamack Rd., River Edge, NJ 07661.
FOC	Handschy Industries, Inc	708-597-7990	13601 S. Ashland Ave., Riverdale, IL 60627-1099.
	Ink and Chemical Div.		
TMH	Harcros Chemicals, Inc	913-321-3131	5200 Speaker Rd., Kansas City, KS 66110.
HRT	Hart Products Corp	201-433-6632	173 Sussex St., Jersey City, NJ 07302.
HCC	Hatco Chemical Co	908-738-3000	King George Post Rd., Fords, NJ 08863.
HAP	Helmerich & Payne, Inc., Natural	713-424-5568	3601 Decker Dr., Baytown, TX 77522-1429.
	Gas Odorizing Div.		
SCP	Henkel Corp	215-270-8100	2200 Renaissance Blvd., Gulph Mills, PA 19406.
HPC	Hercules, Inc	302-594-5000	Hercules Plaza, Wilmington, DE 19894.
HER	Heresite Protective Coating, Inc	414-684-6646	822 S. 14th St., Manitowoc, WI 54221-0250.
HTN	Heterene Chemical Corp	201-278-2000	790 - 21st Ave., Paterson, NJ 07513.
HEC	Hew, Inc	601-863-6600	14405 Seaway Rd., Gulfport, MS 39502.
HEW	Hewitt Soap Co., Inc	513-253-1151	333 Linden Ave., Dayton, OH 45403.
HXL	Hexcel Corp:		
	Chemical Products Div	510-828-4200	215 N. Centennial St., Zeeland, MI 49464.
	Resin Products Div	818-882-3022	20701 Nordhoff Street, Chatsworth, CA 91311.
DAN	Hickson Danchem Corp.	804-797-8105	P.O. Box 400, Danville, VA 24543.
HIP	High Point Chemical Corp	919-884-2214	243 Woodbine St., High Point, NC 27261.
HIL	Hilton Davis Chemical Co	513-841-4000	2335 Langdon Farm Rd., Cincinnati, OH 45237.
HIM	Himont, USA, Inc	302-996-6000	P.O. Box 15439, Wilmington, DE 19894.
HDG	Hodag Chemical Corp	708-675-3950	7247 N. Central Park Ave., Skokie, IL 60076.
HCL	Hoechst Celanese Corp:		
	Advanced Materials Group	201-635-2600	26 Main St., Chatham, NJ 07928.
	Bayport Works, SP & W Div	713-474-6737	P.O. Box 58160, Houston, TX 77258.
	Chemical Group Div	214-689-4000	1250 W. Mockingbird Lane, Dallas, TX 75247.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identification code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
	Hoechst Celanese Corp—Continued		
	Fibers Industrial Div	201-231-2000	P.O. Box 5887, Spartanburg, SC 29304-5887.
	Sou-Tex	201-231-2000	P.O. Box 2500, Mt. Holly, NC 28120.
	SpecialityChem Group Coventry Plant.	201-231-2000	500 Washington St., Coventry, RI 02816.
HOF	Hoffmann-LaRoche, Inc	201-235-5000	340 Kingsland St., Nutley, NJ 07110.
HCP	Honig Chemical & Processing Corp	201-344-0881	414 Wilson Ave., Newark, NJ 07105.
EFH	E. F. Houghton & Co	215-666-4100	Madison & Van Buren Avenues, Forge, PA 19482.
NOD	Huls America, Inc	201-981-5000	80 Centennial Ave., Piscataway, NJ 08855-0456.
HML	Hummel Croton, Inc	908-754-1800	10 Harmich Rd., S. Plainfield, NJ 07080-4899.
HMY	Humphrey Chemical Co	201-804-3220	45 Divine St., N. Haven, CT 06473-0325.
HNT	Huntington Laboratories, Inc	219-356-8100	970 E. Tipton St., Huntington, IN 46750.
HMN	Huntsman Chemical Corp	801-532-5200	2000 Eagle Gate Tower, Salt City, UT 84111.
ICI	ICI Americas, Inc:		
	Agricultural Products Div	302-886-8000	Delaware Corp. Center, Wilmington, DE 19897.
	Films Group Div	302-886-3000	Concord Pike & Murphy Rd., Wilmington, DE 19897.
	ICI Acrylic, Inc	314-966-3111	10091 Manchester Rd., St. Louis, MO 63122.
	Polyurethanes Group	609-423-8300	286 Mantua Grove Rd., W. Deptford, NJ 08066-1732.
	Resin Div	508-658-6600	730 Main St., Wilmington, MA 01887.
	Speciality Product Div	302-886-3000	Concord Pike & Murphy Rd., Wilmington, DE 19897.
ISP	INDSPEC Chemical Corp	412-765-1200	411 Seventh Ave., Pittsburgh, PA 15219.
SDS	ISK Biotech Corp	216-357-4100	5966 Heisley Rd., Mentor, OH 44060.
GAF	ISP Chemicals, Inc	201-628-3000	1361 Apls Rd., Wayne, NJ 07470.
VND	ISP-Can Dyk, Inc	201-450-3206	Main & William Sts., Belleville, NJ 07109.
RAY	ITT Rayonier Liguin Products, Inc	203-348-7000	18000 International Blvd., Suite 900, Seatac, WA 98188.
IND	Indol Color Co., Inc	201-242-1300	1029 Newark Ave., Elizabeth, NJ 07201.
IDC	Industrial Color, Inc	815-722-7402	50 Industry Ave., Joliet, IL 60435.
INL	Inland Steel Co	312-346-0300	3210 Watling, St., E. Chicago, IL 46312.
WM	Inolex Chemical Co	215-271-0800	Jackson & Swanson Sts., Philadelphia, PA 19148.
SPC	Insilco Corp., Sinclair Paint Co. Div	213-888-8888	6100 South Garfield Ave., Los Angeles, CA 90040.
IMI	Insulating Materials, Inc	518-395-3300	1 Campbell Rd., Schenectady, NY 12306.
GBF	International Bio-Synthetics, Inc	704-527-9000	8720 Red Oak Blvd., Charlotte, NC 28224-1068.
IFF	International Flavor & Fragrances Inc	908-264-4500	1515 Highway #36, Union Beach, NJ 07735.
IPC	Interplastic Corp	612-481-6860	1225 Walters Blvd., Vadnois Heights, MN 55110.
JTM	JTM Products, Inc	216-831-0404	9505 Cassius Ave., Cleveland, OH 44105.
CRZ	James River II, Inc	804-644-5411	4th & Adams Sts., Camas, WA 98607.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
JRC	Jarchem Industries, Inc	201-344-0600	414 Wilson Ave., Newark, NJ 07105.
JVL	Javelina Co	713-877-7510	Nine Greenway Plaza, Houston, TX 77046.
JFR	George A. Jeffreys & Co., Inc	703-389-8220	528 Chapman St., Salem, VA 24153.
JRG	Andrew Jergens Co	513-421-1400	2535 Spring Grove Ave., Cincinnati, OH 45214.
JTO	Jetco Chemicals, Inc	214-872-3011	P.O. Box 1898, Corsicana, TX 75110.
MRX	Johnson Matthey, Inc	609-384-7001	2002 Nolte Dr., W. Deptford, NJ 08066.
JNS	S. C. Johnson & Son, Inc	414-631-3388	1525 Howe St., Racine, WI 53403.
JOB	Jones-Blair Co	214-353-1600	2728 Empire Central, Dallas, TX 75235
KLM	Kalama Chemical, Inc	206-682-7890	Bank of California Center, Suite 1110, Seattle, WA 98164.
KTP	Kama Corp	717-455-2022	666 Dietrich Ave., Hazelton, PA 18201.
KAN	Kanasco, Ltd	301-789-7800	6118 Robinwood Rd., Baltimore, MD 21225.
KTX	Kaneka Corp	713-840-1751	175 S. Briar Hollow Lane, Suite 307, Houston, TX 77027.
SVC	Karlshamns USA	614-299-3131	525 W. First St., Janesville, WI 53547.
KMP	Kelly-Moore Paint Co., Inc	415-592-8337	987 Commercial St., San Carlos, CA 94070.
KMI	Kemin Industries, Inc	515-266-2111	2100 Maury St., Des Moines, IA 50301.
KPI	Kenrich Petrochemicals, Inc	201-823-9000	140 E. 22nd St., Bayonne, NJ 07002-0032.
KYS	Keysor Century Corp	805-259-2360	P.O. Box 924, Santa Clarita, CA 91380.
KCW	Keystone Color Works, Inc	717-854-9541	151 W. Gay Ave., York, PA 17403.
CHF	Kincaid Enterprises, Inc	304-755-3377	P.O. Box 549, Nitro, WV 25143.
KHI	Koch Refining Co	316-832-5500	P.O. Box 2256, Wichita, KS 67201.
KPT	Koppers Industries, Inc	412-227-2001	436 Seventh Ave., Pittsburgh, PA 15219-1800.
LCP	LCP Chemicals: Maine Div. of Hanlin Group, Inc	201-225-4840	P.O. Box 149, Orrington, ME 04474.
	West Virginia, Div. of Hanlin Group, Inc.	304-843-1310	P.O. Box 484, Linden, NJ 07036.
LTV	LTV Steel Co., Inc	216-622-5000	LTV Steel Bldg., 25 W. Prospect Ave., Cleveland, OH 44115.
LKY	Lake States Div. of Rhineland Paper Co.	715-369-4217	515 W. Davenport St., Rhineland, WI 54501.
LRO	LaRoche Chemical, Inc	504-356-8421	1200 Airline Hwy., Baton Rouge, LA 70821.
ARM	LaRoche Industries Inc	404-851-0475	1100 Johnson Ferry Rd., Atlanta GA 30342.
LII	Lawter International, Inc	708-498-4700	990 Skokie Blvd., Northbrook, IL 60062.
LEA	Leatex Chemical Co	215-739-6324	2722 N. Hancock St., Philadelphia, PA 19133.
LCS	Lechem, Inc	504-767-0452	P.O. Box 82727, Baton Rouge, LA 70884-2727.
LLI	Lee Laboratories, Inc	804-862-2534	2820 N. Normandy Dr., Petersburg, VA 23805.
LVR	C. Lever Co., Inc	215-639-8640	736 Dunks Ferry Rd., Bensalem, PA 19020.
LEV	Lever Brothers Co	212-688-6000	390 Park Ave., New York, NY 10022.
MAR	Lignotech (U.S.), Inc.	203-625-0701	81 Holly Hill Lane, Greenwich, CT 06830.
LIL	Eli Lilly & Co	317-276-6448	Lilly Corporate Center, Indianapolis, IN 46285.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
LIC	Lilly Industries, Inc	317-634-8512	733 S. West St., Indianapolis, IN 46225.
LMC	Lomac, Inc	616-788-2341	5025 Evanston Ave., Muskegon, MI 49443.
BRD	Lonza, Inc	201-794-2671	17-17 Route 208, Fair Lawn, NJ 07410.
LC	Lord Corp., Chemical Products	814-868-3611	2000 W. Grandview Blvd., Erie, PA 16514-0038.
LYP	Lyondell Petrochemical Co	713-652-7200	1221 McKinney, Suite 1600, Houston, TX 77253-3646.
MGK	McLaughlin Gormley King Co	612-544-0341	8810 - 10th Ave. N., Minneapolis, MN 55427-4372.
MNP	McWhorter, Inc	312-428-2657	400 E. Cottage Place, Carpentersville, IL 60110.
RIK	3M Pharmaceuticals	818-341-1300	19901 Nordhoff St., Northridge, CA, 91324.
MAK	MAK Chemical Corp	317-288-4464	1200 Rochester Ave., Muncie, IN 47302.
MCK	MacKenzie Chemical Works, Inc	504-886-2173	78015 Chemical Rd., Bush, LA 70431.
TZC	Magnesium Elektron, Inc	908-782-5800	500 Point Breeze Road, Flemington, NJ 08822.
MGR	Magruder Color Co., Inc	201-242-1300	1029 Newark Ave., Elizabeth, NJ 07208.
MAL	Mallinckrodt, Inc	314-530-2000	3600 N. Second St., St. Louis, MO 63147.
MOC	Marathon Oil Co.	419-422-2121	539 S. Main St., Findlay, OH 45840.
MRV	Marlowe-Van Loan Corp	919-886-7126	1224 Ward St., High Point, NC 27260.
MCA	Masonite Corp., Alpine Resin Div	601-649-6000	P.O. Box 1048, Laurel, MS 39441.
MAX	Max Marx Color Corp	201-373-7801	1200 Grove St., Irvington, NJ 07111.
GNF	Maxwell House Coffee Co	201-420-3432	1125 Hudson St., Hoboken, NJ 07030.
MYO	Mayo Chemical Co., Inc	404-696-6711	5544 Oakdale Rd. S.E., Smyrna, GA 30082.
MLC	Melamine Chemicals, Inc	504-473-3121	9041 Highway 81, Donaldsonville, LA 70346.
MRK	Merck & Co., Inc	201-574-4000	P.O. Box 2000, Rahway, NJ 07065.
MER	Merichem Co	713-455-1311	1914 Haden Rd., Houston, TX 77015.
DKA	Miles Inc	412-777-2000	Mobay Rd., Pittsburgh, PA 15205-9741.
CHG	Agricultural Chemicals Div	816-242-2345	Hawthorn Rd., Kansas City, MO 64120.
VPC	Dyes & Pigments Div	412-777-2000	Mobay Rd., Pittsburgh, PA 15205-9741.
MIL	Milliken & Co., Milliken Chemical Div	803-472-9041	P.O. Box 817, Inman, SC 29349.
MMM	Minnesota Mining & Manufacturing Co.	612-733-1110	3M Center 224-6S-04, St. Paul, MN 55144.
MSC	Mississippi Chemical Corp	601-746-4131	P.O. Box 388, Yazoo City, MS 39194.
SM	Mobil Oil Corp.:		
	Beaumont Refinery Div	703-846-3000	3225 Gallows Rd., Fairfax, VA 22037.
	Chemical Products Div	201-321-6000	P.O. Box 250, Edison, NJ 08818.
	Gas Liquids Dept	703-849-3000	P.O. Box 900, Dallas, TX 75221.
	Petrochemicals Div	713-590-7700	World Towers One, 15600 Kennedy Blvd., Houston, TX 77032.
	Polystyrene Business Group	201-321-6000	P.O. Box 3029, Edison, NJ 08818.
MOA	Mona Industries, Inc	201-345-8220	76 E. 24th St., Paterson, NJ 07544.
MON	Monsanto Co	314-694-1000	800 N. Lindbergh Blvd., St. Louis, MO 63167.
MNA	Monsanto Agricultural Group	314-694-1000	800 N. Lindbergh Blvd., St. Louis, MO 63167.
MCI	Mooney Chemicals, Inc	216-781-8383	2301 Scranton Rd., Cleveland, OH 44113.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identification code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
MCP	Moretex Chemical Products, Inc	803-583-8441	314 W. Henry St., Spartanburg, SC 29301.
MRF	Morflex, Inc	919-292-1781	2110 High Point Rd., Greensboro, NC 27403.
MHI	Morton International, Inc.	508-774-3100	150 Andover St., Danvers, MA 01923.
MRT	Morton Chemical Div.	312-807-2000	100 N. Riverside Plaza, Chicago, IL 60606.
PYI	Morton Chemical Div	312-807-2000	130 Montain Creek Church Rd., Greenville, SC 29602.
CCW	Industrial Chemical & Additives	513-733-2100	2000 West St., Reading, OH 45215.
MOT	Motomco, Ltd	608-244-2904	3699 Kinsman Blvd., Madison, WI 53704.
RTC	Mount Vernon Mills, Inc	803-233-4151	One Shaffer Place, Suite 700, Greenville, SC 29602.
PNX	The Murphy-Phoenix Co	216-349-7179	6550 Davis International Pkwy, Solon, OH 44139.
NMC	NAMICO, Inc	215-482-6600	4601 Flat Rock Rd., Philadelphia, PA 19127.
LEM	Napp Chemicals, Inc	201-773-3900	199 Main St., Lodi, NJ 07644.
NTC	National Casein Co	312-846-7300	601 W. 80th St., Chicago, IL 60620.
NCJ	National Casein of New Jersey	312-846-7300	601 W. 80th St., Chicago, IL 60620.
NSC	National Starch & Chemical Corp	201-685-5000	10 Findeme Ave., Bridgewater, NJ 08807.
NTS	National Steel Corp., Great Lakes Div.	313-297-2100	1 Quality Dr., Ecorse, MI 48229.
NEP	Nepera, Inc	914-782-1200	Route #17, Harriman, NY 10926.
CBD	Neste Resins Corp.	503-687-8840	1600 Valley River, Suite 390, Eugene, OR 97401.
NEV	Neville Chemical Co	412-331-4200	2800 Neville Rd., Pittsburgh, PA 15225.
NBC	New Boston Coke Corp	614-456-4154	600 River Ave., New Boston, OH 45662.
NCC	Niacet Corp	716-285-1474	400 - 47th St., Niagara Falls, NY 14304.
NLO	Niklor Chemical Co., Inc	213-830-2253	2060 E. 220th St., Long Beach, CA 90810.
NCP	Niles Chemical Paint Co	616-683-3377	P.O. Box 307, Niles, MI 49120.
NOC	The Norac Co., Inc	818-334-2908	405 S. Motor Ave., Azusa, CA 91702.
	Mathe Div	818-334-2908	169 Kennedy Dr., Lodi, NJ 07644-0230.
FSN	NOR-AM Chemical Co	302-477-3000	3509 Silverside Road, Wilmington, DE 19810.
NW	Northwestern Flavors, Inc.	708-231-6111	120 N. Aurora St., W. Chicago, IL 60185.
NOR	Norwich Eaton Pharmaceutical, Inc	607-335-2049	17 Eaton Ave., Norwich, NY 13815.
PLR	Novacor Chemicals, Inc	508-537-1111	690 Mechanic St., Leominster, MA 01453.
NBI	Novo Nordisk Biochem, Inc.	919-494-2014	State Road 1003, Franklinton, NC 27525.
NSW	The Nutrasweet Co	708-940-9800	1751 Lake Cook Rd., Deerfield, IL 60015.
NYL	Nylon Corp. of America	603-627-5150	333 Sundial Ave., Manchester, NH 03103.
	Occidental Chemical Corp.:		
HK	ED & S Div	214-404-3300	5005 LBJ Freeway, Dallas, TX 75244.
HKD	Polymers-Plastic Group	214-404-3800	5005 LBJ Freeway, Dallas, TX 75244.
OMC	Olin Corp	203-356-2000	120 Long Ridge Rd., Stamford, CT 06904.
OC	Omega Chemicals, Inc	803-582-5346	P.O. Box 1723, Spartanburg, SC 29304
ORG	Organics/LaGrange, Inc	312-764-6700	7125 N. Clark St., Chicago, IL 60626.
OCC	Orient Chemical Corp	908-355-4010	121 Tyler St., Port Newark, NJ 07114.
BSW	Original Bradford Soap Works, Inc	401-821-2141	200 Providence St., W. Warwick, RI 02893.
CJO	C. J. Osborn Chemicals, Inc	609-662-0128	820 Sherman Ave., Pennsauken, NJ 08110.
OCF	Owens-Corning Fiberglas Corp	419-248-8000	Fiberglas Tower, Toledo, OH 43659.
CNE	Oxy Petrochemicals, Inc	713-623-2246	P.O. Box 809050, Dallas, TX 75380.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identification code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
PC	PCI, Inc	606-836-3660	266 W. Mitchell Ave., Cincinnati, OH 45232.
PBI	PBI-Gordon Corp	816-421-4070	1217 W. 12th St., Kansas City, MO 64101-1407.
PCR	PCR, Inc	904-376-8246	P.O. Box 1466, Gainesville, FL 32609.
PDG	PD Glycol	409-838-4521	P.O. Box 3785, Beaumont, TX 77704.
PSG	PMC Inc., PMC Specialities Group, Inc.	216-356-0700	20525 Center Ridge Rd, Rocky River, OH 44116.
PMP	PMP Fermentation Products, Inc	708-928-0050	9525 W. Bryn Mawr Ave., Suite 725, Rosemont, IL 60018.
PPG	PPG Industries, Inc	412-434-3131	One PPG Place, Pittsburgh, PA 15272.
AEP	Packaging Corp. of America	818-968-3801	14505 Proctor Ave., Industry, CA 91749.
PRA	Para-Chem Southern, Inc	803-967-7691	P.O. Box 127, Simpsonville, SC 29681.
PAH	Parish Chemical Co	801-226-2018	145 N. Geneva Rd., Orem, UT 84057.
PD	Parke-Davis Div., of Warner Lambert, Inc. .	616-392-2375	188 Howard Ave., Holland, MI 49424.
PSC	Passaic Color & Chemical Co	201-279-0400	28-36 Paterson St., Paterson, NJ 07501.
	Div. of Royce Associates, ALP.		
CHP	C. H. Patrick & Co., Inc	803-244-4831	P.O. Box 2526, Greenville, SC 29602.
PAX	Paxon Polymer Co., Inc	504-775-4330	P.O. Box 53006, Baton Rouge, LA 70807.
PEL	Pelron Corp	708-442-9100	7847 W. 47th St., Lyons, IL 60534.
PEN	Penick Corp	201-621-2804	158 Mount Olive Ave., Newark NJ 07714
PAR	Pennzoil Products Co., Penreco Div	713-337-1534	4401 Park Ave., Dickinson, TX 77539.
BPT	Permuthane Coatings, Inc	508-531-1880	13 Corwin St., Peabody, MA 01960.
PST	Perstorp Compounds, Inc	413-584-2472	238 Nonotuck St., Florence, MA 01060.
PST	Perstorp Polyols, Inc	419-729-5448	600 Matzinger Rd., Toledo, OH 43612.
PFN	Pfanstiehl Laboratories, Inc	708-623-0370	1219 Glen Rock Ave., Waukegan, IL 60085.
PCW	Pfister Chemical, Inc	201-945-5400	Linden Ave., Ridgefield, NJ 07657.
PFZ	Pfizer, Inc	212-573-2323	235 E. 42nd St., New York, NY 10017.
	Pfizer Pharmaceuticals, Inc	809-846-4300	P.O. Box 628, Barceloneta, PR 00617.
PHR	Pharmachem Corp	215-867-4654	719 Stefko Blvd., Bethlehem, PA 18016-1035.
PLB	Pharmacia P-L Biochemicals, Inc	414-227-3600	2202 N. Bartlett Ave., Milwaukee, WI 53202.
PDI	Phelps Dodge Industries, Inc	219-456-4444	4300 New Haven Ave., Fort Wayne, IN 46803.
	Phelps Dodge Magnet Wire Co.		
SOG	Phibro Refining	203-661-4770	P.O. Box 5038, Houston, TX 77262-5038.
PLC	Phillips 66 Co	918-661-6600	Phillips Bldg., Bartlesville, OK 74004.
PPX	Phillips Paraxylene, Inc	809-864-1515	P.O. Box 1162, Guayama, PR 00655.
PPR	Phillips Puerto Rico Core, Inc	809-864-1515	P.O. Box 1166, Guayama, PR 00655.
PHC	Phthalchem, Inc	513-681-0099	266 W. Mitchell Ave., Cincinnati, OH 45232.
PCI	Piedmont Chemical Industries, Inc	919-885-5131	P.O. Box 2728, High Point, NC 27261.
PIC	Pierce Chemical Co	815-968-0747	3747 N. Meridan Rd., Rockford, IL 61103.
PIL	Pilot Chemical Co	213-723-0036	11756 Burke St., Santa Fe Springs, CA 90670.
PPL	Pioneer Plastics Corp	207-784-9111	1 Pionite Rd., Auburn, ME 04210.
IMC	Pittman-Moore, Inc	812-232-0121	1401 S. 3rd St., Terre Haute, IN 47808, and
		708-615-3700	421 E. Hawley St., Mundelein, IL 60060.
PKL	Plaskolite, Inc	614-294-3281	P.O. Box 1497, Columbus, OH 43216.
PSL	Plaslok Corp	716-681-7755	3155 Broadway, Buffalo, NY 14227.
PLS	Plastics Engineering Co	414-458-2121	3518 Lakeshore Rd., Sheboygan, WI 53081.
PMC	Plastics Manufacturing Co	214-330-8671	2700 S. Westmoreland, Dallas, TX 75233.
PRT	Pratt & Lambert, Inc	716-873-6000	P.O. Box 22, Buffalo, NY 14240.
JLP	J. L. Prescott Co	708-331-8800	16750 S. Vincennes Rd., S. Holland, IL 60473.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.	513-627-6386	Spring Grove & June St., St. Bernard, OH 45217.
PRC	Products Research & Chemical Corp.	818-702-8900	21800 Burbank Rd., Woodland Hills, CA 91367.
QKO	QO Chemicals, Inc	317-497-6110	2801 Kent Ave., W. Lafayette, IN 47906.
QCP	Quaker Chemical Corp	215-828-4250	Elm & Lee Sts., Conshohocken, PA 19428-0809.
USI	Quantum Chemical Corp., USI Div.	513-530-6500	11500 Northlake Dr., Cincinnati, OH 45249.
QUN	K. J. Quinn & Co., Inc	603-474-7177	135 Folly Mill Rd., Seabrook, NH 03874.
RMI	R-M Industries, Inc	803-548-3210	2300 Banks St. Extension, Fort Mill, SC 29715.
AMU	RPM, American Emulsions Co., Inc	404-226-7028	1202 Dozier St., Dalton, GA 30721.
RSA	RSA Corp	914-693-1818	690 Saw Mill River Rd., Ardsley, NY 10502.
BLC	Ranbar Technology, Inc	412-486-1111	1114 William Flinn Highway, Glenshaw, PA 15116.
REG	Regis Chemical Co	708-967-6000	8210 Austin Ave., Morton Grove, IL 60053.
RCI	Reichhold Chemicals, Inc	914-682-5700	800 Calitola Dr., Research Triangle Park, Durham, NC 27713.
RIL	Reilly Industries, Inc	317-247-8141	1510 Market Square Center, Indianapolis, IN 46204.
CRT	Reilly-Whiteman, Inc	215-423-5300	801 Washington St., Conshohocken, PA 19428.
ELP	Rexene Products Co	214-450-9000	5005 LBJ Freeway, Occidental Tower, Dallas, TX 75244.
RDA	Rhone-Poulenc, Inc	201-821-1000	CN 5266, Princeton, NJ 08543-5266.
CLD	Rhone-Poulenc, Inc	404-422-1250	P.O. Box 769, Marietta, GA 30061.
REZ	Rhone-Poulenc, Inc	502-499-4011	9808 Bluegrass Parkway, Louisville, KY 40299.
KCH	Manchem, Inc.	215-837-1808	275 Keystone Dr., Bethlehem, PA 18017.
RIV	Riverdale Chemical Co	708-754-3330	220 E. 17th St., Chicago Heights, IL 60411-3699.
ORT	Roehr Chemicals, Inc, Div. of Aceto Corp	718-784-8473	52-20 37th St., Long Island City, NY 11101.
ROG	Rogers Corp	203-774-9605	One Technology Dr., Rogers, CT 06263.
RH	Rohm & Haas Co	215-592-3000	Independence Mall West., Philadelphia, PA 19105.
DRB	Rohm Tech, Inc	508-342-5831	83 Authority Dr., Fitchburg, MA 01420.
ROM	Roma Color, Inc	617-676-3481	749 Quequechan St., Fall River, MA 02723.
RQT	Roquette Corp	708-249-5950	1550 Northwestern Ave., Gurnee, IL 60031-2392.
RUC	Rubicon, Inc	504-673-6141	P.O. Box 517, Geismar, LA 70734.
RUO	Ruco Polymer Corp	516-931-8100	New South Rd., Hicksville, NY 11802.
NES	Ruetgers-Nease Chemical Co	814-238-2424	201 Struble Rd., State College, PA 16801.
SBP	SBS Products Inc	517-799-4941	302 Waller St., Saginaw, MI 48602.
SCM	SCM Corp., Glidco Organics	904-768-5800	P.O. Box 389, Jacksonville, FL 32201.
SOS	SSC Industries, Inc	404-762-9651	1550 E. Taylor Ave., East Point, GA 30344.
NPR	Safeway, Inc	510-632-7373	1100 77th Ave., Oakland, CA 94621.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
STX	St. Croix Petrochemical Corp	809-778-6450	P.O. Box 6801, Sunny Isle, St. Croix, U.S. VI 00823-6801.
SLM	Salem Oil & Grease Co	508-745-0585	60 Grove St., Salem, MA 01970.
SAL	Salsbury Chemicals, Inc	515-257-1000	2000 Rockport Rd., Charles City, LA 50616.
	Sandoz Chemical Corp.:		
S	Sandoz Chemical Corp	704-331-7016	4000 Monroe Rd., Charlotte, NC 28205.
SDC	Sandoz Chemical Corp	704-331-7016	4000 Monroe Rd., Charlotte, NC 28205.
ZOC	Sandoz Corp. Protection	312-699-1616	1300 E. Touity Ave., Des Plaines, IL 60018.
SCN	Schenectady Chemicals, Inc	518-370-4200	Congress & 10th Ave., Schenectady, NY 12306.
SBC	Scher Chemicals, Inc	201-471-1300	Industrial West, Clifton, NJ 07012.
SCH	Schering Corp	201-298-4000	1011 Morris Ave., Union, NJ 07081.
SPR	Scientific Protein Laboratories	608-849-5944	700 E. Main St., Waunakee, WI 53597.
TXS	Scott Polymers, Inc	817-831-3541	3607 N. Sylvania Ave., Fort Worth, TX 76111.
SRL	G. D. Searle & Co	708-982-7000	5200 Old Orchard Rd., Skokie, IL 60077.
SQA	Sequa Chemicals, Inc	803-385-5181	P.O. Box 70, Chester, SC 29706.
SKP	Shakespeare Monofilament Div	803-754-7011	6111 Shakespeare Rd., Columbia, SC 29223.
SHO	Shell Oil Co	713-241-9548	P.O. Box 3105, Houston, TX 77253.
SHC	Shell Chemical Co	713-241-9548	P.O. Box 3105, Houston, TX 77253.
SGO	Shenango, Inc	412-771-4400	200 Neville Rd., Pittsburgh, PA 15225-1690.
SHP	Shepherd Chemical Co	513-731-1110	4900 Beech St., Cincinnati, OH 45212.
SHX	Sherex Chemical Co., Inc	614-764-6500	5777 Frantz Rd., Dublin, OH 43017.
SHT	Shintech, Inc	713-965-0713	24 Greenway Plaza, Suite 811, Houston, TX 77046.
SMP	J. R. Simplot Co	208-336-2110	P.O. Box 912 Pocatello, ID 83204.
UPF	Sloss Industries Inc	205-254-7801	3500 N. 35th Ave., Birmingham, AL 35207.
SK	SmithKline Beechman Chemicals	215-751-4000	900 River Rd., Consonocken, PA 19428.
BEE	SmithKline Beecham Pharmaceuticals	908-469-5200	101 Possumtown Rd., Piscataway, NJ 08854.
SMO	Smooth-On, Inc	201-647-5800	1000 Valley Rd., Gillette, NJ 07933.
SLC	Soluol Chemical Co., Inc	401-821-8100	Green Hill & Market Sts., W. Warwick, P.O. Box 1000, Deer Park, TX 77536.
SLT	Solvay Polymers, Inc.	713-522-1781	815-D Virginia St., Lenoir, NC 28645.
SAC	Southeastern Adhesives	704-754-3493	1510 Denton Rd., Thomasville, NC 27360.
SOR	Southern Resin, Inc	919-475-1348	P.O. Box 9217, Corpus Christi, TX 78469.
SWR	Southwestern Refining Co., Inc	512-884-8863	310 Wheeler St., Tonawanda, NY 14150.
SPL	Spaulding Composites Co	716-692-2000	Industrial Plastics Div.
ASL	SpecialtyChem Products Corp	715-735-9033	2 Stanton St., Marinette, WI 54143.
SOI	Specialty Organics, Inc	818-962-2008	5623 N. 4th St., Irwindale, CA 91706.
IPP	Spectrachem Corp	201-595-8181	200 Sheridan Ave., Paterson, NJ 07512.
SPU	Spurlock Adhesives, Inc	804-834-3113	P.O. Box 8, Waverly, VA 23890.
SCC	Standard Chlorine of Delaware, Inc	201-997-1700	1035 Belleville Turnpike, Kearny, NJ 07032.
STP	Stepan Co	708-446-7500	22 West Frontage Rd., Northfield, IL 60093.
SC	Sterling Chemicals, Inc	713-650-3700	1200 Smith, Suite 1900, Texas City, TX 77592-1311.
SD	Sterling Drug, Inc	212-907-2000	P.O. Box 11247, Barcelonita, PR 00617.
SDW	Sterling Organics Div	212-907-2000	33 Riverside Ave., Rensselaer, NY 12144.
CIN	Stockhausen, Inc	919-333-3500	2408 Doyle St., Greensboro, NC 27406.
IRI	Stuart-Ironsidles, Inc	708-655-4595	7575 Plaza Court, Willowbrook, IL 60521
SUN	Sun Company, Inc	215-977-6358	1801 Market St., Philadelphia, PA 19103.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
SNA	Sun Chemical Corp., Pigments Div	212-986-5500	411 Sun Ave., Cincinnati, OH 45232.
RAS	Surface Coatings, Inc	617-933-4200	100 Eames St., Wilmington, MA 01887.
TCC	Sybron Chemical, Inc	609-893-1100	Birmingham Rd., Birmingham, NJ 08011.
INP	Synair Corp	615-698-8801	2003 Amnicola Hwy., Chattanooga, TN 37406.
BUC	Synalloy Corp., Blackman Uhler	803-585-3661	Croft Industrial Park, Spartanburg, SC 29304.
SRY	Synray Corp	201-245-2600	209 N. Michigan Ave., Kenilworth, NJ 07033.
HFT	Syntex Agribusiness, Inc	417-866-7291	P.O. Box 1246, Springfield, MO 65801.
SYP	Synthetic Products Co	216-531-6010	1000 Wayside Rd., Cleveland, OH 44110.
SYT	Synthron, Inc	704-437-8611	P.O. Box 1111, Morganton, NC 28655.
TKD	Takeda Chemical Products USA, Inc	919-762-8666	P.O. Box 2577, Wilmington, NC 28402.
TEK	Teknor Apex Co	401-725-8000	505 Central Ave., Pawtucket, RI 02861.
TLI	Teledyne Industries, Inc., Teledyne	408-637-6536	3601 Union Rd., Hollister, CA 95023-0006. McCormick Selph.
TOC	Tenneco Methanol Co	713-757-2131	1010 Milan St., Houston, TX 77252.
TER	Terra International, Inc	712-277-1340	Terra Centre, 600 - 4th St., Sioux City, IA 51101.
BNP	Terra International, Inc	712-277-1340	1000 Terra Dr., Woodward, OK 73801.
TX	Texaco Chemical Co	713-432-3734	3040 Post Oak Rd., Houston, TX 77056.
TPC	Texas Petrochemicals Corp	713-477-9211	8600 Park Place Blvd., Houston, TX 77017.
TWD	Tonawanda Coke Corp	716-876-6222	3875 River Rd., Tonawanda, NY 14150.
TRY	Toray Plastics Americas, Inc	401-294-1550	50 Beluer Ave., N. Kingstown, RI 02852.
TRI	Triad Chemical	504-473-9231	39041 Highway 18 West, Donaldsonville, LA 70346.
TRO	Troy Chemical Corp	201-589-2500	One Avenue L, Newark, NJ 07105.
TUL	Tull Chemical Co., Inc	205-831-3845	130 Burton St., Oxford, AL 36203.
TLC	Twin Lake Chemical, Inc	716-433-3824	520 Mill St., Lockport, NY 14095.
UPM	UOP, Inc	708-391-2000	25 E. Algonquin Road, Des Plaines, IL 60017-5017.
UHL	Paul Uhlich & Co., Inc	914-478-2000	1 Railroad Ave., Hastings-on-Hudson, NY 10706.
UTF	Ultraform Co	205-443-1600	Theodore Industrial Park, Theodore, AL 36582.
DRL	Unichema North America	312-376-9000	4650 S. Racine Ave., Chicago, IL 60609.
NCI	Union Camp Corp.:		
NCI	BBA Div	201-628-2000	1600 Valley Rd., Wayne, NJ 07470.
WTH	Chemical Div	201-628-9000	1600 Valley Rd., Wayne, NJ 07470.
UCC	Union Carbide Corp.,	304-747-3825	P.O. Box 8361, Charleston, WV 25303.
UOC	Union Oil Co. of California	213-977-7746	1201 W. Fifth St., Los Angeles, CA 90017.
UTP	Union Texas Products Corp	713-623-6544	1330 Post Oak Blvd. Houston TX 77252-2120.
USR	Uniroyal Chemical Co., Inc	203-573-3886	Benson Rd., Middlebury, CT 06749
UNN	United Aniline Co	617-762-4057	Endicott St., Norwood, MA 02062.
UCM	United Color Manufacturing, Inc.	215-860-2165	638 Newtown-Yardley Rd., Suite 1E, Newton, PA 18940.
UNO	United Erie, Inc	814-456-7561	438 Huron St., Erie, PA 16502.
USB	U.S. Borax & Chemical Corp	213-251-5400	3075 Wilshire Blvd., Los Angeles, CA 90010.

Table A-1—Continued
Synthetic organic chemicals alphabetical directory of manufacturers, by company, 1991

<i>Identi- fication code</i>	<i>Name of company</i>	<i>Telephone number</i>	<i>Office address</i>
USX	U.S. Steel, Div. Of USX: Clairton Plant	412-433-4980	600 Grant St., Pittsburgh, PA 15219.
	Gary Works	219-888-4657	1 N Broadway, Gary, IN 46402.
UTC	Unitex Chemical Corp	919-378-0965	520 Broome Rd., Greensboro, NC 27406.
UPJ	The Upjohn Co	616-323-4000	7000 Portage Rd., Kalamazoo, MI 49001.
CWN	Fine Chemicals	203-281-2700	41 Styles Lane, North Haven, CT 06473.
VSV	Valentine Sugars, Inc	504-532-2541	Rt 2, Box 625, Lockport, LA 70374.
VLR	Valero Refining & Marketing Co	512-246-2000	530 McCullough, San Antonio, TX 78292.
VCM	Vanchem, Inc	716-433-6764	1 N. Transit Rd., Lockport, NY 14094.
VDM	Van De Mark Chemical Co., Inc	716-433-6764	1 N. Transit Rd., Lockport, NY 14094.
VNC	Vanderbilt Chemical Corp	203-744-3900	31 Taylor Ave., Bethel, CT 06801.
		203-853-1400	and Rt. #2, Box 54, Murray, KY 42071.
VND	Van Dyk, Div. of Mallinckrodt, Inc	201-450-3206	Main & William Sts., Belleville, NJ 07109.
VEL	Velsicol Chemical Corp	708-698-9700	10400 W. Higgins Rd., Rosemont, IL 60018.
VIN	Vineland Chemical Co., Inc	609-691-3535	1611 Wheat Rd., Vineland, NJ 08360.
VCC	Vinings Industries, Inc	404-436-1542	3950 Cumberland Pkwy., Atlanta, GA 30339-4501.
VKR	Virkler Co	704-588-8500	12345 Steele Creek Rd., Charlotte, NC 28273.
VTM	Vitamins, Inc	312-861-0700	200 E. Randolph Dr., Chicago, IL 60601.
FRO	Vulcan Materials Co., Chemicals Div	205-877-3000	P.O. Box 530390, Birmingham, AL 35233.
VYN	Vygen Corporation	216-998-1120	Middle Road, Ashtabula, OH 44004.
SWS	Wacker Silicones Corp	517-264-8500	3301 Sutton Rd., Adrian, MI 49221.
WJ	Warner-Jenkinson Co	314-889-7600	2526 Baldwin St., St. Louis, MO 63106.
CCG	Warner-Jenkinson Cosmetic Colors	908-757-4500	155 Helen St., S. Plainfield, NJ 07080.
WLM	Wellman, Inc	908-542-7300	1040 Broad St., Suite 302, Shrewsbury, NJ 07702.
EW	Westinghouse Electric Corp.,	412-864-8200	Route 993, Manor, PA 15665.
	Electrical Materials Div.		
WLK	Westlake Group	713-960-9111	Westlake Center, 2801 Post Oak Blvd., Houston, TX 77056.
WPG	WestPoint Pepperell, Inc	404-645-4753	1900 Cunningham Dr., Opelika, AL 36801.
	Grifftex Chemical Co. Sub.		
WVA	Westvaco Corp	212-688-5000	299 Park Ave., NY, NY 10171.
WRD	Weyerhaeuser Co	715-384-2141	1401 E. 4th St., Marshfield, WI 54449.
WPS	Wheeling-Pittsburgh Steel Corp	304-234-2400	1134 Market St., Wheeling, WV 26003.
WHW	Whittemore-Wright Co., Inc	617-242-1180	62 Alford St., Charlestown, MA 02129.
CHN	Wil-Gro Fertilizer, Inc	918-825-3383	P.O. Box 429, Pryor, OK 74361.
WTC	Witco Corp	201-573-2800	155 Tice Blvd., Woodcliff Lake, NJ 07675.
WCL	Wright Chemical Corp	919-251-0234	102 Orange St., Wilmington, NC 28401.
WYK	Wyckoff Chemical Co., Inc	616-637-8474	1421 Kalamazoo St., S. Haven, MI 49090.
WYT	Wyeth Laboratories, Inc., Wyeth	215-341-3867	P.O. Box 13745, Philadelphia,
	Ayerst Laboratories Div. of American Home Products Corp.		
YKK	YKK Corp	201-935-0003	1251 Valley Brook Ave., Lyndhurst, NJ 07071.
PAT	Yorkshire Pat-Chem, Inc.	803-233-3941	11 Worley Rd., Greenville, SC 29602.
ZNC	Zeon Chemicals, Inc	708-437-9770	3 Continental Towers, Suite 1012, 1701 Gulf Road, Rolling Meadows, IL 60008.

Source: Compiled from data received in response to questionnaires of the U.S. International Trade Commission.

APPENDIX B
CYCLIC INTERMEDIATES;
GLOSSARY OF SYNONYMOUS NAMES

Table B-1
Cyclic Intermediates: Glossary of synonymous names

<i>Common name</i>	<i>Standard (chemical abstracts) name</i>
A acid	3,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
Acetyl-p-phenylenediamine	4'-Aminoacetanilide.
1,2,4-acid	4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1-Amino-2-naphthol-4-sulfonic acid).
Acid yellow 9	6-Amino-3,4'-azodibenzenesulfonic acid.
p-Aminobenzenesulfonic acid	Sulfanilic acid and salt.
m-Aminobenzoyl J acid	4-Hydroxy-7-(m-aminobenzamido)- 2-naphthalenesulfonic acid.
Aminoepsilon acid	8-Amino-1,6-naphthalenedisulfonic acid.
Amino G acid	7-Amino-1,3-naphthalenedisulfonic acid.
Amino J acid	6-Amino-1,3-naphthalenedisulfonic acid.
Amino R salt	3-Amino-2,7-naphthalenedisulfonic acid.
Aniline oil	Aniline.
Anthraflavic acid	2,6-Dihydroxyanthraquinone.
Anthrarufin	1,5-Dihydroxyanthraquinone.
Armstrong & Wynne's acid	4-Hydroxy-2-naphthalenesulfonic acid.
B acid	5-Amino-4-hydroxy-1,7-naphthalenedisulfonic acid.
2B acid	6-Amino-4-chloro-m-toluenesulfonic acid.
4B acid	6-Amino-m-toluenesulfonic acid.
Benzal chloride	α,α -Dichlorotoluene.
Benzanthrone	7H-Benz[de]anthracen-7-one.
Benzotrichloride	α,α,α -Trichlorotoluene.
Bisphenol A	4,4'-Isopropylidenediphenol.
B.O.N.	3-Hydroxy-2-naphthoic acid.
Broenner's acid	6-Amino-2-naphthalenesulfonic acid.
Bromamine acid	1-Amino-4-bromo-2-anthraquinonesulfonic acid.
Bromobenzanthrone	3-Bromo-7H-benz[de]anthracen-7-one.
C acid	3-Amino-1,5-naphthalenedisulfonic acid.
C.A. acid	3-Amino-6-chloro-4-sulfobenzoic acid.
C-Amine (Lake Red C acid)	2-Amino-5-chloro-p-toluenesulfonic acid.
Cassella acid	5-Hydroxy-1-naphthalenesulfonic acid.
Chicago Acid (SS acid)	4-Amino-5-hydroxy-1,3-naphthalenedisulfonic acid.
Chlorobenzanthrone	Chloro-7H-benz[de]anthracen-7-one.
Chromotropic acid	4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
Chrysazin	1,8-Dihydroxyanthraquinone.
1,6-Cleve's acid	5-Amino-2-naphthalenesulfonic acid.
1,7-Cleve's acid	8-Amino-2-naphthalenesulfonic acid.
Crocein acid	7-Hydroxy-1-naphthalenesulfonic acid.
2-Cyanopyridine	Picolinonitrile.
3-Cyanopyridine	Nicotinonitrile.
Cyanuric chloride	2,4,6-Trichloro-s-triazine.
D acid	6-Amino-1-naphthalenesulfonic acid.
DADI	Dianisidine diisocyanate.
DDB	p-Dibutoxybenzene.
Decacyclene	Diacenaphtho[1,2-j:1',2'-l]fluoranthene.
Dehydrothio-p-toluidine	2-(p-Aminophenyl)-6-methylbenzothiazole.
Developer Z	3-Methyl-1-phenyl-2-pyrazolin-5-one.
o-Dianisidine	3,3'-Dimethoxybenzidine.
1,1'-Dianthrimide	1,1'-Iminodianthraquinone.
Dibenzanthrone	Violanthrone.
Dichlone	2,3-Dichloro-1,4-naphthoquinone.
4,4'-Dihydroxydiphenylsulfone	4,4'-Sulfonyldiphenol.
Dimethyl POPOP	1,4-Bis[2-(4-methyl-5-phenyloxazoyl)]benzene.
4,5-Dinitrochrysazin	1,8-Dihydroxy-4,5-dinitroanthraquinone.
Dioxy S acid	4,5-Dihydroxy-1-naphthalenesulfonic acid.
Diphenyl epsilon acid	6,8-Dianilino-1-naphthalenesulfonic acid.
Durene	1,2,4,5-Tetramethylbenzene.
Epsilon acid (Andresen's acid)	8-Hydroxy-1,6-naphthalenedisulfonic acid.

Table B-1—Continued
Cyclic Intermediates: Glossary of synonymous names

<i>Common name</i>	<i>Standard (chemical abstracts) name</i>
F acid	7-Hydroxy-2-naphthalenesulfonic acid.
Fast Red G base	2-Nitro-p-toluidine [N ₂ =1].
Fast Scarlet R base	5-Nitro-o-anisidine [NH ₂ =1].
Fischer's aldehyde	1,3,3-Trimethyl- δ^2 , α -indolineacetaldehyde.
Fischer's base	1,3,3-Trimethyl-2-methyleneindoline.
Freund's acid	4-Amino-2,7-naphthalenedisulfonic acid.
G salt	7-Hydroxy-1,3-naphthalenesulfonic acid, sodium salt.
Gamma acid	6-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt.
Gold salt	9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt.
H acid	4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid, (8-Amino-1-naphthol-3,6-disulfonic acid).
Hellimellitene	1,2,3-Trimethylbenzene.
Indoxyl	3(2H)-Indolone.
Isodurene	1,2,3,5-Tetramethylbenzene.
J acid	7-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt.
J acid urea	7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid]
K acid	4-Amino-5-hydroxy-1,7-naphthalenedisulfonic acid.
Koch's acid	8-Amino-1,3,6-naphthalenetrisulfonic acid.
L acid	5-Hydroxy-1-naphthalenesulfonic acid.
Lake Red C amine	2-Amino-5-chloro-p-toluenesulfonic acid.
Laurent's acid	5-Amino-1-naphthalenesulfonic acid.
M acid	8-Amino-4-hydroxy-2-naphthalenesulfonic acid.
MEP	5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine).
Mesitylene	1,3,5-Trimethylbenzene.
Methane base	4,4'-Methylenebis[N,N-dimethylaniline].
Michler's hydrol	4,4'-Bis[dimethylamino]benzhydrol.
Michler's ketone	4,4'-Bis[dimethylamino]benzophenone.
MOCA	3,3'-Dichloro-4,4'-diaminodiphenylmethane.
MVP	5-Vinyl-2-picoline.
Naphthionic acid	4-Amino-1-naphthalenesulfonic acid.
o-Naphthionic acid	1-Amino-2-naphthalenesulfonic acid.
β -Naphthol	2-Naphthol, tech
Naphthol AS	3-Hydroxy-2-naphthaniide.
α -Naphthylamine	1-Naphthylamine.
Neville & Winther's acid	4-Hydroxy-1-naphthalenesulfonic acid.
m-Nitrobenzoyl J acid	4-Hydroxy-7-(m-nitrobenzamido)-2-naphthalenesulfonic acid.
Oxy Koch's acid	1-Naphthol-3,6,8-trisulfonic acid.
Pentaanthrimide	1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone.
Peri acid	8-Amino-1-naphthalenesulfonic acid.
Phenylbiphenyl	Terphenyl.
N-Phenyldiethanolamine	2,2'-[(Phenyl)imino]diethanol.
Phenyl gamma acid	6-Anilino-4-hydroxy-2-naphthalenesulfonic acid.
Phenyl J acid	7-Anilino-4-hydroxy-2-naphthalenesulfonic acid.
Phenyl peri acid	8-Anilino-1-naphthalenesulfonic acid.
Picric acid	2,4,6-Trinitrophenol.
POPOP	1,4-Bis[2-(5-phenyloxazoly)]benzene.
Pseudocumene	1,2,4-Trimethylbenzene.
Pyrazoleanthrone	Anthra[1,9-cd]pyrazol-6(2H)-one.

Table B-1—Continued
Cyclic Intermediates: Glossary of synonymous names

<i>Common name</i>	<i>Standard (chemical abstracts) name</i>
Pyrazoleanthrone yellow	[3,3'-Blanthral[1,9-cd]-pyrazole]-6,6'-(2H,2'H)dione
Pyrazolone T	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
Quinizarin	1,4-Dihydroxyanthraquinone.
2-Quinizarinsulfonic acid	9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic acid.
Quinoline yellow base	Quinophthalone.
R salt	3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt.
RG acid (Violet acid)	4-Hydroxy-2,7-naphthalenedisulfonic acid.
Rhoduline acid (J Acid Imide)	7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid].
RR acid	3-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid.
S acid	4-Amino-5-hydroxy-1-naphthalenesulfonic acid.
Schaffer's acid	6-Hydroxy-2-naphthalenesulfonic acid.
Silver salt	9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt.
Solvent Yellow 1	p-Phenylazoaniline and hydrochloride.
Solvent Yellow 3	4-(o-Tolylazo)-o-toluidine.
SS acid (Chicago acid)	4-Amino-5-hydroxy-1,3-naphthalenedisulfonic acid.
Sulfanilic acid	p-Aminobenzenesulfonic acid.
o-Sulfobenzaldehyde	o-Formylbenzenesulfonic acid.
Tetralin	1,2,3,4-Tetrahydronaphthalene.
Thiolindoxyl	3(2H)-Thianaphthenone.
Thiosalicylic acid	o-Mercaptobenzoic acid.
Tobias acid	2-Amino-1-naphthalenesulfonic acid.
TODI	Bitolylene diisocyanate.
o-Tolidine	3,3'-Dimethylbenzidine.
α-Toluic acid	Phenylacetic acid.
α-Tolunitrile	Phenylacetoneitrile.
4-m-Tolylenediamine	Toluene-2,4-diamine.
Trimellitic anhydride	1,2,4-Benzenetricarboxylic acid, 1,2-anhydride.
Trimethyl base	1,3,3-Trimethyl-2-methyleneindoline.
Trinitrophenol	Picric acid.
Urea J acid (J acid urea)	7,7'Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid].
Veratraldehyde	3,4-Dimethoxybenzaldehyde.
Veratrole	o-Dimethoxybenzene.
Vinytoluene	ar-Methylstyrene.
Violet acid (RG acid)	4-Hydroxy-2,7-naphthalenedisulfonic acid.

APPENDIX C
SYNTHETIC ORGANIC CHEMICALS, U.S. PRODUCTION
AND SALES, 1991, HARMONIZED SYSTEM BASIS

Synthetic Organic Chemicals, U.S. Production and Sales, 1991, Harmonized System Basis

The following table contains 1991 U.S. production and sales data for synthetic organic chemicals in the 6-digit Harmonized System (HS) format. The Commission decided to compile such data in this format in response to the decision by the U.S. Bureau of the Census to publish Standard Industrial Classification (SIC) data which will be convertible to the HS beginning with the 1987 *Census of Manufactures*. The U.S. Bureau of the Census has historically referred to the *Synthetic Organic Chemicals, United States Production and Sales (SOC)* report in the chemicals section of the *Census of Manufactures*, which permits them to omit collecting synthetic organic chemicals production and shipments data from its respondents. Because of this situation, the SOC data will now also be compiled on an HS basis to provide comparability with the new SIC format.

The table provides production and sales data on a 6-digit HS basis only where publication would not violate the statutory provisions relating to unlawful disclosure of information accepted in confidence by the Commission. It includes only the 6-digit item numbers with publishable data from a number of HS chapters in which these chemicals are classified, but does not provide totals by chapter or overall total figures.

Table C-1
Synthetic organic chemicals: U.S. production and sales, 1991, harmonized system basis

HS/ number	Description	Production	Sales	
		Quantity 1,000 Kilograms	Quantity 1,000 Kilograms	Value 1,000 Dollars
271113	Butanes, liquefied	499,319	458,547	102,503
290121	Ethylene	18,123,454	6,930,275	2,784,597
290122	Propene (Propylene)	9,774,421	5,587,526	2,026,443
290123	Butene (Butylene) and isomers thereof	440,829	201,982	83,031
290211	Cyclohexane	1,046,505	935,618	392,215
290220	Benzene	5,209,209	3,706,298	1,379,618
290230	Toluene	2,856,521	1,441,087	405,686
290244	Mixed xylene isomers	2,866,253	1,235,178	326,280
290250	Styrene	3,680,516	1,634,357	951,662
290260	Ethylbenzene	4,023,827	159,941	68,089
290270	Cumene	1,890,456	1,510,477	682,426
290312	Dichloromethane (Methylene chloride)	176,648	140,897	48,679
290313	Chloroform (Trichloromethane)	228,901	214,119	88,692
290314	Carbon tetrachloride	142,944	172,911	25,292
290315	1,2-Dichloroethane (Ethylene dichloride)	6,220,003	1,439,902	139,592
290321	Vinyl chloride (Chloroethylene)	4,024,514	1,641,925	455,996
290361	Chlorobenzene, o-dichlorobenzene, and p-dichlorobenzene	151,637	-	-
290511	Methanol (Methyl alcohol)	3,948,035	2,494,614	379,606
290512	Propan-1-ol (Propyl alcohol) and propan-2-ol (Isopropyl alcohol)	687,366	545,758	308,439
290513	Butan-1-ol (n-Butyl alcohol)	598,641	338,502	186,834
290531	Ethylene glycol (Ethanediol)	2,181,568	2,004,390	925,262
290532	Propylene glycol (Propane-1,2-diol)	301,902	243,078	224,420
290542	Pentaerythritol	51,767	50,335	67,307
290544	D-glucitol (Sorbitol)	132,463	119,687	105,177
290711	Phenol (Hydroxybenzene) and its salts	1,631,620	889,262	348,059
290723	4,4'-Isopropylidenediphenol (Bisphenol A, Diphenylolpropane) and its salts	552,801	191,341	200,437
290941	2,2'-Oxydiethanol (Diethylene glycol, Digol)	221,185	169,271	37,266
290943	Monobutyl ethers of ethylene glycol or of diethylene glycol	265,507	203,944	155,731
291010	Oxirane (Ethylene oxide)	2,380,363	245,346	237,317
291211	Methanal (Formaldehyde)	3,199,191	1,179,529	127,319
291213	Butanal (Butyraldehyde, normal isomer)	870,437	31,595	16,106
291411	Acetone	1,064,701	778,430	397,225
291412	Butanone (Methyl ethyl ketone)	232,761	225,565	168,574
291413	4-Methylpentan-2-one (Methyl isobutyl ketone)	82,049	79,923	83,933
291422	Cyclohexanone and methylcyclohexanones	462,199	44,718	43,483
291441	4-Hydroxy-4-methylpentan-2-one (Diacetone alcohol)	-	8,803	10,793
291521	Acetic acid	1,639,897	483,010	199,868
291522	Sodium acetate	20,014	-	-
291524	Acetic anhydride	-	154,145	142,236
291531	Ethyl acetate	117,811	108,634	82,042
291532	Vinyl acetate	1,239,389	973,470	546,959
291533	n-Butyl acetate	167,956	95,600	276,845
291534	Isobutyl acetate	25,780	24,825	18,140
291611	Acrylic acid and its salts	511,976	146,457	164,942
291731	Dibutyl orthophthalates	8,506	6,450	7,945
291732	Diocetyl orthophthalates	122,510	125,206	115,518
291735	Phthalic anhydride	266,277	165,764	109,964

Table C-1—Continued
Synthetic organic chemicals: U.S. production and sales, 1991, harmonized system basis

HS/ number	Description	Production	Sales	
		Quantity 1,000 Kilograms	Quantity 1,000 Kilograms	Value 1,000 Dollars
292141	Aniline and its salts	436,021	285,682	181,834
293211	Tetrahydrofuran	96,584	48,742	96,027
293371	Caprolactam	582,214	147,828	216,811
310210	Urea, whether or not in aqueous solution	5,448,685	5,053,437	764,161
320411	Disperse dyes and preparations based thereon ...	20,363	20,311	113,040
320413	Basic dyes and preparations based thereon	3,983	3,862	55,394
320414	Direct dyes and preparations based thereon	18,454	17,866	138,724
320417	Pigments and preparations based thereon	51,311	39,426	643,561
390110	Polyethylene having a specific gravity of less than 0.94	5,236,044	5,193,088	3,964,623
390120	Polyethylene having a specific gravity of 0.94 or more	3,850,976	3,881,484	2,949,937
390130	Ethylene-vinyl acetate copolymers	242,056	226,710	239,170
390210	Polypropylene	2,664,063	2,403,391	1,792,668
390311	Polystyrene, expandable	313,902	229,074	251,565
390319	Polystyrene, other than expandable	1,875,849	1,669,304	1,632,076
390330	Acrylonitrile-butadiene-styrene (ABS) copolymers .	487,596	439,396	858,733
390421	Polyvinyl chloride, mixed with other substances, nonplasticized	3,455,220	3,273,328	2,361,277
390519	Polymers of vinyl acetate, other than in aqueous dispersion	243,905	191,918	314,197
390610	Polymethyl methacrylate	280,833	177,086	413,862
390730	Epoxide resins	375,498	249,950	731,936
390750	Alkyd resins	355,636	279,546	334,921
390760	Polyethylene terephthalate	1,441,972	971,425	1,496,722
390920	Melamine resins	115,523	95,238	223,990
390950	Polyurethanes	95,127	80,577	323,700
400219	Styrene-butadiene rubber (SBR)	763,542	464,090	418,066
400270	Ethylene-propylene-nonconjugated diene rubber (EPDM)	206,045	193,659	394,272

APPENDIX D
ALPHABETICAL CHEMICAL INDEX

Alphabetical Chemical Index

The alphabetical index of chemicals contained in this appendix table is an outgrowth of the processing of data by the U.S. International Trade Commission for its annual report, *Synthetic Organic Chemicals, United States Production and Sales*. This index will aid those who have an interest in the report, either as users of the published data or as suppliers of individual company data to the Commission, principally by showing the section number and line item number of specific chemicals. This information can be used to assist in locating a chemical in the report and to provide respondents to the Commission's questionnaire with information on where to list their production and sales data. The index shows only those chemicals for which production or sales were reported to the Commission for this edition of the report.

The index, initially designed for Commission use in computer processing of data for the annual report, has certain characteristics that should be noted to increase its usefulness. For example, superior headings for individual entries are not shown in the index. Thus, understanding the contents of the first item in the index, "accelerators, activators, and vulcanizing agents, acyclic, *other*," necessitates that the index user turn to the individual section (in the report) and item number (in the questionnaire) to find those acyclic accelerators, activators, and vulcanizing agents already specified. Similarly, the index entry "specific gravity 0.940 and below" does not by itself identify the chemical product. The index user will need to turn to the indicated section number and item number to determine the chemical referred to—in this case, polyethylene.

The chemical names used in this report and in the questionnaires sent to U.S. producers to obtain the data aggregated in the report are listed alphabetically in the first column of each listing in the index. The second column refers to the section in the report and questionnaire containing the chemical, and the third column shows the appropriate item number in that section in the questionnaire.

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Accelerators, activators, and vulcanizing agents, acyclic, other	09	163.000	Acid Black 210	04	218.210
Accelerators, activators, and vulcanizing agents, cyclic, other	09	49.000	Acid black dyes, all other	04	219.000
Acacetamide	06	378.100	Acid Blue 9	04	132.000
Acetaldehyde	15	782.000	Acid Blue 15	04	133.000
Acetaldehyde dimethylhydrazone	15	307.200	Acid Blue 25	04	136.000
Acetal resins	08	19.000	Acid Blue 40	04	140.000
Acetamidoethanol (N-Acetyl-ethanolamine)	15	220.000	Acid Blue 41	04	141.000
Acetaminophen	06	392.000	Acid Blue 50	04	144.300
p-Acetanisidide	03	7.200	Acid Blue 62	04	145.000
Acetic acid, amides with polyalkylene polyamines, salt	12	357.900	Acid Blue 67	04	145.067
Acetic acid salts, all other	15	608.000	Acid Blue 104	04	156.000
Acetic acid, synthetic (100%)	15	486.000	Acid Blue 113	04	157.000
Acetic anhydride, other than recovered acetic anhydride	15	488.000	Acid Blue 145	04	161.000
the vapor-phase process (100%)	15	488.000	Acid Blue 231	04	168.000
Acetoacetanilide	03	9.000	Acid Blue 281	04	168.281
Acetoacetanilide	03	10.000	Acid Blue 298	04	168.298
Acetoacetylaldehyde yellow, all others	05	7.000	Acid Blue 321	04	168.321
Acetoacetotoluidide	03	11.000	Acid Blue 324	04	168.324
2',4'-Acetoacetylaldehyde	03	115.200	Acid Blue 330	04	168.330
Acetoguanamine	03	11.500	Acid blue dyes, all other	04	169.000
Acetonehexamide	06	686.000	Acid Brown 14	04	189.000
2'-Acetonaphthone (β -Methyl naphthyl ketone)	07	1.500	Acid Brown 19	04	190.000
Acetone	15	806.000	Acid Brown 50	04	194.050
Acetone-formaldehyde resins	08	1.000	Acid Brown 96	04	195.000
Acetonitrile	15	432.000	Acid Brown 97	04	196.000
3-(α -Acetonylbenzyl)-4-hydroxycoumarin (Warfarin)	13	169.000	Acid Brown 98	04	197.000
Acetophenone, tech	03	14.000	Acid Brown 147	04	197.147
p-Acetotoluidide	03	15.000	Acid Brown 159	04	199.159
1-Acetoxy-2-sec-butyl-1-ethenylcyclohexane	07	93.500	Acid Brown 160	04	199.160
6-Acetoxy-2,4-dimethyl-1,3-dioxane	15	1.000	Acid Brown 161	04	199.161
Acetylacetonates, all other	15	1281.700	Acid Brown 165	04	199.165
Acetylacetone peroxide	15	1281.990	Acid Brown 188	04	199.188
Acetyl cedrene (Vertoflex)	07	93.550	Acid Brown 189	04	199.189
Acetylene (For chemical use only)	02	38.000	Acid Brown 227	04	200.227
Acetylfluran	15	2.100	Acid Brown 239	04	200.239
2-Acetylpyridine	03	19.450	Acid Brown 264	04	200.264
D-(-)-3-(Acetylthio)-2-methylpropanoyl chloride	15	490.700	Acid Brown 439	04	200.439
Acid Black 1	04	203.000	Acid Green 1	04	170.000
Acid Black 2	04	204.000	Acid Green 5	04	172.000
Acid Black 52	04	211.000	Acid Green 16	04	175.000
Acid Black 60	04	214.000	Acid Green 20	04	177.000
Acid Black 63	04	214.063	Acid Green 25	04	179.000
Acid Black 92	04	215.000	Acid green dyes, all other	04	186.000
Acid Black 107	04	216.000	Acid Orange 7	04	43.000
Acid Black 172	04	218.172	Acid Orange 8	04	44.000
Acid Black 194	04	218.194	Acid Orange 10	04	45.000
	04		Acid Orange 24	04	47.000
	04		Acid Orange 60	04	54.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Acid Orange 64	04	57.000	Acid Yellow 65	04	21.000
Acid Orange 89	04	61.089	Acid Yellow 135	04	32.000
Acid Orange 116	04	62.000	Acid Yellow 137	04	32.137
Acid Orange 128	04	64.000	Acid Yellow 151	04	33.000
Acid Orange 152	04	65.152	Acid Yellow 159	04	34.000
Acid Orange 156	04	65.156	Acid Yellow 199	04	37.199
Acid Orange 161	04	65.161	Acid Yellow 200	04	37.200
(Acid Red 26)	05	214.000	Acid Yellow 216	04	37.216
Acid Red 1	04	67.000	Acid Yellow 219	04	37.219
Acid Red 14	04	69.000	Acid Yellow 226	04	24.096
Acid Red 18	04	71.000	Acid Yellow 239	04	37.239
Acid Red 26	04	72.000	Acid yellow dyes, all other	04	38.000
Acid Red 33	04	75.000	Acidomethasone	06	648.100
Acid Red 57	04	79.000	Acrolein (Acrylaldehyde)	15	783.000
Acid Red 73	04	81.000	Acrylamide-2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	14	395.000
Acid Red 88	04	85.000	Acrylamide-acrylic acid copolymer, sodium salt	14	397.000
Acid Red 119	04	94.000	Acrylamide monomer	15	228.000
Acid Red 151	04	99.000	Acrylamide-trimethylaminoethyl acrylate chloride polymer	14	399.500
Acid Red 182	04	103.000	Acrylamide-trimethylaminoethyl methacrylate chloride	14	400.000
Acid Red 201	04	108.000	Acrylate-alkyd copolymer resins	08	1.900
Acid Red 226	04	110.226	Acrylic acid	15	491.000
Acid Red 266	04	111.000	Acrylic-styrene-acrylonitrile	08	44.050
Acid Red 278	04	111.278	Acrylonitrile-butadiene-acrylic acid	10	8.000
Acid Red 296	04	111.296	Acrylonitrile-butadiene-styrene (ABS) terpolymer resins	08	42.000
Acid Red 299	04	112.000	Acrylonitrile, monomer	15	433.000
Acid Red 337	04	114.000	Acrylonitrile resin	08	19.500
Acid Red 350	04	115.000	Acyclic amphoteric surface-active agents, all other	12	19.000
Acid Red 364	04	115.364	Acyclic fungicides, all other	13	195.000
Acid Red 384	04	115.384	Acyclic herbicides	13	212.000
Acid Red 388	04	115.388	Acyclic peroxides, all other	15	1296.550
Acid Red 396	04	115.396	Acyclic plasticizers, all other	11	130.000
Acid Red 400	04	115.400	Acyclovir	06	186.800
Acid Red 418	04	115.418	Acyclic elastomers, all other	10	22.000
Acid Red 419	04	115.419	Adipic acid	15	492.000
Acid Red dyes, all other	04	116.000	Adipic acid, ammonium salt	15	613.000
Acids acid anhydrides, and acyl halides, all other	15	586.000	Adipic acid-crosslinked polyacrylamide	14	405.000
Acid Violet 3	04	118.000	Adipic acid-diethylenetriamine-epichlorohydrin polymer	14	153.000
Acid Violet 7	04	119.000	Adipic acid esters, all others	11	66.000
Acid Violet 12	04	119.000	Adipic acid type complex linear polyesters and polymeric plasticizers	11	131.100
Acid Violet 17	04	120.000	Adipic dihydrazide	15	613.300
(Acid Yellow 23)	05	204.023	Adiponitrile	15	434.000
Acid Yellow 5	04	3.200	β -Alanine-N-(2-hydroxyethyl)-N-2 1-oxococoyl amino ethyl, sodium salt	12	447.800
Acid Yellow 17	04	6.000	Albumin	06	574.800
Acid Yellow 19	04	7.000	albuterol sulfate	06	323.000
Acid Yellow 23	04	8.000	C ₁₂ -C ₁₅ alcohol-lactates	15	911.300
Acid Yellow 34	04	11.000			
Acid Yellow 36	04	12.000			
Acid Yellow 49	04	17.000			
Acid Yellow 59	04	19.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Alcohol mixtures, other	15	883.400	Alkyl terephthalamate	14	269.000
Alcohol mixtures, C-11 or lower only	15	883.100	All other (specify)	14	252.000
Alcohol mixtures, C-12 through C-18 only	15	883.200	All other acyclic flavor and perfume materials	07	172.000
Alcohols, monohydric, and their esters, C ₆ and higher	15	1425.000	All other benzenoid or naphthalenoid chemicals	07	93.000
Alcohols and phenols, alkoxylated and phosphated or polyphosphated, all other	12	91.000	All other dyes	04	1215.000
Alcohols and phenols, sulfated, all other	12	247.000	Allo-ocimene	07	126.800
Alcohols, unmixd C12 or higher, all other	15	882.000	Allopurinol	06	829.000
Alcohols, unmixd C11 or lower, all other	15	870.000	All other products from petroleum and natural gas, cyclic	02	36.000
Alcadiene	03	21.400	All other succinic anhydride derivatives	15	165.950
Aldehyde and acetone-amine reaction products, cyclic, other	09	55.000	All other terpenoid, heterocyclic, or alicyclic flavor and perfume chemicals	07	126.000
Aldehyde-amine reaction products, cyclic, other	09	8.000	Allyl alcohol	15	840.000
Aldehydes, acyclic, all other	15	805.000	p-Allylanisole	07	2.600
Aliphatic hydrocarbon sulfides	14	253.000	Allyl cyclohexyl propionate	07	93.560
Alkanolamine condensates, all other	12	575.000	4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)	07	4.000
Alkanyl succinimide	14	245.000	Allyl disulfide	07	126.900
3-Alkoxy-2-hydroxypropyl trimethyl ammonium chloride	13	245.021	Allyl heptanoate	07	126.990
Alkoxylated acid phosphate	15	1016.200	Allyl hexanoate	07	127.000
Alkoxy triacryl titanate	12	51.500	Allyl methacrylate	15	885.000
Alkyd copolymers, all other	08	3.900	4-Allyl-2-methoxyphenol (Eugenol)	07	5.000
2-(C ₁₃₋₁₇ Alkyl)-1-(C ₁₄₋₁₈ amidoethyl)(4,5-dimydro-3-methyl)imidazolium, methyl sulfate	12	455.950	1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)	15	1317.330
t-Alkylamines, primary, mixed	15	292.900	3-Allyloxy-2-hydroxypropane sulfonic acid, sodium salt	15	613.700
N-alkylaminobis(methylene) phosphonic acid salts	14	28.000	Allyl resins	08	4.000
Alkyl aromatics, all other	02	4.000	Allyl sulfonate, sodium salt	12	209.500
Alkylaryl-p-phenylenediamines	09	55.100	Allyl ureido monomer	15	226.100
Alkylaryl phosphites mixed	09	84.800	Alpha olefins, C ₆ -C ₁₀	02	60.100
Alkylbenzene all other (Except dodecyl, tridecyl and stright-chain)	03	23.000	Alpha olefins, C ₁₁ and higher	02	62.100
Alkylbenzene straight-chain (Except dodecyl and tridecyl)	03	22.000	Alprazolam	06	466.500
t- α -Alkylcarboxylic acid salts (Isocarboxylic acid salts), all other	15	672.000	Alprostadiol	06	679.100
Alkyl imidazole	14	267.000	Aluminum acetate	15	587.000
N-alkyl-1-naphthylmethyl Ammonium Chloride	13	245.023	Aluminum acetylacetonate	15	1281.450
3-(C12-15 alkyl)-1-propanamine	12	321.045	Aluminum di-sec-butoxide acetoacetic ester chelate	15	1355.560
Alkylphenol, calcium salt	14	221.000	Aluminum diisobutoxy ethyl acetoacetate	15	1355.570
Alkylphenol, calcium salt, sulfurized	14	224.000	Aluminum diisopropoxide acetoacetic ester chelate	15	1355.580
Alkylphenol formaldehyde condensate, alkoxylated	15	3.450	Aluminum [1,3-butanediolato(2)-O,O'](ethyl-3-oxobutanoato-O, O,3-hydroxy T-4	15	746.000
Alkylphenol-formaldehyde condensates, alkoxylated, all other	12	726.000	Aluminum isooctoxide, diisopropoxide	15	1355.530
Alkylphenol formaldehyde copolymer	15	3.510	Aluminum isopropoxide (Aluminum isopropylate)	15	1355.630
Alkylphenol/formaldehyde polymer	14	473.000	Aluminum monostearate	15	747.000
Alkyl phenols	14	219.000	Aluminum octanoate	15	713.000
Alkylphenols, mixed	03	23.100	Aluminum tri-sec-butoxide	15	1355.750
Alkylpyridines, mixed	03	23.350	Aluminum tristearate	15	748.000
Alkyl succinic anhydride	14	268.000	Amides, all other	15	257.000
			Amides from C-18	12	358.280
			Amides from C-18 unsaturated fatty acid dimers and polyhexamethylenepolyamines	12	358.300

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Amides from C-18 unsaturated fatty acid dimers and polyhexamethylenepolyamines, ethoxylated	12	321.025	2-Amino-2-(hydroxymethyl)-1,3-propanediol [Tris(hydroxymethyl)aminomethane]	15	316.000
Amiloride hydrochloride	06	736.500	4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5-methyl-o-anisidinesulfonic acid)	03	116.803
Amine oxides and oxygen-containing amines (Except those with amide linkages), acyclic, all other	12	341.000	(2S-trans)-3-Amino-2-methyl-4-oxo-1-azetidinesulfonic acid, inner salt	15	5.000
Amine oxides and oxygen-containing amines (Except those having amine linkages), cyclic, all other	12	357.000	4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid	03	128.000
Amines, all other	15	307.000	2-Amino-2-methyl-1,3-propanediol	15	317.000
Amine salts (Not containing oxygen), all other	12	403.000	2-Amino-2-methyl-1-propanol	15	319.000
Amine salts of fatty, rosin, and tall oil acids, all other	12	35.000	2-Amino-2-methylpropyl 8-bromothioephylinate	03	130.100
4-Aminoacetanilide (Acetyl-p-phenylenediamine)	03	27.000	2-Amino-3-methylpyridine	03	133.550
3-Amino-p-acetaniside	03	27.100	2-Amino-4-methylpyridine	03	133.600
Amino acids and salts, acyclic, all other	14	22.000	2-Amino-5-methylpyridine	03	134.000
Amino acids and salts, cyclic, all other	14	23.000	2-Amino-6-methylpyridine	03	145.000
p-Aminobenzamide	03	45.100	3-Amino-2,7-naphthalenedisulfonic acid	03	169.800
1-Amino-5-benzamidoanthraquinone	03	47.000	2-Amino-4-nitroacetanilide	03	178.000
o-Aminobenzeneethiol	03	53.000	2-Amino-5-nitrothiazole	03	
Aminobenzoic acid, potassium salt	06	829.500	5-Amino-2-[(2-oxo-5-benzimidazolyl)]amino]benzenesulfonic acid	03	182.000
p-Aminobenzoic acid, tech.	03	56.000	p-Aminophenol	03	186.000
2-Amino-6-benzothiazolesulfonic acid	03	58.090	p-[(p-Aminophenyl)azo]benzenesulfonic acid	03	188.000
5-Amino-1,3-bis(2-ethylhexyl-5-methyl)hexahydropyrimidine	03		3-Aminophenylphosphonic acid	03	193.802
2-Amino-1-bromo-3-chloroanthraquinone	15	307.990	1-(3-Aminopropyl)morpholine	15	6.000
6-Aminocapronitrile	03	59.000	2-Aminopyridine	03	194.020
7-Aminocephalosporanic acid	15	434.300	3-Aminopyridine	03	195.000
1-Amino-2-chlorobenzene	03	64.500	4-Aminopyridine	06	142.000
4-Amino-6-chloro-m-benzenedisulfonamide	03	70.500	Aminosalicilic acid	03	202.000
5-Amino-2-chlorobenzenesulfonic acid	03	71.500	4-Amino-m-toluenesulfonic acid [SO ₃ H=1]	03	203.000
3-Amino-5-chloro-2-hydroxybenzenesulfonic acid	03	79.000	6-Amino-m-toluenesulfonic acid [SO ₃ H=1]	03	207.500
6-Amino-5-chloro-m-toluenesulfonic acid [SO ₃ H=1] (2B Acid)	03	83.000	4-Amino-1,2,4-triazole	03	
4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5-(4H)-one	13	40.600	4-Amino-3,5,6-trichloropicolinic acid (Picloram)	13	
2-Aminoethanol hydrochloride	15	309.900	41.000		
2-Aminoethanol (Monoethanol amine) sulfite	15	310.000	Amitriptyline hydrochloride	06	525.000
Aminoethoxyethanol	15	311.000	Amlodipine	06	366.500
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	15	312.000	Ammonium acetate	15	588.000
(2-Aminoethylamino)ethanol, reaction product with octadecanoic acid	15		Ammonium citrate	15	621.000
N-Aminoethylaminopropyl trimethoxysilane	15	312.500	Ammonium formate	15	647.400
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2-hydroxyethyl)ammonium ethyl sulfate	15	1378.450	Ammonium heparin	07	623.000
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate)	12	448.000	Ammonium isovalerate	06	127.300
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline	15	313.000	Ammonium lactate	15	672.900
1-(2-Aminoethyl)piperazine	15	4.000	Ammonium mercaptoacetate	15	691.000
2-Amino-2-ethyl-1,3-propanediol	15	314.000	Ammonium oxalate	15	722.000
Aminohippuric acid	06	574.900	Ammonium oxydiethylenedis (alkyl dimethyl chloride)	15	
			Alkyl-40% C ₁₂ , 50% C ₁₄ , 10% C ₁₆	13	245.022
			Ammonium phenolsulfonate	06	553.000
			Ammonium polyacrylate	14	426.000
			Ammonium propionate	15	736.500

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Amobarbital, sodium	06	444.000	Anthranilic acid (o-Aminobenzoic acid)	03	232.000
Amoxicillin (trihydrate)	06	9.600	N,N'-(1,5-Anthraquinonylene)dianthranilic acid	03	237.000
Amoxicillin (anhydrous)	06	9.500	Antibiotics, for medicinal use, all other	06	62.000
Amphetamine	06	512.000	Antibiotics, for nonmedicinal uses, all other	06	78.000
Amphetamines, all other	06	524.000	Antifungal agents, all other	06	141.000
Amphetamine sulfate	06	513.000	Apramycin	06	38.600
Amphotericin B	06	1.000	l-Arabinose	14	455.000
Ampicillin (anhydrous)	06	10.000	Arachidylbehenylalkyl amine	12	417.900
Ampicillin (trihydrate)	06	10.100	Arsanilic acid	06	151.000
Ampicillin, sodium	06	11.000	Ascorbic acid	06	807.000
Amprolium	06	166.000	Aspartic acid	14	2.000
Amyl acetate (n-Pentyl acetate)	15	886.000	α -Aspartyl-phenylalanane methyl ester (α -Amino succinylc.)	15	9.005
α -Amylase (pancreatic)	14	94.000	Aspirin	06	385.000
Amylases, all other	14	98.000	Atracurium besylate	06	745.200
α -Amyl cinnamic aldehyde	07	5.550	Azathioprine	06	277.000
Amyl cinnamyl alcohol	07	5.650	Azelaic acid	15	493.000
Amyl cyclohexyl acetate	07	93.900	Azelaic acid esters, all others	11	70.000
tert-Amyl hydroperoxide	15	1283.100	Azidothymidine	06	188.300
t-Amyl peroxyacetate	15	1283.130	2,2-Azobis(dimethyl pentane nitrile)	15	434.600
t-Amyl peroxybenzoate	15	8.050	1,1'-Azobisformamide	15	229.000
t-Amylperoxy neodecanoate	15	1283.300	2,2-Azobis(2-methyl butane nitrile)	15	434.700
t-Amylperoxy pivalate	15	1283.350	2,2'-Azobis[2-methylpropionitrile]	15	435.000
p-Amylphenol	15	8.080	(Azobisisobutyronitrile)	15	251.000
Amylphenol-formaldehyde, alkoxylated	12	721.500	Azoic Black 4	04	252.048
p-tert-Amylphenol sulfide (Tackifier)	09	124.000	Azoic Black 48	04	253.000
Amyris acetate	07	93.650	Azoic black compositions, all other	04	238.000
Anhydride-acid mixture	15	492.500	Azoic Blue 3	04	239.000
Anhydrosorbitol dioleate	12	589.000	Azoic Blue 6	04	240.020
Anhydrosorbitol esters, all other	12	603.000	Azoic Blue 20	04	246.000
Anhydrosorbitol monoester of tall oil acids	12	590.000	Azoic Brown 9	04	297.000
Anhydrosorbitol monolaurate	12	591.000	Azoic Coupling Component 2	04	299.000
Anhydrosorbitol mono-oleate	12	592.000	Azoic Coupling Component 4	04	305.000
Anhydrosorbitol monopalmitate	12	593.000	Azoic Coupling Component 12	04	307.000
Anhydrosorbitol monostearate	12	594.000	Azoic Coupling Component 14	04	310.000
Anhydrosorbitol sesquioleate	12	596.000	Azoic Coupling Component 17	04	311.000
Anhydrosorbitol triester of tall oil acids	12	599.000	Azoic Coupling Component 18	04	313.000
Anhydrosorbitol trioleate	12	600.000	Azoic Coupling Component 20	04	317.000
Anhydrosorbitol tristearate	12	602.000	Azoic Coupling Component 34	04	319.000
Aniline (Aniline oil)	03	212.000	Azoic Coupling Component 43	04	257.000
Aniline, ethoxylated	03	342.200	Azoic Coupling Component 5	04	262.000
2-Anilinoethanol	03	215.000	Azoic Diazo Component 13, base	04	265.000
Anilinoethanesulfonic acid and salt	03	219.000	Azoic Diazo Component 32, base	04	271.000
p-Anilinophenol	09	66.000	Azoic Diazo Component 1, salt	04	273.000
Anionic surface-active agents, all other	12	320.000	Azoic Diazo Component 3, salt	04	275.000
Anisole, tech.	03	230.000	Azoic Diazo Component 5, salt	04	277.000
Anisoyl chloride	03	230.090	Azoic Diazo Component 8, salt	04	278.000
Anisyl acetate	07	7.000	Azoic Diazo Component 9, salt	04	
Anthelmintic agents, all other	06	133.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Azoic Diazo Component 10, salt	04	279.000	Basic Orange 26	04	376.000
Azoic Diazo Component 12, salt	04	281.000	Basic orange dyes, all other	04	329.000
Azoic Diazo Component 13, salt	04	282.000	Basic Red 12	04	333.000
Azoic diazo components, base, all other	04	270.000	Basic Red 14	04	383.000
Azoic Red 1	04	227.000	Basic Red 15	04	384.000
Azoic Red 2	04	228.000	Basic Red 17	04	386.000
Azoic Red 6	04	229.000	Basic Red 29	04	390.000
Azoic Red 32	04	231.032	Basic Red 46	04	391.046
Azoic red compositions, all other	04	234.000	Basic Red 49	04	392.000
Azoic violet compositions, all other	04	236.000	Basic Red 73	04	392.073
Azoic Yellow 1	04	220.000	Basic Red 104	04	392.104
Aztreonam	06	38.700	Basic Red 111	04	392.111
Bacillus thuringiensis	13	166.010	Basic red dyes, all other	04	334.000
Bacitracin (animal feed grade)	06	63.000	(Basic Red 81, PMA)	05	210.050
Bacterial amylase	14	93.000	Basic Violet 1	04	335.000
Barbiturates, all other	06	466.000	Basic Violet 3	04	337.000
Barium acetate	15	589.000	Basic Violet 4	04	338.000
Barium benzoate	15	9.260	Basic Violet 16	04	396.000
Barium cadmium laurate	15	677.000	Basic violet dyes, all other	04	342.000
Barium 2-ethylhexanoate	15	630.000	Basic Yellow 11	04	360.000
Barium laurate	15	676.900	Basic Yellow 15	04	362.000
Barium naphthenate	14	296.000	Basic Yellow 28	04	367.000
Barium stearate	15	750.000	Basic Yellow 29	04	368.000
Barium zinc tallate	15	169.000	Basic Yellow 53	04	370.053
Basic black dyes, all other	04	359.999	Basic Yellow 58	04	370.058
Basic black dyes, all other, modified	04	420.000	Basic Yellow 65	04	370.065
Basic Blue 1	04	343.000	Basic Yellow 78	04	370.078
Basic Blue 3	04	400.000	Basic Yellow 79	04	370.079
Basic Blue 6	04	346.000	Basic Yellow 83	04	370.083
Basic Blue 7	04	347.000	Basic Yellow 94	04	370.094
Basic Blue 21	04	401.000	Basic Yellow 96	04	370.096
Basic Blue 41	04	404.000	Basic Yellow 98	04	370.098
Basic Blue 60	04	408.000	Basic Yellow 102	04	370.102
Basic Blue 77	04	412.000	Basic Yellow dyes, all other	04	325.000
Basic Blue 94 and 94:1	04	414.094	(Basic Yellow 2), fugitive	05	15.000
Basic Blue 140	04	414.140	Behenamide	15	229.200
Basic Blue 152	04	350.152	Benzaldehyde glyceryl acetal	07	7.500
Basic blue dyes, all other	04	351.000	Benzaldehyde, tech.	03	247.000
Basic blue dyes, all other, modified	04	415.000	Benzalkonium heparin	06	624.500
(Basic Blue 14, PMA)	05	227.014	Benzaniide	03	259.000
Basic Brown 1	04	355.000	Benzene-, cumene-, toluene-, and xylenesulfonates, all other	12	151.000
Basic Brown 4	04	357.000	Benzene High purity (98-100%)	02	5.500
Basic brown dyes, all other	04	358.000	Benzene Other	02	6.500
Basic Green 4	04	354.000	Benzenephosphinic acid	15	9.250
Basic green dyes, all other	04	354.100	Benzene sulfonic acid	12	137.710
(Basic Green 1, PMA)	05	230.101	Benzenesulfonic acid, 2,5-bis[(1,2-dioxobutyl)amino]-	15	9.257
Basic Orange 1	04	326.000	1,2,4,5-Benzenetetracarboxylic acid	03	267.000
Basic Orange 2	04	327.000	Benzene, toluene, xylene, mixtures	02	33.000
Basic Orange 21	04	372.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
1,2,4-Benzenetricarboxylic acid, 1,2-dianhydride (Trimellitic anhydride)	03	268.100	Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride	12	516.000
Benzhydrol (Diphenylmethanol)	03	269.000	Benzyl 4-hydroxy benzoate	15	9.035
Benzimidazole	03	273.100	2-Benzyl-2-hydroxy-5,9-dimethyl-6,7-benzomorphanhydrobromide	03	294.950
Benzocaine	06	704.000	1-Benzyl-1-(2-hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazolium chloride	12	452.000
1,3-Benzodioxole	03	273.500	1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	12	453.000
Benzoic acid	15	134.000	Benzyl isobutyrate	12	15.400
Benzoic acid, butyl ester (Butyl benzoate)	15	9.020	Benzyl isopentyl ether	07	15.600
Benzoic acid, C ₁₂ -C ₁₅ ester	15	9.030	Benzyl isovalerate	07	15.700
Benzoic acid esters, all other	15	9.058	Benzyl-methyl-bis(hydrogenated tallow)ammonium chloride	12	516.500
Benzoic acid, isodecyl ester	15	9.050	Benzyl(mixed alkyl)pyridinium chloride	12	516.670
Benzoic acid, methyl ester	03	274.903	1-(Benzoyloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether)	07	16.000
Benzoic acid salts, all other	15	13.000	Benzyl phenylacetate	07	17.000
Benzoic acid, tech.	03	275.000	1-Benzyl-4-phenylisonipicotonitrile	03	298.200
Benzonate	06	425.000	Benzyl picolinium chloride	12	517.100
Benzonitrile	03	278.000	Benzyl propionate	07	18.000
Benzophenone	07	8.000	Benzyl salicylate	07	19.000
Benzophenone	03	278.100	Benzyl(tallow alkyl)bis(2-hydroxyethyl)ammonium chloride	12	453.500
p-Benzoquinone	15	14.000	S-benzyl thiocarbamate	13	118.071
2-Benzothiazolethiol, sodium salt	03	278.200	Benzyltrimethylammonium chloride	12	519.000
1H-Benzotriazole	03	281.000	Benzyltrimethylammonium hydroxide	03	300.000
Benzo[1,2,4]triazole, potassium sodium salts	15	15.400	Beta carotene (provitamin A)	06	769.000
Benzo[1,2,4]triazole, substituted	15	15.500	Betaine hydrochloride	06	614.000
2-Benzoxazolethiol	03	283.200	Betamethasone	06	649.000
Benzoyl chloride	03	286.000	Betamethasone dipropionate	06	649.500
Benzoyl peroxide	15	16.000	Betamethasone sodium phosphate	06	650.000
Benzoyl acetate	07	9.000	Betamethasone valerate	06	651.000
Benzyl alcohol	15	17.000	Beta methyl ionone coevr	07	104.100
Benzyl(alkylpyridinium)chloride	12	508.190	Bethanechol chloride	06	314.500
2-(Benzylamino)ethanol	03	289.000	Biological stains	14	24.000
Benzyl benzoate	03	290.000	Biotin	06	794.000
Benzyl butyrate	07	11.000	Biphenyl	03	307.000
Benzyl chloroformate	07	12.000	N,N-Bis(2,2-acetamido)glycine	14	3.000
Benzyl(cocamidopropyl)dimethyl ammonium chloride	15	17.115	Bis(N-amidopropyl)-N,N-dimethyl-N-ethylammonium ethyl sulfate, dimer acid	12	467.500
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)ammonium chloride	12	508.800	Bis[2-bis(2-hydroxyethylamino)ethyl] diisopropyl titanate	15	1058.600
Benzyl(chocnut oil alkyl)dimethyl ammonium chloride	12	449.000	2,2-Bis(bromomethyl)-1,3-propanediol	15	1071.000
Benzyl(dimethyl(mixed alkyl)ammonium chloride	12	509.000	Bis(2-butoxyethyl)ether (Diethylene glycol di-n-butyl ether)	15	1142.000
Benzyl(dimethyloctadecylammonium chloride	12	511.000	α,α -Bis(t-butoxyperoxy)diisopropylbenzene	15	17.820
Benzyl(dimethyl(oleyl ammonium chloride	12	512.000	1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium hydroxide, disodium salt	12	21.500
Benzyl(dimethyl(tallow alkyl)ammonium chloride	12	512.800	Bis(p-chlorobenzoyl)peroxide	15	17.900
Benzyl(dimethyltetradecylammonium chloride	12	513.000	Bis-(2-chloroethyl)-2-chloroethylphosphonate	15	1017.000
Benzyl(dodecyl)dimethylammonium chloride	12	514.000			
6-benzyladenine (bap)	13	231.251			
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolium chloride	12	451.000			
Benzylhexadecyl dimethylammonium chloride	12	515.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Bis(2-chloroethyl)ether (Dichlorodiethyl ether)	15	1300.000	Bis[2-(octadecylamido)ethyl]-N-(2-cyanoethyl)-N-ethyl ammonium ethyl sulfate	15	229.500
Bis(coconut oil alkyl)amine	12	431.000	Bis(pentachloro-2,4-dicyclopentadien-1-yl)	13	128.000
Bis(coconut oil alkyl)dimethylammonium chloride	12	480.000	Bis(perfluoroalkyl)bis(alpha-monochlorohydrin) pyromellitate	15	21.080
Bis-cumylphenyl-oxoethylene titanate	12	775.800	Bisphenol epichlorohydrin	15	21.200
1,2-Bis(3,5-di-tert-butyl-4-hydroxyhydrocinna-moyl)hydrazine	15	17.980	Bisphenol A, ethoxylated and propoxylated	12	742.095
Bis(dibutylthiocarbamoyl) disulfide	09	144.950	Bisphenol a, ethoxylated	12	742.090
Bis(2,4-dichlorobenzoyl) peroxide	15	18.000	Bisphenol, hindered	09	88.100
Bis(alpha,dimethylbenzyl)peroxide	15	19.000	Bisphenol-A, propoxylated	12	742.100
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	09	55.551	Bis(tallow alkyl)dimethylammonium chloride	12	482.500
Bis(2-ethoxyethyl)ether (Diethylene glycol diethyl ether)	15	1143.000	1,2-Bis(tribromophenoxy)ethane	03	330.218
Bis(2-ethylhexyl)hydrogen phosphite	15	1019.000	Bis(triphenylsilyl)chromate	15	21.400
Bis(2-ethylhexyl)terephthalate	11	16.550	Bitrolyene diisocyanate (TODI)	03	1017.000
N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylenediamine	09	56.000	Blend of fatty and phosphate esters	12	111.800
Bis(ethyl-3-oxobutanato)bis(2-propanolato) titanium	15	1058.800	Bornyl phenylamine	14	271.000
Bis(N,N1-ethyl(stearic/arachidic/behenic)amide) cyanoethyl ethylammonium ethosulfate	12	470.400	Brominated diphenyl ethers	15	22.200
Bis-hexamethylenetriamine amine	15	260.000	Brominated (including bromochlorinated) hydrocarbons, all other	15	1216.000
Bis(hydrogenated tallow alkyl)amine	12	432.000	Brominated hydrocarbons, C ₁₂ -C ₁₈	15	1196.800
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	12	481.000	Brominated pentaerythritol	15	1296.557
Bis(hydrogenated tallow alkyl)dimethylammoniummethyl sulfate	12	482.000	Brominated vegetable oil	15	1327.500
3'-[Bis(2-hydroxyethyl)amino]benzaniide, diacetate ester	03	326.300	Bromoacetic acid	13	245.017
1,3-Bis(2-hydroxyethyl-5,5-dimethyl)-2,4-imidazolinedione	15	20.200	3-Bromoacetophenone	03	992.500
Bis(2-hydroxyethyl, ethoxylated)methyloctadecylammonium chloride	12	455.000	Bromobenzene,mono	03	335.000
Bis-2-hydroxyethyl-hydrogenated tallow-ethyl sulfate	12	455.500	o-Bromobenzoic acid	03	336.000
Bis(2-hydroxyethyl)isocycloxypropylamine oxide	12	321.700	3-[3-(4'-Bromo[1,1'-biphenyl]-4-yl)-1,2,3,4-tetrahydro-1-naphthalenyl]-4-hydroxy-2H-1-benzopyran-2-one	13	169.500
N,N-bis-(2-Hydroxyethyl)octadecanamide	14	489.000	1-Bromobutane (n-Butyl bromide)	15	1197.000
N,N-bis(2-hydroxyethyl)octadecylamine	12	322.000	5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	13	42.000
Bis-2-hydroxyethyl-octyl-methyl-p-toluene sulfonate	12	455.600	Bromochlorodifluoromethane	15	1252.800
N,N-bis(2-hydroxyethyl)(tallow alkyl)amine	12	324.000	Bromochloro-5,5'-dimethyl hydantoin	15	21.900
N,N-bis(2-hydroxyethyl)-p-toluidine	03	958.500	Bromochloromethane	15	1199.000
2,2-Bis(4-hydroxyphenyl)4-methylpentane	15	20.550	2-Bromo-2-chloro-1,1,1-trifluoroethane (Halothane)	15	1253.000
4,6-Bis(isopropylamino)-2-methoxy-s-triazine (Prometon)	13	118.010	Bromodecane (Decyl bromide)	15	1200.500
2,4-Bis(isopropylamino)-6-(methylthio)-s-triazine (Prometryn)	13	41.500	Bromodifluoromethane	15	1253.500
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether)	15	1145.000	2-Bromo-4,6-dinitroaniiline	03	344.000
N,N'-Bis(1-methylheptyl)-p-phenylenediamine	09	60.000	Bromodocosane	15	1200.900
Bis(morpholinothiocarbamoyl) disulfide	09	38.500	Bromoethane (Ethyl bromide)	15	1202.000
Bismuth 2-ethylhexanoate	15	630.500	Bromoethylbenzene	03	345.000
Bismuth formic iodide	06	250.500	p-Bromofluorobenzene	03	345.500
Bismuth neodecanoate	15	701.900	2-Bromo-4'-hydroxyacetophenone	13	40.017
			Bromomethane (methyl bromide)	15	1203.500
			2-Bromo-6-methoxynaphthylene	15	22.300
			1-Bromo-3-methyl-2-butene	15	1205.001
			2-Bromo-2-nitropropanediol	15	1071.500
			beta-Bromo-beta-nitrostyrene	15	22.400
			1-Bromo-octadecane	15	1206.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
1-Bromopentane (n-Amyl bromide)	15	1207.000	Butyl acid phosphate	15	1020.000
1-Bromopropane (n-Propyl bromide)	15	1209.000	Butyl acrylate	15	893.000
Bromopropionic acid	15	498.000	Butyl acrylate ethyl acrylate copolymer resins	08	19.950
2-Bromopyridine	03	359.000	n-Butyl alcohol (n-Propylcarbinol)	15	845.000
Bromotrifluoromethane	06	1254.000	sec-Butyl alcohol (Methylthylcarbinol)	15	846.000
Brompheniramine maleate	06	85.000	tert-Butyl alcohol (Trimethylcarbinol)	15	847.000
Bupropion	06	525.550	Butyl alcohol, ethoxylated and phosphated	12	76.100
Butabarbital	06	447.000	Butyl alcohol, propoxylated	12	734.950
Butacaine hydrochloride	06	698.000	n-Butylamine, mono	15	261.000
Butadiene and butylene fractions	02	49.000	sec-Butylamine, mono	15	264.000
1,3-Butadiene, grade for rubber (Elastomers)	02	48.000	tert-Butylamine, mono	15	265.000
Butalbital	06	449.000	2-(sec-Butylamino)-4-ethylamino-6-methoxy-s-triazine	13	118.041
Butamben	06	700.000	2-(tert-Butylamino)-4-ethylamino-6-(methylthio)-s-triazine	13	118.017
Butamben picrate	06	701.000	tert-Butylaminoethyl methacrylate	15	327.455
1,2-(and 1,3)-Butanediol	15	1072.000	p-tert-Butylbenzaldehyde	03	370.000
1,4-Butanediol	15	1073.000	n-Butylbenzene	03	371.000
Butanoic acid, 1-cyclohexylethyl ester	07	127.470	N-n-butyl benzenesulfonamide	11	0.500
Butanol, ethoxylated	12	726.900	N-tert-Butyl-2-benzothiazolesulfenamide	09	25.000
2-Butanone peroxide (MEK peroxide)	15	1284.000	Butyl benzyl phthalate	11	17.000
1-Butene	02	45.000	n-Butyl-4,4-bis[1-butylperoxy]valerate	15	1284.200
2-Butene	02	46.000	Butyl butyl lactate	07	127.500
1-Butene and 2-butene, mixed	02	47.000	sec-Butyl chloroformate	15	898.000
2-Butenediamide, (E), N, n'-bis[2-(4,5-dihydro-2-nortall oil alkyl)-1H-imidazol-1-yl]ethyl derivatives	12	358.500	3-tert-Butyl-5-chloro-6-methyluracil	13	118.018
2-Butenedioic acid-(E)-diamine - 1-(2-aminoethyl)-2-(tall oil alkyl)-2-imidazoline condensate	12	342.220	2-tert-Butyl-p-cresol	03	377.000
2-Butenedioic, monomethyl ester, polymer with methoxyethene	15	1296.568	2-tert-Butyl cyclohexanol	07	93.710
2-Butene-1,4-diol	15	1074.000	2-sec-Butylcyclohexanone	07	93.700
Butorphanol tartrate	06	398.500	o-tert-Butylcyclohexyl acetate	07	93.800
4-Butoxyacetophenone	03	1055.500	tert-Butyldiethanolamine	15	327.500
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	15	1317.460	Butylene glycol adipate	11	58.750
2-Butoxyethanol (Ethylene glycol monobutyl ether)	15	1147.000	1,3-Butylene glycol diborate	15	1100.150
2-Butoxyethoxy acetic acid	15	619.300	1,3-Butylene glycol diborate/hexylene glycol boric anhydride	15	1100.155
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	15	1148.000	1,3-Butylene glycol dimethacrylate	15	1100.200
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)	15	1149.000	1,3-Butylene glycol, ethoxylated	12	758.940
α -[2-(2-n-Butoxyethoxy)ethoxy]-4,5-methylenedioxy-2-propyltoluene (Piperonyl butoxide)	13	172.000	Butylene oxide	15	1303.000
2-(2-Butoxyethoxy)ethyl acetate	15	1098.000	sec-Butyl ether	15	1304.001
1-Butoxyethoxy-2-propanol	15	1150.000	n-Butylethylamine	15	267.000
2-Butoxyethyl acetate	15	1099.000	t-Butyl-2-ethylhexyl monoperoxycarbonate	15	1284.400
2-Butoxyethyl benzoate (Butyl cellosolve benzoate)	15	22.990	N-Butyl-N-ethyl- α,α,α -trifluoro-2,6-dinitro-p-toluidine (Benefin)	15	1374.800
Butoxyethylene oxyacetic acid, sodium salt	12	35.950	Butyl formcel	13	43.000
2-Butoxyethyl oleate	11	89.900	tert-Butyl glycidyl ether	15	1430.000
n-Butyl acetate	15	890.000	tert-Butyl hydroperoxide	15	1317.470
n-Butyl acetylricinoleate	11	106.000	tert-Butylhydroquinone	15	1285.000
			4,4'-Butylidenebis(6-tert-butyl-m-cresol)	15	24.850
			Butyl(isobutylene-isoprene) type	09	88.200
				10	9.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Butyl lactate	15	900.000	tert-Butyl urea	15	329.500
n-Butyllithium	15	1372.000	Butyl vinyl ether	15	1305.000
sec-Butyllithium	15	1373.000	2-Butyne-1,4-diol	15	1075.000
n-Butyl mercaptan (1-Butanethiol)	02	90.910	Butyraldehyde	15	784.000
sec-Butyl mercaptan (2-Butanethiol)	02	90.915	i-Butyraldehyde trimer	15	1151.700
tert-Butyl mercaptan (2-Methyl-2-propanethiol)	02	91.000	Butyric acid	15	499.000
Butyl mercaptopropionate	15	901.800	Butyric anhydride	15	500.000
Butyl methacrylate	15	902.000	Butyrolactone	15	104.500
Butyl methacrylate-ethyl methacrylate copolymer resins	15	19.960	n-Butyronitrile	15	436.000
2 (and 3)-tert-Butyl-4-methoxyphenol (Butylated hydroxyanisole, or, BHA)	08	25.000	Butyryl chloride	15	501.000
p-tert-Butyl- α -methylhydrocinnamalehyde	15	21.900	Cadinene	07	94.100
Butylmorpholine	07	21.900	Cadimium benzoate	15	10.000
Butylnaphthalenesulfonic acid	15	25.500	Cadimium 2-ethylhexanoate	15	631.000
Butylnaphthalenesulfonic acid, sodium salt	12	161.000	Cadimium laurate	15	677.300
Butyl octyl phthalates	12	162.000	Cadimium naphthenate	14	297.000
Butyl oleate	11	23.000	Cadimium stearate	15	751.000
Butyl oleate	11	90.000	Cadimium tallate	15	169.500
Butyl oleate, sulfated, sodium salt	15	909.000	Caffeine, natural	06	537.000
Butyl palmitate	12	257.000	Caffeine, synthetic	06	538.000
n-Butyl palmitate	11	96.200	Calcitonin	06	691.500
n-Butyl perchlorocrotonate	15	902.500	Calcium acetate	15	591.000
tert-Butyl peroxide (Di-tert-butyl peroxide)	15	1286.000	Calcium t- α -alkylcarboxylate	15	668.000
tert-Butyl peroxyacetate	15	1286.200	Calcium ascorbate	06	808.000
tert-Butyl peroxybenzoate	15	26.000	Calcium 2-ethylhexanoate	15	632.000
tert-Butyl peroxyisobutyrate	15	1286.250	Calcium formate	15	648.000
tert-Butyl peroxypropylcarbonate	15	1286.280	Calcium gluceptate	06	759.000
tert-Butyl peroxyisopropylcarbonate	15	1286.300	Calcium manganese tallate	15	170.000
tert-Butyl peroxy maleic acid	15	1286.320	Calcium naphthenate	14	298.000
tert-Butyl peroxyneodecanoate	15	1286.330	Calcium neodecanoate	15	703.000
tert-Butyl peroxyvalerate	15	1287.000	Calcium oleate	15	718.500
o-sec-Butylphenol	03	383.000	Calcium oleate	15	591.600
o-tert-Butylphenol	03	385.000	Calcium polycarbophil	06	591.600
p-sec-Butylphenol	03	384.000	Calcium propionate	15	737.000
p-tert-Butylphenol	03	386.000	Calcium resinole	15	153.000
p-tert-Butylphenol-formaldehyde, alkoxylated	03	721.600	Calcium stearate	15	752.000
Butylphenols, mixed	12	387.000	Calcium tallate	15	171.000
2-(p-tert-Butylphenoxy)cyclohexyl-2-propynyl sulfite	03	387.000	Calcium undecylenate	06	135.000
N-(3-(p-tert-butylphenyl)-2-methylpropylidene)-anthranic acid, methyl ester	13	166.017	Calcium zinc resinole	15	154.000
Butyl phosphate	07	21.920	Camphene	15	29.000
Butyl phosphate, potassium salt	12	92.400	α -Campholenic aldehyde	07	94.200
Butyl phthalyl butyl glycolate	12	92.500	Campholenic aldehyde	15	29.100
Butyl picolinium bromide	11	41.400	Canrenoate, potassium	06	736.700
Butyl ricinoleate	12	519.500	Canrenoate, potassium	07	111.500
n-Butyl stearate	11	107.000	Capric acid (Ratio =2/1)	12	530.000
p-tert-Butyltoluene	11	117.000	Capric acid (Ratio 1/1)	12	546.010
Butyl 2-[4-[[5-(trifluoromethyl)-2-pyridinyloxy]phenoxy]propanoate	03	388.000	Caprolactam (2-Oxohexamethylenimine)	15	29.500
pyridinyloxy]phenoxy]propanoate	13	43.050	Caprolactam magnesium bromide	15	29.505
			Caprolactone	15	104.600
			Caprylic acid tetraethylene-pentamine condensate	12	358.700

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Captopril	06	355.400	1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolium hydroxide, sodium derivative, sodium salt	12	24.000
Caramiphen edisylate	06	426.000			
Carbidopa	06	830.500			
Carbomethoxy-L-azetidinone sodium salt	15	29.600	1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt	12	25.000
1-(carboethoxy)ethyl 5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoate	13	118.068			
Carbohydrazide	15	330.500	1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt	12	21.300
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate	13	216.000			
Carbon black feedstock	02	36.050	Cardiovascular agents, all other	06	383.000
Carbon disulfide	15	1296.600	Carmustine	06	278.150
Carbon tetrachloride	15	1217.000	Carvacrol	07	23.500
4,4'-Carbonylbis(phthalic anhydride)	03	400.100	i-Carvone	07	94.300
Carboplatin	06	278.100	β -Caryophyllene	07	94.500
Carboxyethyl acrylate	15	911.500	Castor oil acids (Ratio = 2/1)	12	531.000
1-Carboxyethyl-1-(2-hydroxyethyl)-2-heptyl-2-imidazolium hydroxide, sodium derivative, sodium salt	12	21.200	Castor oil acids, potassium salt	12	52.000
5(or 6)carboxy-4-hexyl-2-cyclohexene-1-octanoic acid, potassium/sodium salts	12	52.500	Castor oil acids, sodium salt	12	53.000
5(or 6)-Carboxy-4-hexyl-2-cyclohexene-1-octanoic acid, reaction products with castor oil	12	38.500	Castor oil, ethoxylated	12	669.000
Carboxylic acid - alkanolamine condensates, all other	12	582.000	Castor oil fatty acids, dehydrated	15	502.000
Carboxylic acid alkoxylates	15	1296.610	Castor oil, hydrogenated	15	1327.610
Carboxylic acid amides, all other	12	588.000	Castor oil, polymerized	15	1327.620
Carboxylic acid-diamine and polyamine condensate, all other	12	587.000	Castor oil, sulfated, sodium salt	12	305.000
Carboxylic acid-diamine and polyamine condensates, all other	12	374.000	Cationic surface-active agents, all other	12	529.000
Carboxylic acid-diamine and polyamine condensates, alkoxylated, all other	12	384.000	α -Cedrene epoxide (Andrane)	07	94.760
Carboxylic acid esters, all other	12	721.000	Cedrenol	07	94.780
Carboxylic acids, all other	12	75.000	Cedrol	07	94.790
Carboxylic acids with amide, ester or ether linkage, other	12	51.000	Cedryl acetate	07	94.800
N-[2-(Carboxymethylamino)ethyl]-N-(2-hydroxyethyl)-coconut oil amide, sodium salt	12	3.000	Cedryl formate	07	94.810
N-Carboxy-N-methylanthranilic anhydride	03	351.400	Cefaclor	06	39.300
Carboxymethyl-3-cocamidopropyl dimethyl ammonium chloride, sodium salt	12	3.980	Cefamandole	06	39.500
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt	12	4.000	Cefazolin, sodium	06	40.000
(Carboxymethyl)dodecylmethylammonium hydroxide, inner salt	12	5.000	Cefonicid	06	40.100
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolium hydroxide, sodium derivative, sodium salt	12	22.000	Cefoxitin	06	40.200
1-Carboxymethyl-1-(2-hydroxyethyl)-2-heptyl-2-imidazolium hydroxide, sodium derivative, sodium salt	12	22.600	Ceftazidime	06	40.500
			Ceftazidime dihydrochloride	06	40.600
			Ceftiofur	06	40.650
			Cefuroxime	06	40.700
			Cellulase	14	99.500
			Cellulose acetate	14	384.000
			Cellulose acetate butyrate	08	20.990
			Cellulose acetate hexahydrophthalate	08	21.000
			Cellulose acetate phthalate	15	29.900
			Cellulose acetate propionate	15	30.000
			Cellulose ethers and esters, all other	08	21.010
			Cellulose, oxidized	14	413.000
			Celtone	06	635.000
			Centralite-1	15	1430.250
			Cephalixin	15	31.000
				06	41.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Cephalothin, sodium	06	43,000	2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine (Atrazine)	13	45,000
Cephradine	06	43,600	2-[4-Chloro-6-(ethylamino)-s-triazin-2-ylamino]-2-methylpropionitrile (Cyanazine)	13	45,100
Cerium 2-ethylhexanoate	15	632,200	p-[(2-Chloroethyl)methylamino]benzaldehyde	03	463,000
Cetylalcosyl methacrylate	15	911,700	Chloroform	15	1,224,000
Cetyl lactate	15	912,000	3-Chloro-2-hydroxypropyl trimethyl ammonium chloride (1-Propaminium, 3-chloro-2-hydroxy-N,N,N-trimethyl-chloride)	15	339,500
Cetylpyridinium chloride	06	256,000	2-Chloro-N-isopropylacetanilide (Propachlor)	13	45,200
Chelating agents, nitriloacids and salts, all other	14	90,000	Chloromethane (Methyl chloride)	15	1,226,000
Chemical indicators	14	91,000	2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl]benzenesulfonamide	13	118,054
Chemically defined linear alcohol, alkoxylated, all other	12	734,000	Chloromethyl dimethylchlorosilane	15	1,378,900
Chemical reagents and fine chemicals	14	92,000	Chloromethylene dimethyliminium (Amide chloride)	15	231,700
Chlorinated fatty materials	15	1,327,700	Chloromethyl methyl ether	15	1,307,000
Chlorinated (Not otherwise halogenated) hydrocarbons, all other	15	1,252,000	4-Chloro-N-methyl-3-nitrobenzenesulfonamide	03	484,000
Chlorinated paraffins, 35-64% chlorine	15	1,219,000	4-Chloro-2-methylphenoxycetic acid (MCPA)	13	84,000
Chlorinated paraffins, less than 35% chlorine	15	121,800	4-Chloro-2-methylphenoxycetic acid, dimethylamine salt	13	109,011
Chlorinated paraffins, 65% or more chlorine	15	1,220,000	2-[4-Chloro-2-methylphenoxycetic acid, iso-octyl ester dimethylamine salt	13	109,010
Chlorinated polyolefins, thermoplastic	08	52,020	1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	13	118,048
Chlorinated rubber, natural and synthetic	10	9,050	1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)	03	495,000
Chloroacetic acid, mono	15	503,000	5-Chloro-2-pentanone	03	498,000
N-(Chloroacetyl)-N-(2,6-diethylphenyl)glycine, ethyl ester	13	43,025	2-Chlorophenothiazine	15	811,000
Chloroalkyl diphosphate ester, neutral	15	1,021,700	α -(2-Chlorophenyl)- α -(4-chlorophenyl)-5-pyrimidinemethanol	03	519,000
Chloroalkyl phosphate ester	15	1,021,702	α -(2-Chlorophenyl)- α -(4-fluorophenyl)-5-pyrimidinemethanol	13	40,020
2-Chloro-4-aminotoluene	03	412,500	β -(4-Chlorophenyl)methyl- α -(1,1-dimethylethyl)-1,2,4-triazole-1-ethanol	13	40,019
o-Chloroaniline	03	414,000	1-Chloropinacolone	13	168,994
p-Chloroaniline	03	415,000	3-Chloro-1,2-propanediol (Glycerol α -chlorohydrin)	13	118,067
Chlorobenzene, mono	03	427,000	3-Chloropropene (Allyl chloride)	15	812,320
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)	13	44,050	1-(3-Chloropropyl)-4-methylpiperazine	15	1,076,000
1-Chlorobutane (n-Butyl chloride)	15	1,221,000	α -Chloropropyltrichlorosilane	15	1,229,000
2-Chloro-2',6'-diethyl-N-(n-butoxymethyl)acetanilide (Butachlor)	13	44,160	Chloropropyltrimethoxysilane	03	530,000
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (Alachlor)	13	44,180	3-Chloropropyl-2,5-xylol ether	15	1,379,000
1-Chloro-1,1-difluoroethane (F-142b)	13	44,180	Chlorosulfonated polyethylene (CSM) type	15	1,380,000
Chlorodifluoromethane (F-22)	15	1,255,000	2-Chloro-1,1,2-tetrafluoroethane (F-124)	03	530,070
4-Chloro-2',5'-dimethoxyacetanilide	03	1,256,000	Chlorothiazanthone	03	532,000
2-Chloro-1,4-dimethoxybenzene	03	448,000	Chlorothiazide	10	9,100
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	03	451,200	α -Chlorotoluene (Benzyl chloride)	15	1,257,500
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt	03	453,000	3-Chloro-p-toluidine [NH ₂ =1]	06	34,600
2-Chloro-N-(2,6-dinitro-4-(trifluoromethyl)phenyl)-N-ethyl-6-fluorobenzene ethanamine	03	456,200	2-Chloro-6-(trichloromethyl)pyridine	03	719,000
3-Chlorodiphenylamine	13	168,135		03	545,000
2-Chloro-N-ethoxymethyl-N-(2-ethyl-6-methylphenyl)acetamide (Acctochlor)	03	457,000		13	547,000
2-Chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene (Oxyfluorfen)	13	44,190		13	168,991

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Chlorotrifluoroethylene (Trifluorovinyl chloride)	15	1258.000	Citronellyl propionate	07	131.500
2-Chloro-1,1,2-trifluoroethyl methyl ether	15	1259.200	Clindamycin	06	45.000
Chlorotrifluoromethane (F-13)	15	1259.000	Cloxacillin, sodium	06	13.000
2-Chloro-N-[[4-(trifluoromethoxy)phenyl]amino]benzamide	13	133.200	Cobalt acetate	15	593.000
5-[2-Chloro-4-(trifluoromethyl)phenoxy]-2-introbenzoic acid, sodium salt	13	118.051	Cobalt t- α -alkylcarboxylate	15	669.000
3-(2-Chloro-4-trifluoromethylphenoxy)toluene	03	556.050	Cobalt 2-ethylhexanoate	15	633.000
Chlorotrimethylsilane	15	1381.000	Cobalt/iron alkylcarboxylate	15	669.003
4-Chloro-3,5-xyleneol	03	565.000	Cobalt manganese acetate	15	593.010
Chlorphenesin carbamate	06	477.000	Cobalt manganese neodecanoate	15	704.000
Chlorpheniramine	06	88.500	Cobalt/manganese/zirconium alkylcarboxylate	15	669.012
Chlorpheniramine maleate	06	89.000	Cobalt/manganese-zirconium neodecanoate	15	704.200
Chlorpromazine	06	483.800	Cobalt naphthenate	14	301.000
Chlorpromazine hydrochloride	06	484.000	Cobalt neodecanoate	15	705.000
Chlorprothixene	06	497.000	Cobalt-potassium 2-ethylhexanoate	15	633.010
Chlortetracycline (medicinal grade)	06	31.000	Cobalt/potassium/zirconium alkylcarboxylate	15	669.005
Chlortetracycline (animal feed grade)	06	64.000	Cobalt stearate	15	753.000
Cholecalciferol (vitamin D ₃)	06	811.000	Cobalt tallate	15	172.000
Choleretics and hydrocholeretics, all other	06	604.000	Cobalt/zirconium t- α -alkylcarboxylate	15	669.015
Cholesterol esterase	14	110.000	Cocaine	06	701.500
Cholesterol isostearate	12	705.600	N-Cocalkyl-1,3-propylenediamine acetate	13	245.011
Choline	06	612.001	Cocoimidooamphoglycinate	12	9.250
Choline bicarbonate	06	342.000	3-Cocamid-N,N-dimethyl propylamine oxide	12	385.285
Choline bihydrate	06	605.000	N-(Cocamidopropyl N,N-acetic acid) ammonium salt	12	482.600
Choline chloride (animal feed grade)	06	606.000	Cocamidopropyl dimethyl amine	12	328.300
Choline chloride (medicinal grade)	06	607.000	Cocamidopropyl dimethyl amine oxide	12	385.280
Choline citrate	06	608.000	N-Cocamidopropyl-N,N-dimethylamine oxide	12	9.580
Choline dihydrogen citrate	06	610.000	3-Cocamidopropyl-2-hydroxy-3-sulfopropylidimethyl ammonium hydroxide, inner salt	12	9.700
Choline magnesium salicylate	06	385.300	Cocamphocarboxyglycinate	12	9.260
Chromium acetate	15	592.000	Cocamphocarboxypropionate	12	9.265
Chromium 2-ethylhexanoate	15	632.500	Cocamphopropionate	12	9.280
Chromium naphthenate	14	299.000	N-Coco-N,N-dimethylamines	15	267.250
Cineole [eucalyptol]	07	23.700	Cocodimethyl ethyl ammonium ethyl sulfate	12	482.750
Cinnamaldehyde	07	24.000	Coconitrile	15	437.000
Cinnamyl acetate	07	25.000	Coconut oil acids (Ratio = 1/1)	12	564.000
Cinnamyl butyrate	07	27.100	Coconut oil acids (Ratio = 2/1)	12	532.000
Cinnamyl nitrite	07	27.500	Coconut oil acids (Ratio = 1/1)	12	546.000
Cinnamyl proptonate	07	28.000	Coconut oil acids (Ratio = 2/1)	12	556.000
Cinoxacin	06	276.002	Coconut oil acids	12	554.000
Cisplatin	06	278.200	Coconut oil acids diethanolamine salt	12	29.100
Citral dimethyl acetal	07	127.700	Coconut oil acids-dimethylaminopropylamine condensate (amine/acid ratio = 1/1)	12	586.480
Citric and acetylcitric acid esters, all other	11	71.000	Coconut oil acids-N,N-dimethyltrimethylenediamine condensate	12	360.000
Citric acid	15	505.000	Coconut oil acids, ethanolamine salt	12	29.200
Citronellyl acetate	07	128.000	Coconut oil acids-ethanolamine salt, sulfated, potassium salt	12	248.000
Citronellyl formate	07	130.000			
Citronellyl isobutylate	07	131.000			
Citronellyl nitrite	07	131.300			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Coconut oil acids and oleic acid, potassium salt	12	55,700	Creosote oil (Dead oil)creosote in coal tar solution (100 Percent solution basis)	01	20,000
Coconut oil acids, potassium salt	12	54,000	Creosote oil (Dead oil)distillate as such (100 Percent creosote basis)	01	19,000
Coconut oil acids, sodium salt	12	55,000	m-Cresol	03	569,000
Coconut oil acids, 2-sulfoethyl ester, sodium salt	12	198,000	p-Cresol	03	572,000
Coconut oil acids, triethanolamine salt	12	29,000	o-Cresol, from petroleum	03	571,000
N-(Coconut oil acyl)-N-methylaurine, sodium salt	12	183,000	(m,p)-Cresol, from petroleum	03	574,000
N-(Coconut oil acyl)sarcosine, sodium salt	12	40,000	Cresylic acid (Less than 75 percent distilling over 215° C)	02	12,000
Coconut oil alcohol, ethoxylated	12	735,000	Cresylic acid, refined from petroleum	03	580,000
3-[(Coconut oil alkyl)amidoethylene-(2-hydroxyethyl) amino]propionic acid	12	10,130	Crotonaldehyde	15	786,000
(Coconut oil alkyl)amine	12	418,000	Crotonic acid (2-Butenoic acid)	15	506,000
(Coconut oil alkyl)amine acetate	12	392,000	Crude coal tar	01	0,500
(Coconut oil alkyl)amine, ethoxylated	12	326,000	Crude coal tar solvent	01	22,030
(Coconut oil alkyl)amine, ethoxylated, acetate	12	327,000	Crude light oil	01	1,000
Coconut oil(alkyl)amine, ethoxylated and phosphated	12	327,100	Crude tar acid oils having a tar acid content of 5 percent to less than 24 percent	01	15,000
N-[(Coconut oil alkyl)amino]butyric acid, sodium salt	12	483,000	Cumene (Isopropyl benzene)	03	581,000
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)-methylammonium chloride	12	456,000	Cumene hydroperoxide	15	35,000
(Coconut oil alkyl)-bis-(hydroxyethyl)methyl ethoxylated mono-(2-carboxyethyl)ether methyl sulfate, potassium salt	12	456,025	Cumenesulfonic acid, ammonium salt	12	144,000
N-(Coconut oil alkyl)sulfosuccinamic and disodium salt	12	176,950	Cumenesulfonic acid, sodium salt	12	144,100
N-(Coconut oil alkyl)trimethylenediamine	12	407,000	Cumyl acetate	07	29,200
Coconut oil amide	15	232,000	α-Cumyl peroxyneodecanoate	15	35,400
Coconut oil, ethoxylated	12	669,200	α-Cumyl peroxyneodecanoate	15	35,410
Coconut oil, sulfated, sodium salt	12	306,000	Cumyl phenolate isopropoxy titanium salt	12	776,500
Coconut oil and tallow acids (Ratio = 2/1)	12	533,000	Cyanoacetic acid (Malonic nitrile)	15	498,600
Codeine	06	429,000	4-(Cyanoacetyl)morpholine	03	582,200
Cod oil, sulfated, sodium salt	12	297,250	Cyanocobalamin (medicinal grade)	06	796,000
Cod oil, sulfated, sodium salt	12	298,000	N-Cyanoethyl-N-acetoxyethylamine	03	583,500
Colestipol hydrochloride	06	614,500	Cyano(4-fluoro-3-phenoxyphenyl)methyl-3-(2,2-dichloroethyl)-2,2-dimethylcyclopropanecarboxylate	13	166,050
Complex glycerol esters, all other	12	651,000	Cyano-3-phenoxybenzyl-cis, trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxylate	13	166,049
Complex linear polyesters and polymeric plasticizers, all other	11	132,000	Cyano(3-phenoxyphenyl)methyl-4-chloro-α-(1-methylethyl)benzeneacetate	13	166,024
Copolyurethane urea	14	386,000	3-Cyanopyridine	05	584,550
Copper acetate	15	594,000	Cyanuric acid	15	36,000
Copper t-α-alkylcarboxylate	15	669,050	Cyclic adducted amine curing agents	15	36,200
Copper 2-ethylhexanoate	15	634,000	Cyclic amphoteric surface-active agents, all other	12	28,000
Copper glycinate	06	830,900	Cyclic chemicals, all other	15	218,000
Copper oxalate	15	722,400	Cyclic elastomers, all other	10	6,000
Copper tellurate	15	173,000	Cyclic fungicides, all other	13	40,000
Corn oil acids, potassium salt	12	56,000	Cyclic herbicides, all other	13	118,000
Corn oil acids, sodium salt	12	57,000	Cyclic insecticides, all other	13	166,000
Corticotropin	06	692,000	Cyclic intermediates, all other	03	154,000
Cortisone acetate	06	653,000	Cyclic plasticizers, all other	11	58,000
Coumarone-indene resins	08	22,000	Cyclic silizane	15	36,250
Creosote oil (Dead oil)creosote content in solution (100 Percent basis)	01	21,000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Cyclized polyisoprene (Cyclorubber)	10	0.500	trans-Decahydro- β -naphthol	07	29.700
Cyclobenzaprine hydrochloride	06	477.500	Decanal (Capraldehyde)	07	132.000
Cyclohexane	03	586.000	n-Decane	15	1337.000
Cyclohexane carbonitrile	15	36.280	1-Decanol	15	850.500
1,4-Cyclohexanedicarboxylic acid	15	36.285	Decanoyl chloride	15	507.000
1,2-Cyclohexanedicarboxylic acid anhydride	03	588.000	Decanoyl peroxide	15	1291.000
Cyclohexanesulfamic acid (Cyclamic acid)	07	82.000	Decyl acetate	07	132.500
Cyclohexanesulfamic acid, sodium salt (Sodium cyclamate)	07	84.000	Decyl alcohol, ethoxylated	12	727.000
Cyclohexanethiol	15	36.800	Decyl alcohol, ethoxylated and phosphated	12	76.200
Cyclohexanol	03	589.000	Decyl alcohol, ethoxylated and propoxylated	12	727.010
Cyclohexanone	03	590.000	Decyl chloride	15	1229.500
Cyclohexanone oxime	03	591.000	Decyldiphenyl oxide	03	603.000
Cyclohexene	03	592.000	Decyl mercaptans	02	92.500
4-Cyclohexene-1,2-dicarboxylic anhydride	03	594.000	Decyl and octyl alcohols, ethoxylated	12	736.100
2-Cyclohexene-1-octanoic acid, 5 (and 6)-carboxy-4-hexyl, C ₂₁ H ₃₆ O ₄	15	39.500	Decyl and octyl alcohols, ethoxylated and propoxylated	12	736.100
Cyclohexene oxide	03	594.100	Decyl and octyl phosphate	12	92.000
β -(1-Cyclohexenyl)ethylamine	06	594.296	Decyl and octyl sulfate, sodium salt	12	217.000
Cycloheximide	06	65.000	Decyl oleate	11	90.300
Cyclohexylamine	15	39.700	Decyloxypoly(ethyleneoxy)ethyl chloride	12	728.000
Cyclohexylamine	03	595.000	Decyl polyphosphate, sodium salt	12	95.000
N-Cyclohexyl-2-benzothiazolesulfenamide	09	26.000	Decyl sulfate, sodium salt	12	218.000
3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4-(1H,3H)-dione	13	118.019	Deferoxamine mesylate	06	831.000
1,4-Cyclohexylenedimethanol	15	41.000	Deprenyl hydrochloride	06	654.000
Cyclohexyl ethyl acetate	07	95.170	Dexamethasone	06	655.000
Cyclohexyl methacrylate	15	41.200	Dexamethasone sodium phosphate	06	92.000
N-Cyclohexyl-N'-phenyl-p-phenylenediamine	09	58.000	Dexbrompheniramine maleate	06	789.000
N-(Cyclohexylthio)phthalimide	09	124.250	Dexpanthenol	06	92.000
cyclooctadiene	03	597.800	Dextroamphetamine	06	637.000
Cyclopentane	02	11.000	Dextroamphetamine sulfate	06	514.000
α -Cyclopropyl- α -(p-methoxyphenyl)-5-pyrimidine methanol (Ancymidol)	13	168.140	Dextromethorphan hydrobromide	06	517.000
2-Cyclopropylmethylamino-5-chlorobenzophenone	03	601.780	Diagnostic agents, other than roentgenographic contrast media, all other	06	582.000
2-(N-Cyclopropylmethyl-N-phthalimidoacetyl)-amino-5-chlorobenzophenone	03	601.800	Dialkylbenzene	03	608.200
N-cyclopropyl-1,3,5-triazine-2,4,6-triamine	13	166.048	Dialkyl dicarbonate	15	912.800
Cycloserine	06	5.000	Dialkylthiocarbamic acid derivative	09	127.950
Cyclosols	02	4.010	Di(C ₅ -C ₆ alkyl)naphthalenesulfonic acid	12	162.500
Cyclothiazide	06	720.000	Diallylamine	15	258.100
p-Cymene	03	602.000	N,N-diallyl-2,2-dichloroacetamide	13	175.013
Cypermethrin	13	166.029	Diallyldimethyl ammonium chloride	15	349.200
Cyproheptadine hydrochloride	06	91.000	Diallyl isophthalate	08	4.030
Cytarabine	06	278.300	Di-amine derivatives of dimer acids	15	349.300
Danazol	06	692.500	Diamines and polyamines, all other	12	417.000
Decabromodiphenyl ether (DBDP)	15	43.005	Diamino cyclohexane	15	45.830
Decaglycerol	12	691.880	1,3 Diaminocyclohexane	03	618.100
Decaglycerol tetraoleate	12	691.920	2,6-Diaminopyridine	03	634.000
			Diammonium dithiodiglycolate	15	627.400
			1,1-Di(t-amy/peroxy)cyclohexane	15	46.200

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Di-tert-amyl-phenyl acid phosphate	14	157,000	Di-n-butylmagnesium	15	1374,200
2,5-Dianilinothepthalic acid	03	640,000	Dibutyl maleate	15	916,000
Diarylenediamines, mixed	09	59,000	2,6-Di-t-butyl-4-nonylphenol	15	53,330
Diatrizeate, sodium	06	564,000	1,1-Di(t-butyl peroxy) cyclohexane	15	50,530
1,4-Diazobicyclo(2,2,2)octane	15	47,000	1,1-Di(t-butyl peroxy) cyclohexane	15	53,340
4-Diazo-2,5-dithoxymorpholinobenzene	14	336,000	Di(sec-butyl)peroxydicarbonate	15	1291,500
Dibenzylidithiocarbamic acid, sodium salt	09	9,000	1,1-Di(t-butyl peroxy)-3,3,5-trimethyl cyclohexane	15	50,540
Dibenzylidithiocarbamic acid, zinc salt	09	10,000	1,1-Di(t-butyl peroxy)-3,3,5-trimethyl cyclohexane	15	53,345
Dibenzylglycerol	15	49,400	2,4-Di-tert-butylphenol	03	667,000
N,N-Dibenzylhydroxylamine	14	476,000	2,6-Di-tert-butylphenol	03	667,250
Dibenzyl oxalate	03	654,500	2,6-Di-tert-butylphenol	03	860,050
p-Dibromobenzene	03	659,000	2,4-Di-tert-butylphenyl 3,5-di-t-butyl hydroxybenzoate	03	846,900
2,3-Dibromobutane	03	659,000	N,N'-Di-sec-butyl-p-phenylenediamine	15	53,500
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled)	15	1212,502	Dibutyl phthalate (including diisobutyl phthalate)	14	180,000
1,2-Dibromo-2,4-dicyanobutane	13	217,000	Dibutyl sebacate	11	25,000
Dibromodifluoromethane	15	438,880	Dibutyltin bis(butylmaleate)	11	112,000
Dibromomethane (Methylene bromide)	15	1260,000	Dibutyltin bis(isooctylmercaptoacetate)	15	1401,100
2,6-Dibromo-4-nitroaniline	15	1213,000	Dibutyltin bis(mercaptolaurate)	15	1401,200
Dibromostyrene	03	660,100	Dibutyltin carboxylates	15	1402,000
1,2-Dibromo-1,1,2,2-tetrafluoroethane	03	662,500	Dibutyltin dichloride	15	1402,100
Dibucaine	15	1261,000	Dibutyltin dilaurate	15	1402,500
p-Dibutoxybenzene (DBB)	06	702,000	Dibutyltin oxide	15	677,500
Di(2-(2-butoxyethoxy)ethyl) adipate	03	665,100	Di-n-butylxantho disulfide	15	1404,000
Dibutoxyethyl adipate	11	59,000	N-(1,2-Dicarboxylethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt	09	152,000
Di(2-butoxyethyl) phthalate	11	59,200	Dicacetyl borate, di-o-tolylguanidine salt	12	177,000
Dibutoxyethyl sebacate	11	24,000	Dichloralphenazone	09	17,000
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate salt (DBB Sulfate)	11	111,900	2,2-Dichloroacetyl chloride	06	467,250
2,5-Dibutoxy-4-morpholinonitrobenzene	03	666,100	3,4-Dichloroaniline	15	507,500
2,6-Di-tert-butyl-alpha-dimethylamino-p-cresol	03	666,200	3,6-Dichloro-2-anisic acid (Dicamba)	03	670,000
Di-n-butylamine	15	262,343	o-Dichlorobenzene	13	50,000
4,4'-Di-sec-butylaminodiphenylmethane	15	262,000	m-Dichlorobenzene	03	677,000
2-Dibutylaminoethanol	14	156,000	p-Dichlorobenzene	03	676,000
Dibutylaminoethanol	15	350,000	3,3'-Dichlorobenzidine base and salts	03	679,000
Dibutylaminomethanol	15	350,500	3,3'-Dichlorobenzonitrile	03	682,000
Dibutyl butylphosphonate	15	1022,000	2,6-Dichlorobenzotrifluoride	13	51,100
Dibutyl-p-cresol	03	666,600	3,3'-Dichloro-4,4'-biphenyl	03	683,150
2,6-Di-tert-butyl-p-cresol	03	865,500	Dichlorodifluoromethane (F-12)	03	684,500
2,6-Di-tert-butyl-p-cresol (BHT, or, Butylated hydroxytoluene)	03	865,500	1,3-Dichloro-5,5-dimethylhydantoin	15	1308,000
2,5-Di-sec-butyldecylhydroquinone	15	51,000	Dichlorodimethylsilane	15	1262,000
Di-t-butyl diperoxy phthalate	09	88,400	1,2-Dichloroethane (Ethylene dichloride)	13	4,000
Di-tert-butyl disulfide	15	50,510	1,3-Dichloro-2,5-dimethoxybenzene (Chloroneb)	15	54,000
Dibutyldithiocarbamic acid, nickel salt	02	92,000	Dichlorodimethylsilane	15	1382,000
Dibutyldithiocarbamic acid, sodium salt	09	128,000	1,2-Dichloroethane (Ethylene dichloride)	15	690,000
Dibutyldithiocarbamic acid, zinc salt	09	130,000	1,3-Dichloro-5-ethyl-5-methyl-2,4-imidazolinedione	15	1233,000
Di-t-butylenediamine	09	130,000	1,1-Dichloro-1-fluoroethane (141b)	15	54,500
Dibutyl hydrogen phosphite	15	267,600	2,6-Dichloro-3-methylaniline	15	1262,500
2,5-Di-tert-butylhydroquinone	15	1023,000	Dichloromethylphenylsilane	03	694,050
	15	53,000		03	696,000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Dichloromethylsilane	15	1383.000	N,N-Didecylmethylamine	12	432.950
Dichloromethylvinylsilane	15	1384.000	2,5-Di-(1,1-dimethylpropyl)hydroquinone	09	89.000
2,6-Dichloro-4-nitroaniline	03	697.000	2,4-Didodecylbenzenesulfonic acid, ammonium salt	12	136.500
2,4-Dichlorophenoxyacetic acid (2,4-D)	13	86.000	Didodecylbenzenesulfonic acid, sodium salt	12	137.000
2,4-Dichlorophenoxyacetic acid, 2-butoxyethyl ester	13	87.000	Diesel fuel additives, acyclic, all other	14	151.000
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	13	90.000	Diesel fuel additives, cyclic, all other	14	152.000
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	13	91.000	Diethanolamine	15	380.000
2,4-Dichlorophenoxyacetic acid, esters and salts, all other	13	99.000	Diethanolamine-borate	15	1368.300
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salts	13	92.000	Diethanolamine condensate, all other	15	555.000
2,4-Dichlorophenoxyacetic acid, iso-octyl ester	13	95.000	Diethanolamine condensates (Amine/acid = 2/1), all other	12	545.000
2,4-Dichlorophenoxyacetic acid, isopropyl ester	13	96.000	Diethanolamine condensates, amine/acid ratio=1/1, all other	12	553.000
2-(2,4-Dichlorophenoxy)propionic acid, dimethylamine salt	13	97.000	Diethanolamine salt of oleic acid	15	353.020
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)	13	118.052	α,α -Diethoxyacetophenone	15	716.200
O-(2,4-Dichlorophenyl)O-ethyl S-propyl phosphorodithioate	13	53.000	2,5-Diethoxy-4-morpholinobenzenediazonium chloride	03	338.000
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)	13	165.013	Diethylaluminum chloride	14	1356.000
2-(3,4-Dichlorophenyl)-4-methyl-1,2,4-oxadiazolidine-3,5-dione (Methazole)	13	54.000	Diethylaluminum iodide	15	1357.000
1-[(2,4-Dichlorophenyl)4-propyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole	13	118.036	Diethylamine	15	277.000
3,6-Dichloropicolinic acid	13	118.065	p-(Diethylamino)benzaldehyde	03	721.000
1,2-Dichloropropane (Propylene dichloride)	15	118.077	p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline zinc chloride)	14	340.000
1,3-Dichloropropane	13	1235.000	2-Diethylaminoethanol (N,N-Diethylethanolamine)	15	355.000
2,3-Dichloropropane	13	238.000	2-(2-Diethylaminoethoxy)ethanol	15	356.000
3,4'-Dichloropropionanilide (Propanil)	15	1236.000	Diethylaminoethylacrylate, dimethyl sulfate, quaternary salt	15	357.100
3,7-Dichloro-8-quinolinic Acid	13	56.000	3-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide	15	357.100
Dichlorotetrafluoroethane (F-114)	13	118.070	2-Diethylaminoethyl methacrylate	03	721.200
Dichloro-trifluoroethane (F-123)	15	1263.000	N-(3-Diethylamino-1,4-methoxyphenyl)acetamide	15	358.000
Dichlorophenamide	06	738.000	3-Diethylamino-6-methyl-7-(2,4-dimethylamino) fluoran o-o-(2-(Diethylamino)-6-methyl (4-pyrimidinyl) o,o-dimethyl phosphorothioate	03	722.600
Dicloxacillin, sodium	06	14.000	N,N-Diethylamine	15	57.280
Dicresylphosphorodithioic acid	06	14.000	2,6-Diethylaniline	13	152.600
Dicresylphosphorodithioic acid, ammonium salt	14	130.000	Diethylbenzene	03	727.000
Dicresylphosphorodithioic acid, sodium salt	14	131.000	Diethylcarbamazine citrate	03	727.200
Dicumyl peroxide	14	132.000	Diethylcarbonate (Ethyl carbonate)	06	729.000
Dicyandiamide resins	15	56.500	N,N-Diethylcyclohexylamine	15	922.000
Dicyanodiamide formaldehyde ammonium chloride polymer	08	4.050	3,5-Diethyl-1,2-dihydro-1-phenyl-2-propylpyridine	15	730.000
Dicyclohexylamine, nitrate salt	14	477.000	N,N'-Diethyl-N,N'-diphenylurea	03	730.600
Dicyclohexylamine	03	712.000	Diethylthiocarbamic acid, cadmium salt and bis(diethylthiocarbamoyl)disulfide, mixture	15	57.400
Dicyclohexyl phthalate	03	712.100	Diethylthiocarbamic acid, sodium salt	09	132.000
Dicyclopentadiene (includes Cyclopentadiene)	11	27.000	Diethylthiocarbamic acid, tellurium salt	09	135.000
Dicyclopentadienyl acrylate	03	714.000	Diethylthiocarbamic acid, zinc salt	09	136.000
Dicyclopentadienylchromium (Chromocene)	15	57.790	Diethylene glycol	09	137.000
Didecyl adipate	15	57.800	Diethylene glycol adipate	15	1153.000
Didecyl dimethylammonium chloride	15	917.000	Diethylene glycol chloroformate	15	1100.800
	12	483.500		15	1102.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Diethylene glycol dibenzoate	11	1,300	1,1-Difluoroethane	15	1264.000
Diethylene glycol dimethylacrylate	15	1103.000	Di-(heptyl, nonyl) phthalate, mixed esters	11	28.925
Diethylene glycol esters, all other	12	615.000	Di-(heptyl, nonyl, undecyl) phthalate, mixed esters	11	28.900
Diethylene glycol monoester of coconut oil acids	12	605.000	Di-n-hexyl adipate	11	60.600
Diethylene glycol monoester of tall oil acids	12	605.800	Di-n-hexyl magnesium	15	1374.500
Diethylene glycol monoester of tallow acids	12	606.000	Dihydrocarvone	07	134.050
Diethylene glycol monolaurate	12	607.000	Dihydrocoumarin	07	29.780
Diethylene glycol mono-oleate	12	608.000	6,11-Dihydrodibenz(b,e)oxepin-11-one	07	740.500
Diethylene glycol mono-n-propyl ether	15	1154.000	2,3-Dihydro-2,2-dimethyl-7-benzofuranyl[(dibutylamino)thio]methyl carbamate	03	740.500
Diethylene glycol monostearate	12	610.000	2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate	13	148.300
Diethylene glycol phthalate	11	27.500	2,3-Dihydro-5,6-dimethyl-1,4-dithiin-1,1,4,4-tetraoxide	13	148.400
Diethylene glycol sesquiester of tall oil acids	12	611.000	2-2-(2,3-Dihydro-1,3-dioxo-1H-inden-2-yl)-(quinolinyl)-6-methylbenzothiazole-7-sulfonic acid	13	168.996
Diethylenetriamine	15	269.800	1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline (Ethoxyquin)	03	752.600
Diethylenetriamine, alkoxylated	12	327.680	Dihydro-2,5-furandione	15	76.600
(Diethylenetriamine)pentamethylenephosphonic acid	14	31.000	Dihydro-2,5-furandione	15	61.600
(Diethylenetriamine)pentamethylenephosphonic acid, sodium salt	14	32.000	Dihydro-2,5-furandione	15	61.600
(Diethylenetriamino)pentacetic acid	14	33.000	Dihydro-2,5-furandione	15	61.600
(Diethylenetriamino)pentacetic acid, pentasodium salt	14	35.000	1,3-Dihydro-4(or 5)-methyl-2H-benzimidazole-2-thione	07	136.500
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate (Disulfoton)	13	218.000	Dihydro myrcenol	09	41.450
Di(2-ethylhexyl) adipate	11	60.000	Dihydrondicyclopentadienyl acetate (Cyclacet)	07	134.100
Di-2-ethylhexylamine	15	271.000	Dihydrondicyclopentadienyl propionate (Cyclaprop)	07	95.330
Di(2-ethylhexyl) azelate	11	67.000	(Verdy propionate extra)	07	95.470
Di(2-ethyl-1-hexyl) maleate	15	928.000	Dihydro pentamethyl indanone	07	134.200
Di(2-ethylhexyl) peroxycarbonate	15	1292.000	2,5-Dihydroperoxy-2,5-dimethylhexane	07	1293.530
Diethylhexyl phosphoric acid	15	1024.200	1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide) (MH)	15	1293.530
Di-2-ethylhexylphosphorodithioic acid	14	233.000	Dihydrostreptomycin	13	168.300
Di(2-ethylhexyl) phthalate	11	34.000	Dihydro terpineol	06	6.000
Di(2-ethylhexyl) sebacate	11	113.000	Dihydro terpineol	07	95.490
Diethyl isophthalate	15	360.000	Dihydroterpinyl acetate	07	166.367
Diethyl maleate	11	27.900	1,2-Dihydro-2,2,4-trimethylquinoline	15	58.000
Diethyl oxalate (Ethyl oxalate)	15	930.000	Dihydroxyaluminum aminoacetate	09	69.000
Diethyl phosphorochloridothionate	15	934.000	2,4-Dihydroxybenzaldehyde	06	620.000
Diethyl phthalate	15	1027.000	Di(hydroxy)bis(ammoniumlactato)titanium	03	768.200
Diethyl sebacate	11	28.000	N,N-di(hydroxyethyl)-n-carboxymethyl tallow ammonium quat inner salt	15	1059.500
Diethyl succinate	07	133.000	N,N-Dihydroxyethylglycine, sodium salt	12	10.320
Diethyl sulfide (Ethyl sulfide)	07	134.000	N,N-Dihydroxyethyl tallow glycinate	14	39.000
1,3-Diethyl-2-thiourea	02	92.810	N,N-Dihydroxyethyl tallow glycinate	12	10.325
N,N-Diethyltoluamide (DEET)	15	361.000	1,3-Dihydroxymethyl-5,5-dimethyl-2,4-imidazolinedione	15	62.030
3,5-Diethyltoluene-2,4-diamine	13	148.000	4,4-Dihydroxymethyl-2-oxazoline	15	62.050
N,N-Diethyl-m-toluidine	03	828.500	6,7-Dihydroxy-2-naphthalenesulfonic acid	15	774.000
N,N-Diethyl-p-toluidine	03	739.000	m-Diiodobenzene	03	777.000
N,O-Diethyl-O-3,5,6-trichloro-2-pyridyl phosphorothioate	13	156.100	Diiodomethyl-p-tolylsulfone	15	72.500
3,9-Diethyl-6-tridecyl sulfate, sodium salt	12	242.000	Diisobutyl adipate	11	61.000
Diethylzinc	15	1408.000	Diisobutylaluminum chloride	15	1358.000
Difforasonone diacetate	06	655.400	Diisobutylaluminum hydride	15	1359.100
Diffunisal	06	385.500	Diisobutylaluminum oxide	15	1359.100

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Diisobutyl dimethoxychloro silane	15	1385.200	O,S-Dimethylacetylphosphorimidithioate (Acephate)	13	222.500
Di-isobutylene (Di-isobutene)	02	74.000	Dimethyl adipate	11	63.225
Di-isobutylene maleate	12	707.000	N,N-Dimethyl-N-alkylamine phosphate	12	393.200
Diisobutylphenol, ethoxylated	12	742.900	Dimethylamine	15	288.000
Diisodecyl adipate	11	62.000	Dimethylamine epichlorohydrin copolymer	15	364.750
Diisodecyl phthalate	11	30.000	Dimethylamine epichlorohydrin ethylenediamine copolymer	14	417.000
Diisononyl adipate	11	62.500	p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylamine zinc chloride)	14	346.000
Diisononyl phthalate	11	30.100	2-(4-(Dimethylamino)benzoyl)benzoic acid	03	796.500
Diiso-octyl adipate	11	63.000	2-Dimethylaminoethanol (N,N-Dimethylethanolamine)	15	366.000
Diiso-octyl phthalate	11	35.000	Dimethylaminoethyl acrylate	15	367.000
Diisopropanolamine	15	408.000	Dimethylaminoethyl acrylate, dimethyl sulfate, quaternary salt	15	367.800
Diisopropyl adipate	11	63.200	Dimethylaminoethylacrylate, methyl chloride, quaternary salt	15	367.900
Diisopropylamine	15	286.000	Dimethylaminoethyl chloride	15	367.930
2-Diisopropylaminoethanol (N,N-Diisopropylethanolamine)	15	362.000	Dimethylaminoethyl methacrylate	15	368.000
Diisopropylbenzene	15	63.990	Dimethylaminoethyl methacrylate, dimethyl sulfate, quaternary salt	15	368.200
1,4-Diisopropylbenzene	15	63.800	Dimethylaminoethylmethacrylate, methyl chloride, quaternary salt	15	369.000
Diisopropyl dimerate	15	968.980	Dimethylaminomethanol	15	369.500
Diisopropyl hydrogen phosphite	14	272.000	1-(Dimethylamino)-2-propanol	15	369.700
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	15	817.000	Dimethylaminopropylamine	15	274.000
Diisopropyl/naphthalene sulf. acid amine salts	15	166.500	Dimethylaminopropyl chloride	15	370.000
Diisopropyl/naphthalenesulfonic acid, sodium salt	12	778.300	Dimethylaminopropyl methacrylamide	15	236.780
2,6-Diisopropylphenol	15	778.200	Dimethylammonium hydrogen isophthalate	09	41.725
2,6-Diisopropyl-4-phenoxylaniline	12	166.000	N,N-Dimethylaniline	03	805.000
N,N'-Diisopropyl-p-phenylenediamine	03	778.300	N,N-Dimethylbenzylamine	03	809.000
S-(O,O-Diisopropyl phosphorodithioate) ester of N-(a-mercaptoethyl)benzenesulfonamide (Bensulide)	14	181.000	1,1'-Dimethyl-4,4'-bipyridinium dichloride	13	118.049
Diisopropyl sebacate	13	58.000	2,2-Dimethylbutanol (isoheptyl alcohol)	15	851.700
Diisostearyl dimerate	11	114.100	3,3-Dimethylbutene	15	1337.400
Diketene	15	968.985	N-(1,3-Dimethylbutyl)-N-phenyl-1,4-benzenediamine	03	812.500
Dilauryl-3,3'-thiodipropionate	15	104.620	N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine	09	59.310
Dimenhydrinate	06	80.000	N,N-Dimethyl capramide	12	40.350
Dimer acid (C ₃₆ aliphatic dibasic acid)	15	509.000	Dimethyl carbonate	15	941.000
Dimeracetalalkyl amine	12	419.300	N,N-Dimethyl(coconut oil alkyl)amine	12	433.000
N-(Dimeracetalalkyl)trimethylenediamine	12	407.700	Dimethyl-1,4-cyclohexanedicarboxylate	03	811.500
Dimer diamine	12	407.710	Dimethyl cyclohexane methanol	07	95.580
Dimethindene maleate	06	94.000	b,4-Dimethyl-3-cyclohexene-1-propanal	07	30.501
2,5-Dimethoxyaniline, ethoxylated	12	342.250	N,N-Dimethylcyclohexylamine	03	813.000
2,5-Dimethoxybenzaldehyde	03	783.000	Dimethylididecylamine oxide	12	327.800
m-Dimethoxybenzene	03	784.000	Dimethylididecylamine oxide (mixed straight and branched chains)	12	485.780
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	15	67.000	2,5-Dimethyl-2,5-dif(tert-butylperoxy)hexane	15	1295.000
3,3'-Dimethoxybenzidine hydrochloride	03	787.000	2,5-Dimethyl-2,5-dif(tert-butylperoxy)hexyne-3	15	1296.000
Dimethoxyethane (Ethylene glycol dimethyl ether)	15	1155.000	O,O-Dimethyl-O-2,2-dichlorovinyl phosphate (DDVP)	13	223.000
1,1-Dimethoxy octane	07	129.690	2,5-Dimethyl-2,5-dif(2-ethylhexanoyl peroxy)hexane	15	1294.000
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide	13	222.000			
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrole)	07	30.000			
N,N-Dimethylacetamide	15	236.500			
N,N-Dimethylacetamide	15	236.500			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
2,5-Dimethyl-2,5-dihydroperoxy) hexane	15	1296.050	3,7-Dimethyl-2,6-octadien-1-oxime	15	374.200
5,6-Dimethyl-2-dimethylamino-4-pyrimidinyl dimethyl carbamate	13	166.026	3,7-Dimethyl-1,6-octadien-3-yl formate	07	30.900
Dimethyldioctadecylammonium chloride	12	486.000	3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate)	07	139.000
Dimethyl disulfide	15	1299.100	3,7-Dimethyl-2,6-octadienyl phenylacetate (Geranyl phenylacetate)	07	31.000
Dimethyldithiocarbamic acid, bismuth salt	09	138.000	3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate)	07	140.000
Dimethyldithiocarbamic acid, copper salt	09	139.000	3,7-Dimethyl-2,6-octadien-1 (Tetrahydrogeraniol)	07	140.450
Dimethyldithiocarbamic acid, lead salt	09	140.000	3,7-Dimethyl-3-octanol	07	140.500
Dimethyldithiocarbamic acid, potassium salt	13	181.100	Dimethyloctanyl acetate	07	141.000
Dimethyldithiocarbamic acid, potassium salt	09	174.000	3,7-Dimethyl-6-octen-1-ol (Citronellal)	07	142.000
Dimethyldithiocarbamic acid, selenium salt	09	141.000	3,7-Dimethyl-6-octen-1-ol (Citronellol)	07	142.100
Dimethyldithiocarbamic acid, sodium salt	09	175.000	3,7-Dimethyl-7-octenol 70%, 6-octenol isomer 30%	07	374.100
Dimethyldithiocarbamic acid, zinc salt	12	434.000	3,7-Dimethyl-6-octen-1-oxime	15	479.000
N,N-Dimethyldodecylamine	12	327.910	Dimethyloldihydroxyethylene urea	14	67.900
N,N-Dimethyldodecylamine oxide	15	275.100	4,4-Dimethyl oxazolene	15	95.635
N,N-Dimethylethylamine	15	237.000	Dimethyl-3-oxo-2-pentylcyclopentane propanedioate	07	
N,N-Dimethylformamide	07	95.610	N,N'-Dimethyl-3,4,9,10-perylene-tetracarboxylic acid 3,4,9,10-diimide	03	821.500
2,6-Dimethylheptan-2-ol	12	435.000	α,α -Dimethylphenethyl acetate	07	32.000
N,N-Dimethylhexadecylamine	12	328.000	1,2-Di-(3-methylphenoxy ethane)	15	68.210
N,N-Dimethylhexadecylamine oxide	12	328.000	N,N-Dimethylphenyl urea	15	68.220
Dimethyl hexanedio	07	134.600	O,S-Dimethyl phosphoramidothioate	13	229.012
Dimethylhexanoic acid, calcium carbonate salt	15	622.500	Dimethyl phthalate	11	32.000
2,5-Dimethyl-3-hexyne-2,5-diol	07	134.650	Dimethyl piperazine	15	68.250
5,5-Dimethylhydantoin	03	816.000	3,5-Dimethylpiperidine	03	825.500
N,N-Dimethyl(hydrogenated tallow alkyl)amine	12	436.000	1,1-Dimethylpiperidinium chloride	13	168.350
Dimethyl hydrogen phosphite	15	1028.000	N,N-Dimethyl-1,3-propanediamine polymer with epichlorohydrin, sulfate	14	160.000
1,1-Dimethyl-3-hydroxybutyl-peroxyneheptanoate	15	1296.090	2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	15	1080.000
1,1-Dimethyl-3-hydroxybutyl-peroxynehexanoate	15	1296.100	Dimethyl propionic acid	15	494.502
Dimethyl isophthalate	11	31.500	Dimethyl sebacate	11	114.900
Dimethyl isopropanolamine	15	408.100	N,N-Dimethyl(soybean oil alkyl)amine	12	439.000
Dimethyl methylphosphonate	15	1029.000	Dimethyl sulfide	15	1299.200
N,N-Dimethyl(mixed alkyl)amine	12	437.000	Dimethyl sulfide	02	92.820
N,N-Dimethyl(mixed alkyl)amine oxide	12	328.100	Dimethyl sulfone	15	1309.150
2,6-Dimethylnaphthalene	03	819.750	Dimethyl sulfone	13	62.000
N,N-Dimethyl(9-octadecenyl-alkyl)amine	12	437.500	Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)	12	440.000
N,N-Dimethyloctadecenylamine	12	433.450	N,N-Dimethyltetradecylamine	12	1404.200
N,N-Dimethyloctadecylamine	12	438.000	Dimethyltin dichloride	15	1404.210
3,7-Dimethyl-cis-2,6-octadienal (Citral B) (Neral)	07	134.800	Dimethyltin-10TG	15	1404.210
3,7-Dimethyl-trans-2,6-octadienal (Citral Ageranial)	07	134.850	N,N-Dimethyl-o-toluidine	03	827.800
3,7-Dimethyl-2,6-octadienal (Citral a b)	07	134.900	N,N-Dimethyl-m-toluidine	03	828.200
3,7-Dimethyl-2,6-octadienenitrile	07	140.350	N,N-Dimethyl-p-toluidine	03	828.000
3,7-Dimethyl-cis-2,6-octadien-1-ol (Neral)	07	135.000	O,O-DimethylO-(2,4,5-trichlorophenyl)phosphorothioate (Ronnel)	13	161.000
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)	07	138.000	Dimorpholine diethyl ether	15	68.279
3,7-Dimethyl-1,6-octadien-3-ol (Linalool) (Linalyl alcohol)	07	136.000	N,N'-Di-2-naphthyl-p-phenylenediamine	09	61.000
3,7-Dimethyl-cis-2,6-octadienol, acetate (Neryl acetate)	07	135.100			
3,7-Dimethyl-1,6-octadien-3-ol,acetate (Linalyl acetate)	07	137.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Dinitolide	06	171.000	N,N'-Diphenyl-p-phenylenediamine	09	62.000
3,5-Dinitro-N ⁴ ,N ⁴ -dipropylsulfanilamide	03	841.500	Diphenyl phthalate	11	38.000
2,4-Dinitroacetanilide	03	828.100	Diphenyl phthalate	03	857.400
m-Dinitrobenzene	03	834.000	Diphenylpyraline hydrochloride	06	95.500
2,4-Dinitrobenzenesulfonic acid, sodium salt	03	835.000	1,3-Di-4-piperidylpropane	03	858.313
3,5-Dinitrobenzoic acid	03	836.000	Dipropylol dibenzoate (Dipropylene glycol dibenzoate)	11	4.000
2,6-Dinitro-N,N-dipropyl curmidine	13	118.038	Di-n-propylaluminum chloride	15	1359.400
2,6-Dinitro-4-isopropylphenol	03	839.300	Dipropylamine	15	300.000
3,5-Dinitrosalicylic acid, methyl ester	03	842.800	Dipropylene glycol	15	1187.280
p-Dinitrosobenzene	03	844.000	Dipropylene glycol monomethyl ether acetate	15	1187.280
2,4-Dinitrotoluene	03	845.000	Dipropylene glycol monomethyl ether (3-(3	15	1104.500
2,4-(and 2,6)-Dinitrotoluene	03	845.000	Methoxypropoxy)propanol)	15	1187.300
Di(nonyl, decyl, undecyl) phthalate, mixed esters	11	33.250	Dipropylene glycol salicylate	15	74.000
Dinonylphenol	03	846.700	Di-n-propylisocinchomeronate	13	148.500
Dinonylphenol, ethoxylated	12	743.000	Di-n-propyl peroxydicarbonate	15	1296.300
Dinonylphenol, ethoxylated and phosphated	12	76.300	Direct Black 22	04	613.000
Dinonyl phthalate	11	33.000	Direct Black 80	04	623.000
Dinoprostone	06	679.200	Direct Black 163	04	623.163
Di-n-octyl adipate	11	63.300	Direct Black 165	04	623.165
Di-tert-octyl hydroquinone	15	71.200	Direct Black 170	04	623.170
Diocyl maleate	15	947.000	Direct Black 179	04	623.179
Diocyl phthalates, all other	11	37.000	Direct black dyes, all other	04	625.000
Dioxane (1,4-Diethylene oxide)	15	72.000	Direct Blue 14	04	538.000
Dioxolanone	15	73.050	Direct Blue 15	04	539.000
1,4-Dioxocycloheptadiene	15	73.100	Direct Blue 25	04	542.000
2,4-Dioxypyrimidine (Uracyl)	15	375.500	Direct Blue 75	04	547.000
Di-para-benzoquinone dioxime	03	847.100	Direct Blue 76	04	548.000
Di-N,N'-pentamethylenethiuram tetrasulfide	09	42.000	Direct Blue 80	04	550.000
Dipentylamine	15	295.000	Direct Blue 86	04	552.000
2,4-Di-tert-pentylphenol	03	847.000	Direct Blue 98	04	555.000
Diphenhydramine citrate	06	115.002	Direct Blue 100	04	557.108
Diphenhydramine hydrochloride	06	95.000	Direct Blue 108	04	564.000
Diphenidol	06	80.400	Direct Blue 160	04	565.000
Diphenidol hydrochloride	06	80.500	Direct Blue 189	04	566.000
1,2-Diphenoxyethane	15	73.200	Direct Blue 191	04	567.000
Diphenoxylate	06	620.300	Direct Blue 199	04	568.000
2-Diphenylacetyl-1,3-indandione and sodium salt	13	171.010	Direct Blue 218	04	569.261
Diphenylamine	03	853.000	Direct Blue 261	04	570.269
Diphenylamine-acetone aldehyde	09	52.700	Direct Blue 269	04	570.273
Diphenylamine-acetone condensate	09	53.000	Direct Blue 273	04	570.279
9,10-Diphenylanthracene	03	854.500	Direct Blue 279	04	570.281
Diphenyl-t-butylhexyl phosphite	15	73.220	Direct Blue 281	04	570.283
Diphenyl carbonate	15	73.230	Direct Blue 283	04	570.285
Diphenyl-4,4'-diphenylmethylenedicarbamate	09	124.350	Direct Blue 285	04	570.286
Diphenylidisulfide	03	855.250	Direct Blue 286	04	571.000
Diphenylisocetyl phosphite	15	73.300	Direct blue dyes, all other	04	597.000
Diphenylisocetyl phosphite	15	73.340	Direct Brown 44	04	605.000
Diphenylmethane-4,4'-diisocyanate (MDI)	03	1020.000	Direct Brown 154	04	

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Direct brown dyes, all other	04	607.000	Direct Yellow 127	04	453.000
Direct Green 92	04	586.092	Direct Yellow 131	04	454.000
Direct green dyes, all other	04	587.000	Direct Yellow 132	04	454.132
Direct Orange 15	04	461.000	Direct Yellow 133	04	454.133
Direct Orange 26	04	462.000	Direct Yellow 137	04	454.137
Direct Orange 34	04	464.000	Direct Yellow 147	04	454.147
Direct Orange 39	04	466.000	Direct Yellow 148	04	454.148
Direct Orange 72	04	470.000	Direct yellow dyes, all other	04	455.000
Direct Orange 80	04	475.000	N,N'-Disalcylidene-1,2-propanediamine	14	161.000
Direct Orange 102	04	479.000	Disodium cyanodithioimidocarbonate	13	179.000
Direct Orange 118	04	479.118	Disopyramide phosphate	06	378.500
Direct orange dyes, all other	04	480.000	Disperse Black 9	04	751.000
Direct Red 2	04	482.000	Disperse black dyes, all other	04	753.000
Direct Red 9	04	483.009	Disperse Blue 1	04	715.000
Direct Red 16	04	488.000	Disperse Blue 3	04	716.000
Direct Red 24	04	491.000	Disperse Blue 14	04	718.014
Direct Red 26	04	492.000	Disperse Blue 27	04	719.000
Direct Red 72	04	499.000	Disperse Blue 56	04	722.000
Direct Red 73	04	500.000	Disperse Blue 60	04	723.000
Direct Red 79	04	503.000	Disperse Blue 62	04	725.000
Direct Red 80	04	504.000	Disperse Blue 64	04	727.000
Direct Red 81	04	505.000	Disperse Blue 73	04	729.000
Direct Red 83	04	506.000	Disperse Blue 79	04	731.000
Direct Red 224	04	521.224	Disperse Blue 95	04	734.000
Direct Red 227	04	521.227	Disperse Blue 102	04	735.000
Direct Red 236	04	521.236	Disperse Blue 118	04	739.000
Direct Red 238	04	521.238	Disperse Blue 148	04	742.148
Direct Red 239	04	521.239	Disperse Blue 175	04	743.175
Direct Red 254	04	521.254	Disperse Blue 183	04	743.183
Direct Red 263	04	521.263	Disperse Blue 200	04	743.200
Direct red dyes, all other	04	522.000	Disperse Blue 281	04	743.281
Direct Violet 9	04	525.000	Disperse Blue 284	04	743.284
Direct Violet 35	04	527.035	Disperse Blue 291	04	743.291
Direct Violet 66	04	531.000	Disperse Blue 333	04	743.333
Direct Violet 99	04	532.099	Disperse Blue 337	04	743.337
Direct Violet 195	04	532.104	Disperse Blue 359	04	743.359
Direct violet dyes, all other	04	533.000	Disperse blue dyes, all other	04	744.000
Direct Yellow 4	04	421.000	Disperse Brown 1	04	746.000
Direct Yellow 5	04	422.000	Disperse Brown 18	04	747.018
Direct Yellow 6	04	423.000	Disperse Brown 22	04	747.022
Direct Yellow 11	04	427.000	Disperse Brown 26	04	747.026
Direct Yellow 34	04	435.000	Disperse Brown 27	04	747.027
Direct Yellow 44	04	438.000	Disperse Green 9	04	745.009
Direct Yellow 51	04	439.051	Disperse Orange 3	04	653.000
Direct Yellow 105	04	445.000	Disperse Orange 25 and 25:1	04	658.000
Direct Yellow 106	04	446.000	Disperse Orange 29	04	659.000
Direct Yellow 107	04	447.000	Disperse Orange 30	04	660.000
Direct Yellow 118	04	450.000	Disperse Orange 37	04	661.000
Direct Yellow 119	04	451.000	Disperse Orange 41	04	662.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Disperse Orange 44 and 44:1	04	663.000	Disperse Violet 33	04	710.033
Disperse Orange 73	04	667.073	Disperse Violet 36	04	710.036
Disperse Orange 89	04	668.089	Disperse Violet 48	04	713.048
Disperse Orange 138	04	668.138	Disperse Violet 60	04	713.060
Disperse Orange 153	04	668.153	Disperse violet dyes, all other	04	714.000
Disperse Red 1	04	670.000	Disperse Yellow 3	04	628.000
Disperse Red 5	04	672.000	Disperse Yellow 23	04	631.000
Disperse Red 9	04	674.000	Disperse Yellow 34	04	635.000
Disperse Red 13	04	676.000	Disperse Yellow 42	04	636.000
Disperse Red 17	04	678.000	Disperse Yellow 54	04	638.000
Disperse Red 30	04	680.000	Disperse Yellow 64	04	639.064
Disperse Red 50	04	683.000	Disperse Yellow 77	04	642.000
Disperse Red 55	04	684.000	Disperse Yellow 86	04	644.000
Disperse Red 60	04	686.000	Disperse Yellow 88	04	646.000
Disperse Red 65	04	687.000	Disperse Yellow 108	04	650.108
Disperse Red 73	04	688.000	Disperse Yellow 114	04	650.114
Disperse Red 74	04	688.074	Disperse Yellow 126	04	651.126
Disperse Red 86	04	690.000	Disperse Yellow 198	04	651.198
Disperse Red 88	04	691.000	Disperse Yellow 219	04	651.219
Disperse Red 91	04	692.091	Disperse Yellow 238	04	651.238
Disperse Red 117	04	694.000	Disperse Yellow 239	04	651.239
Disperse Red 135	04	695.135	Disperse yellow dyes, all other	04	652.000
Disperse Red 136	04	696.000	Distearyl(dimethyl ammonium methosulfate	12	456.550
Disperse Red 137	04	697.000	Distearyl-3,3'-thiodipropionate	15	949.000
Disperse Red 145	04	699.145	Distinnaxane, hexakis(2-methyl-2-phenylpropyl)	13	166.011
Disperse Red 153	04	699.153	Disulfuram	06	832.000
Disperse Red 159	04	700.000	N,N'-(Di-tall oil acid)amidoethylamine	12	385.500
Disperse Red 167 and 167:1	04	700.167	Di-(tertiary nonyl polysulfide	14	257.000
Disperse Red 177	04	701.000	Di-(tetrahydrofuryl)propane	15	74.050
Disperse Red 179	04	702.000	2,2'-Dithiobis(benzothiazole)	09	29.000
Disperse Red 273	04	703.273	Dithiobis(stearyl propionate)	15	950.000
Disperse Red 274	04	703.274	Dithiocarbamic acid derivatives, acyclic, other	09	144.000
Disperse Red 278	04	703.278	Dithiocarbamic acid derivatives, cyclic, other	09	16.000
Disperse Red 305	04	703.305	Dithiocarbamic acid fungicides, acyclic, all other	13	187.000
Disperse Red 307	04	703.307	Dithiodiglycolic acid	15	513.080
Disperse Red 311	04	703.311	4,4'-Dithiodimorpholine	09	43.000
Disperse Red 313	04	703.313	Dithiodipropionic acid	15	513.100
Disperse Red 316	04	703.316	2,5-Di-p-toluidinoterephthalic acid	03	865.100
Disperse Red 325	04	703.325	Di-tridecyl adipate	11	63.400
Disperse Red 333	04	703.333	Ditridecyl maleate	15	951.000
Disperse Red 338	04	703.338	Di-tridecyl phthalate	11	39.000
Disperse Red 339	04	703.339	Di(tridecyl)-3,3'-thiodipropionate	15	952.000
Disperse Red 340	04	703.340	Diundecyl phthalate	11	39.300
Disperse Red 345	04	703.345	1,5-dureidonaphthalene	03	865.800
Disperse Red 358	04	703.358	Divinylbenzene	15	1385.400
Disperse red dyes, all other	04	704.000	Divinyltetramethyldisilazane	03	866.000
Disperse Violet 1	04	705.000	Divinyl tetramethyldisiloxane	15	1385.500
Disperse Violet 17	04	707.017	1,1-Di-3,4-xylethane	03	1553.200
Disperse Violet 28	04	710.000	Dobutamine	06	326.200

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Docosanyl docosanoate	15	969.050	Dodecyl sulfate, ammonium salt	12	221.000
Docosate, potassium	06	591.720	Dodecyl sulfate, diethanolamine salt	12	222.000
Docosate, sodium	06	591.740	Dodecyl sulfate, N,N-diethylcyclohexylamine salt	12	223.000
n-Dodecane	15	1338.000	Dodecyl sulfate, magnesium salt	12	225.000
Dodecanedioic acid	15	514.000	Dodecyl sulfate, sodium salt	12	227.000
Dodecanoic acid (Lauric acid)	15	515.000	Dodecyl sulfate, triethanolamine salt	12	228.000
Dodecene	02	78.000	Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt	12	273.000
Dodecylsuccinic anhydride	15	165.600	Dodecyltrimethylammonium bromide	12	488.000
Dodecyl alcohol (Lauryl alcohol)	15	872.000	Dodecyltrimethylammonium chloride	12	489.000
Dodecyl alcohol, ethoxylated	12	729.000	Doxapram hydrochloride	06	550.001
Dodecyl alcohol, ethoxylated and phosphated	12	77.000	Doxepin hydrochloride	06	527.000
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	12	270.000	Drug And Cosmetic Red 57:1	04	818.057
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	12	271.000	Drug And Cosmetic Red 101	04	818.101
Dodecylamine	12	420.000	Drug And Cosmetic Green 5	04	793.000
Dodecylbenzene, other	03	870.000	Drug and Cosmetic Orange 5	04	798.000
Dodecylbenzene, straight-chain	03	869.000	Drug and Cosmetic Red 6	04	800.000
Dodecylbenzene sulfonates, all other	12	128.000	Drug and Cosmetic Red 7	04	801.000
Dodecylbenzenesulfonic acid	12	114.000	Drug and Cosmetic Red 17	04	807.000
Dodecylbenzenesulfonic acid, (Mixed alkyl)amine salt	12	122.000	Drug and Cosmetic Red 21	04	809.000
Dodecylbenzenesulfonic acid, ammonium salt	12	115.000	Drug and Cosmetic Red 22	04	810.000
Dodecylbenzenesulfonic acid, calcium salt	12	117.000	Drug and Cosmetic Red 27	04	811.000
Dodecylbenzenesulfonic acid, diethanolamine salt	12	118.000	Drug and Cosmetic Red 30	04	813.000
Dodecylbenzenesulfonic acid, DMAP salt	12	118.500	Drug and Cosmetic Red 33	04	815.000
Dodecylbenzenesulfonic acid, isopropanolamine salt	12	120.000	Drug and Cosmetic Red 34	04	816.000
Dodecylbenzenesulfonic acid, isopropylamine salt	12	121.000	Drug and Cosmetic Red 36	04	817.000
Dodecylbenzenesulfonic acid, monoethanolamine salt	12	564.060	Drug and Cosmetic Yellow 5	04	820.000
Dodecylbenzenesulfonic acid, monoethanolamine condensate	12	122.500	Drug and Cosmetic Yellow 8	04	822.008
Dodecylbenzenesulfonic acid, potassium salt	12	123.000	Drug and Cosmetic Yellow 10	04	823.000
Dodecylbenzenesulfonic acid, sodium salt	12	125.000	Edrophonium chloride	06	575.700
Dodecylbenzenesulfonic acid, triethanolamine salt	12	127.000	Eicosyl alcohol (Arachidyl alcohol i.e., 20-carbon)	15	872.500
n-Dodecyl chloride	15	1233.500	Enalapril maleate	06	360.100
N-Dodecyl-N-dimethylamine	15	276.600	Enflurane	06	436.500
Dodecylidiphenyl oxide	03	870.600	Epichlorohydrin	15	1310.000
Dodecylidiphenyloxidedisulfonic acid	12	205.990	Epichlorohydrin bisphenol A, ethoxylated	15	744.500
Dodecylidiphenyloxidedisulfonic acid, disodium salt	12	206.000	Epichlorohydrin elastomers (CO, ECO) type	10	1.000
n-Dodecylguanidine acetate (Dodine)	13	188.000	Epoxydes, ethers, acetals, all other	15	1325.000
N-Dodecyl-3-iminodipropionic acid, disodium salt	12	11.000	Epoxydized esters, all other	11	80.000
N-Dodecyl-3-imino-dipropionic acid, monosodium salt	12	11.020	Epoxydized linseed oils	11	75.400
tert-Dodecyl mercaptan, ethoxylated	12	759.000	Epoxydized pentaerythritol tetraphthalate	11	75.800
n-Dodecyl mercaptans	09	171.000	Epoxydized soya oils	11	76.000
Dodecylpoly(ethyleneoxy)acetic acid, sodium salt	12	40.400	Epoxy resins, advanced	08	6.000
Dodecylpentadecyl methacrylate	15	952.700	Epoxy resins, unmodified	08	5.000
p-Dodecylphenol	03	873.000	Ergocalciferol (vitamin D ₂)	06	813.000
Dodecylphenol, ethoxylated	12	744.000	Erucamide	15	238.000
Dodecylphenol, ethoxylated and phosphated	12	79.000	[Erucyl alkyl]amine	12	420.500
Dodecylphenol, sulfurized, calcium salt	14	228.000	Erythromycin	06	46.000
Dodecyl pyridinium chloride	15	74.460	Erythromycin estolate	06	46.500
1-Dodecylpyridinium chloride	12	526.000	Esters of sulfated oleic acid, all other	12	263.000
Dodecylsuccinic anhydride	15	165.620			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Ester tin mercaptoesters	15	1404.500	Ethoxylated(hydrogenated tallow amine), methyl ammonium chloride	12	458.100
Estradiol cypionate	06	674.500	Ethoxylated 1,2-propanediol monostearate	12	711.000
Estrogens, all other	06	679.000	Ethoxylated, quaternized(C ₁₂₋₁₈ alkyl) oxypropyl trimethylene diamine	12	458.200
Estrogens, conjugated	06	675.000	Ethoxylated, quaternized reaction product of formaldehyde and tallow diamine	12	458.250
Estrogens, esterified	06	676.000	Ethoxylated sorbitol beeswax ester	12	625.000
Ethacrynic acid	06	739.000	Ethoxylated sorbitol hexaester of tall oil acids	12	627.000
1,2-Ethanediamine,N-(2-aminoethyl)-, ethoxylated and propoxylated	12	328.437	Ethoxylated sorbitol hexaoleate	12	628.000
1,2-Ethanediamine,N,N'-bis(2-aminoethyl)-, polymer with methyloxirane and oxirane	12	691.932	Ethoxylated sorbitol lanolin ester	12	630.000
1,2-Ethanediamine,N,N'-bis(2-aminoethyl)-, polymer with methyloxirane	12	691.930	Ethoxylated sorbitol mono-oleate	12	630.000
1,2-Ethanediol phosphate	12	96.600	Ethoxylated sorbitol monopalmitate	12	630.050
Ethanolamine condensates, amine/acid ratio = 1/1, all other	12	566.000	Ethoxylated sorbitol monostearate	12	631.000
Ethanolamine condensates, amine/acid ratio = 2/1, all other	12	563.000	Ethoxylated sorbitol pentaoleate	12	631.500
Ethanolamine condensates, amine/acid ratio = 2/1, all other	14	43.000	Ethoxylated sorbitol tetraester of lauric and oleic acids	12	633.000
Ethanolglycine, disodium salt	12	96.620	Ethoxylated sorbitol tetraester of tall oil acids	12	635.000
Ethanol, 2,2',2''-nitrotris-tris(dihydrogen phosphate) ester, disodium salt	03	873.600	Ethoxylated sorbitol tetraoleate	12	636.000
2-Ethanolpyridine	03	873.700	Ethoxylated sorbitol tetraurate	12	636.400
5-Ethoxy-3-trichloromethyl-1,2,4-thiadiazole	06	468.000	2-Ethoxynaphthalene	07	35.000
Ethchlorvynol	12	775.000	3-Ethoxypropionitrile	15	440.000
Ethers and thioethers, all other	03	873.800	5-Ethoxy-3-(trichloromethyl)-1,2,4-thiadiazole	13	40.010
Ethisterone	06	172.000	Ethyl acetate (85%)	15	954.000
Ethopabate	06	419.000	Ethyl acetate (100% basis)	15	954.001
Ethosuximide	06	420.000	Ethyl acetoacetate	15	955.000
Ethotoin	06	76.500	Ethyl acrylate	15	956.000
6-Ethoxy-12-dihydro-2,4-trimethyl quinoline	15	1159.000	Ethyl acrylate methacrylic acid copolymer	14	419.000
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	15	1160.000	Ethyl alcohol, phosphated, amine salt	12	96.700
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	15	1160.000	Ethyl alcohol, synthetic	15	853.000
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	15	1161.000	Ethylaluminum dichloride	15	1360.000
2-(2-Ethoxyethoxy)ethyl acetate	15	1105.000	Ethylaluminum sesquichloride	15	1361.000
2-Ethoxyethyl acetate	15	953.000	Ethylamine, mono-	15	278.000
Ethoxylated anhydrosorbitol esters, all other	12	624.000	2-Ethylaminoethanol (Ethylmonoethanolamine)	15	385.000
Ethoxylated anhydrosorbitol monooleate	12	616.000	2-(Ethylamino)-4-(isopropylamino)-6-(methylthio)-s-triazine (Ametryne)	13	69.000
Ethoxylated anhydrosorbitol monopalmitate	12	617.000	o-Ethylaniline	03	882.500
Ethoxylated anhydrosorbitol monostearate	12	618.000	N-Ethylaniline, refined	03	883.000
Ethoxylated anhydrosorbitol trioleate	12	619.000	2-(N-Ethylamino)ethanol	03	884.000
Ethoxylated anhydrosorbitol tristearate	12	622.000	3-(N-Ethylamino)propanitrile	03	886.000
Ethoxylated 1,3-butylene glycol condensed with oil fatty acid	12	623.000	Ethyl anthranilate	07	35.800
Ethoxylated 1,3-butylene glycol stearate	12	707.820	Ethylbenzene	03	892.000
Ethoxylated glycerol and propylene glycol esters of coco fatty acids	12	708.780	(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride	12	527.000
Ethoxylated glycerol sesquiester of mixed fatty acids	12	709.000	N-Ethyl-N,N-bis(polyoxyethylene)tallow ammonium ethyl sulfate	12	458.850
			Ethyl butyrate	07	144.000
			Ethyl cellulose	08	21.030
			Ethyl chloride (Chloroethane)	15	1223.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Ethyl chloroformate	15	959.000	(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	14	62.000
Ethyl 2-(4-chloro-6-methoxy-pyrimidin-2-yl) amino carbonyl amino sulfonyl benzoate (Chlorimuron ethyl)	13	69.025	(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	14	63.000
Ethyl cinnamate	07	36.000	(Ethylenedinitrilo)tetraacetic acid, trisodium salt	15	1081.000
Ethyl cyanoacetate	15	440.100	Ethylene glycol	11	63.450
2-(N-Ethyl-N,β-cyanoethyl)-4-acetaminoanisole	03	895.100	Ethylene glycol adipate	15	1106.000
S-Ethyl cyclohexylmethylthiocarbamate	13	69.100	Ethylene glycol diacetate	15	1107.000
Ethyl-3,3-di(t-amyloxy)butyrate	15	1296.315	Ethylene glycol dimercaptoacetate	15	1108.000
Ethyl 3,3-di(t-butyl peroxy) butyrate	15	1296.320	Ethylene glycol dimethacrylate	12	638.000
S-Ethyl diisobutylthiocarbamate (Butylate)	13	202.500	Ethylene glycol distearate	15	1161.700
Ethyl 4-dimethylaminobenzoate	03	895.400	Ethylene glycol di-tributyl ether	15	1161.760
Ethyldimethyl(mixed alkyl)ammonium ethyl sulfate	12	490.000	Ethylene glycol di-triethyl ether	15	1187.320
N-Ethyl-1,2-dimethylpropylamine	15	279.500	Ethylene glycol esters, all other	12	642.000
S-Ethyl dipropylthiocarbamate (EPTC)	13	202.000	Ethylene glycol monostearate	12	640.000
Ethylene	02	40.000	Ethylene glycol sesquistearate	12	641.000
Ethylene-acrylic acid resins (EAA)	08	31.900	Ethylene (1,2)hydroxystearamide	15	241.500
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)	13	183.000	Ethyleneimine (Aziridine)	15	78.500
Ethylene bis(dithiocarbamic acid), disodium salt with zinc ions	13	184.500	Ethylene oxide	15	1312.000
N,N'-Ethylenbis-oleamide (Oleic acid-ethylenediamine condensate (Amine/acid ratio = 1/2))	15	240.000	Ethylene-propylene copolymer	14	279.000
N,N'-Ethylenbis(stearamide)	15	241.000	Ethylene-propylene (EP) type	10	10.000
Ethylene-bis-tetrabromophthalimide	15	78.300	Ethylene-vinyl acetate (EVA) copolymer resins	08	31.700
Ethylenediamine	12	328.450	Ethyl-α,β-epoxy-β-methylhydrocinnamate	07	37.000
Ethylenediamine, alkoxylated	15	280.000	Ethyl ether	15	1313.000
Ethylenediamine dihydriodide	06	583.000	Ethyl furoate	15	961.100
Ethylene diamine ethoxylated	12	328.455	1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	12	460.000
Ethylene dibromide	14	182.000	Ethyl heptanoate	07	145.000
(Ethylenedinitrilo)tetraacetic acid	14	47.000	N-Ethyl-N-hexadecylmorpholinium ethyl sulfate	12	461.000
(Ethylenediamine)tetraacetic acid (EDTA)	14	49.000	S-Ethyl-hexahydro-1H-azepine-1-carbothioate (Molinate)	13	70.000
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt	14	50.000	2-Ethylhexanal (α-Ethylcaproaldehyde)	15	789.000
(Ethylenedinitrilo)tetraacetic acid, diammonium salt	14	54.000	2-Ethyl-1,3-hexanediol	15	1082.000
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate	14	53.000	Ethyl hexanoate	07	146.000
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate	14	56.000	2-Ethylhexanoic acid (α-Ethylcaproic acid)	15	519.000
(Ethylenedinitrilo)tetraacetic acid, magnesium salt	14	57.000	2-Ethylhexanoic acid salts, all other	15	646.000
(Ethylenedinitrilo)tetraacetic acid, manganese salt	14	58.000	2-Ethyl-1-hexanol	15	854.000
(Ethylenedinitrilo)tetraacetic acid, monoammonium ferric salt	14	59.000	2-Ethylhexanol, ethoxylated	12	759.500
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt	14	60.000	2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated	12	80.090
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt	14	61.000	2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated, sodium salt	12	80.100
			2-Ethylhexanol, ethoxylated and phosphated	12	80.000
			2-Ethylhexanol, ethoxylated, phosphated, potassium salt	12	80.050
			2-Ethylhexanoyl chloride	15	520.000
			2-Ethyl-1-hexyl acetate	15	962.000
			2-Ethyl-1-hexyl acrylate	15	963.000
			2-Ethylhexyl acrylate-methyl acrylate copolymer resins	08	19.970

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
(2-Ethylhexyl)amine, mono-	15	281.000	2-Ethyl-2-nitro-1,3-propanediol	15	392.250
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-dicarboximide	13	173.000	o-Ethylphenol	15	81.200
2-Ethylhexyl chloride	15	1237.000	Ethyl phenylacetate	07	37.800
2-Ethylhexyl chloroformate	15	963.600	1-Ethylpiperidine	03	904.500
2-Ethylhexyl-1-p-dimethylaminobenzoate	11	79.100	Ethyl propionate	07	150.200
2-Ethylhexyl epoxyltalates	15	77.000	N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate	12	463.000
2-Ethylhexyl hydrogen phosphate	15	1032.000	Ethyl sulfate (Diethyl sulfate)	15	966.000
Ethylhexyl iodide (Iodoethyl hexane)	15	1277.400	N-Ethyl-p-toluenesulfonamide	11	5.000
2-Ethyl-1-hexyl methacrylate	15	964.000	N-Ethyl-m-toluidine	03	908.000
2-Ethylhexyl-p-methoxy cinnamate	07	37.100	3-(N-Ethyl-m-toluidino)propionitrile	03	911.000
2-Ethylhexyl-p-methoxy cinnamate	15	79.300	Ethyl trimethyl cyclopentanyl buterol	07	150.250
2-Ethylhexyl nitrate	15	391.500	Ethyl 3,7,11-trimethyldodeca-2,4-dienoate	13	231.016
2-Ethylhexyl palmitate	11	96.900	Ethyl valerate	07	150.300
2-Ethylhexyl phosphate	12	96.800	Ethyl vinyl ether	15	1316.000
2-Ethylhexyl phosphate, potassium salt	12	96.900	Etidronate, disodium	06	837.001
2-Ethylhexyl phosphate, sodium salt	12	97.000	Expandable polyethylene beads	08	31.950
2-Ethylhexyl polyphosphate, sodium salt	12	99.000	Expandable polystyrene beads	08	44.010
2-Ethylhexyl salicylate	15	79.400	External Drug and Cosmetic Orange 3	04	827.000
2-ethylhexyl stearate	07	37.400	Farnotoine	06	620.400
2-Ethylhexyl stearate	15	969.090	Fats and oils, chemically modified, all other	15	1331.000
2-Ethylhexyl sulfate	11	119.000	Fatty acid, alkanolamine ester	15	392.500
2-Ethylhexyl sulfate, sodium salt	12	243.000	Fatty acid esters, not included with plasticizers	15	981.000
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	15	392.000	surface-active agents, all other	15	280.000
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	14	354.000	Fatty acid polyamine condensate	14	280.000
N-Ethyl-N-(2-hydroxyethyl)-m-toluidine	03	896.500	Fatty acid residues	15	1434.300
4-Ethyl-4-hydroxymethylloxazoline	15	79.720	Fatty acids	15	522.000
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane)	15	1083.000	Fatty acids, hydrogenated	15	521.000
2-Ethyl-2(hydroxymethyl)-1,3-propanediol trimethacrylate (TMP methacrylate)	15	1110.000	Fatty acids, partially hydrogenated	15	523.000
Ethylidene norbornene	15	80.000	C-18 Fatty acids, unsaturated compounds, with polyethylene-polyamines-tall oil fatty acid reaction products	12	358.600
Ethyl isovalerate	07	146.500	Fatty alcohols, C ₈ -C ₃₀	15	883.380
Ethyl laurate	15	147.000	Fatty amines	15	282.000
Ethyl maleate, mono	15	964.350	Fenoprofen	06	401.200
Ethyl mercaptan (Ethanethiol)	02	93.000	Fentanyl citrate	06	401.250
2-(Ethylmercapto)ethanol	15	1327.000	Fish oil, C ₁₄ -C ₂₂ menhaden, lead salts	15	646.700
Ethyl methacrylate	15	964.400	Flavoxate hydrochloride	06	745.500
N-Ethyl-2-methylallylamine	15	281.500	Flotation reagents, all other	14	147.000
6-Ethyl-2-methylamine	03	897.000	Flourescent Brightener 315	04	780.315
Ethyl-2-methyl butyrate	07	147.700	Flourescent Brightener 339	04	780.339
2-[Ethyl(3-methylphenyl)amino]ethanol	03	897.200	Fluconazole	06	135.600
N-[3-(1-Ethyl-1-methylpropyl)-5-isoxazolyl]-2,6-dimethoxybenzamide (Flexidor)	13	118.062	Flucytosine	06	135.700
phosphorodithioate	13	165.012	Fludrocortisone acetate	06	656.000
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	12	244.000	Flumixin meglumine	06	401.290
4-Ethylmorpholine	15	81.000	Fluorelastomers (CFM, FKM, FFKM) type	10	11.000
Ethyl myristate	07	148.000	Flourescent Brightener 28	04	761.000
			Flourescent Brightener 49	04	766.000
			Flourescent Brightener 52	04	767.000
			Flourescent Brightener 61	04	770.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Fluorescent Brightener 71	04	771.000	Gasoline additives, cyclic, all other	14	190.000
Fluorescent Brightener 130	04	779.000	Gastrointestinal agents, all other	06	622.000
Fluorescent Brightener 205	04	780.205	Gemfibrozil	06	620.500
Fluorescent Brightener 231	04	780.231	Gentamycin	06	48.000
Fluorescent Brightener 232	04	780.232	Geranyl acetate	07	151.000
Fluorescent Brightener 290	04	780.290	Geranyl butyrate	07	153.000
Fluorescent brighteners, all other	04	781.000	Geranyl formate	07	153.010
Fluorinated (including other fluorohalogenated) hydrocarbons, all other	15	1276.000	Geranyl isobutyrate	07	153.560
o-Fluorobenzoyl chloride	03	913.700	Geranyl nitrile (Citralva)	07	153.600
Fluorocarbon resins, all other	08	38.200	Geranyl propionate	13	168.450
Fluoxymetholone	06	657.000	Gibberellic acid	06	688.000
Fluphenazine hydrochloride	06	640.000	Glipizide	06	693.000
Food, Drug, and Cosmetic Blue 1	06	485.000	Glucagon	14	96.000
Food, Drug, and Cosmetic Blue 2	04	783.000	Glucosaminylase	14	65.000
Food, Drug, and Cosmetic Green 3	04	784.000	Glucosaminyl acid, β -isomer, sodium salt	14	66.000
Food, Drug, and Cosmetic Red 2	04	785.000	Glucosaminyl acid, sodium salt	14	66.000
Food, Drug, and Cosmetic Red 3	04	786.000	α -Glucosaminidopropyl dimethyl-2-hydroxyethyl ammonium chloride	12	471.500
Food, Drug, and Cosmetic Red 4	04	787.040	Gluconic acid, potassium and sodium salts W/20% mix of sodium bisulfite-formaldehyde	12	57.530
Food, Drug, and Cosmetic Red 5	04	789.005	Gluconic acid salts, all other	15	663.000
Food, Drug, and Cosmetic Yellow 5	04	790.000	Gluconic acid and salts, mixed	15	1434.800
Food, Drug, and Cosmetic Yellow 6	04	791.000	Gluconic acid, technical	15	526.000
Formaldehyde (37% HCHO by Weight)	15	791.000	D-Glucosamine hydrochloride	14	457.000
Formaldehyde, dicyandiamide, ethylene sulfate polymers	12	780.500	Glucose isomerase	14	111.000
Formaldehyde polymer with carbamate esters	14	487.000	Glucose oxidase	14	123.000
Formaldehyde polymer with ethylenediamine and nonyl phenol derivatives	14	163.000	Glucose-6-phosphate dehydrogenase	14	124.000
Formic acid, 90%	15	524.000	Glutamic acid hydrochloride	14	8.000
2-(Formylamino)-L-oxo-4-thiazole acetic acid	15	81.800	Glutamic acid	15	792.000
1-Formylpiperidine	03	919.153	Glutaraldehyde	15	1333.000
Fuel additives, acyclic, all other	14	177.000	Glutaraldehyde bis(sodium bisulfite)	11	85.950
Fuel additives, cyclic, all other	14	178.000	Glutaric acid esters, all other	06	471.000
Fumaric acid	15	525.000	Glutethimide	15	1110.400
Fungal amylases	14	95.000	Glycerides, mixed C ₁₄ -18 and C ₁₆ -18, mono- and di-	12	761.700
2-Furaldehyde (Furfural)	15	920.000	Glycerine, alkoxylated	12	660.000
Furan	15	82.100	Glycerol, alkoxylated, toluene diisocyanate copolymer	12	761.800
Furanacrolein	15	84.000	Glycerol diester of lard acids	12	651.500
Furan derivatives, all other	15	84.000	Glycerol dilaurate	12	659.000
Furfuryl alcohol	03	921.000	Glycerol esters of chemically defined acids, all other	12	668.000
Furfuryl alcohol, ethoxylated	12	744.600	Glycerol esters of mixed acids, all other	12	111.900
Furfuryl amine	15	82.200	Glycerol, ethoxylated and phosphated	12	125.000
Furfuryl type resins	08	7.000	Glycerol kinase	14	125.000
Furoic acid	15	82.400	Glycerol monoallyl ether	15	1163.000
D-Galactose	14	456.000	Glycerol monocaprylate	12	654.000
Galaxolide (1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl-cyclopenta- γ -2-benzopyran)	07	96.000	Glycerol mono- and diesters of mixed fatty acids	12	648.800
Gallium nitrate	06	278.400	Glycerol monoester of C ₈ -C ₁₀ acids	12	660.900
Gasoline additives, acyclic, all other	14	189.000	Glycerol monoester of cottonseed oil acids	12	662.000
			Glycerol monoester of hydrogenated cottonseed oil acids	12	663.000
			Glycerol monoester of hydrogenated lard acids	12	663.500

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Glycerol monoester of hydrogenated soybean oil acids	12	664.000	Halcinonide	06	659.500
Glycerol monoester of lard acids	12	665.000	Heptachloro-tetrahydro-endo-methanoindene (Heptachlor)	13	136.000
Glycerol monoester of mixed fatty acids, acetylated	12	649.000	Heptaldehyde-aniline condensate	09	6.000
Glycerol monoester of mixed fatty acids, phosphorylated	12	112.000	n-Heptane	02	71.000
Glycerol monoester of mixed fatty acids, succinylated	12	649.100	Heptanoic acid	15	528.500
Glycerol monoester of mixed vegetable oil acid	12	665.700	Heptanoic acid, potassium salt	12	57.550
Glycerol monoester of palm oil acids	12	665.800	2-Heptanone (Methyl amyl ketone)	15	819.000
Glycerol monoester of safflower oil acids	12	666.200	3-Heptanone (Ethyl butyl ketone)	15	820.000
Glycerol monoester of tall oil acids	12	666.300	Heptenes, mixed	02	72.000
Glycerol monoester of tall oil acids	12	666.400	2-Heptylcyclopentanone	07	96.500
Glycerol monooleate	12	655.000	Herring oil, sulfated	12	298.490
Glycerol monolaurate	12	656.000	Herring oil, sulfated, sodium salt	12	299.000
Glycerol monostearate	12	657.000	Hetacilin, potassium	06	15.200
Glycerol monostearate	12	658.000	Hexabromocyclodecane	15	87.800
Glycerol monostearate	12	667.400	Hexabromocyclodecane	15	87.820
Glycerol sesquiester of hydrogenated tallow acids	15	1084.000	1,4,5,6,7-Hexachloro-5-norbornene-2,3-dicarboxylic anhydride (Chlorendic anhydride)	03	925.100
Glycerol, synthetic only	12	667.900	Hexadecane	15	1342.000
Glycerol triester of mixed fatty acids	12	658.400	Hexadecanoic acid (Palmitic acid)	15	529.000
Glycerol trioctanoate/decanoate	12	658.500	1-Hexadecanol (Cetyl alcohol)	15	873.000
Glycerol trioleate	15	1111.000	Hexadecanole	07	96.600
Glyceryl diacetate (Diacetin)	11	108.000	n-Hexadecenylicsuccinic anhydride	15	165.680
Glyceryl monostearate	15	1113.000	Hexadecyl alcohol, ethoxylated	12	730.000
Glyceryl monothioglycolate	15	1114.000	Hexadecyl alcohol, propoxylated	12	730.015
Glyceryl triacetate (Triacetin)	15	109.000	Hexadecylamine	12	421.000
Glyceryl tri(acetyricinoleate)	11	120.000	Hexadecyl chloride	15	1238.000
Glyceryl triacetate stearate	11	91.000	Hexadecyl chloride	15	282.800
Glyceryl trioleate (Triolein)	11	83.000	N-Hexadecyl-N,N-dimethylamine	15	99.500
Glyceryl tripropionate	11	1317.000	Hexadecylidiphosphate	12	970.700
Glycidol (2,3-Epoxy-1-propanol)	15	1387.000	Hexadecyl hexadecanoate (Palmitic palmitate)	15	99.520
α -Glycidoxypropyltrimethoxysilane	15	1317.900	Hexadecylmonophosphate	12	347.000
Glycidyl ethers, all other	14	10.000	N-Hexadecylmorpholine	15	441.750
Glycine (Aminoacetic acid), non-medical	15	528.000	Hexadecylnitrite	03	926.300
Glycolic acid (Hydroxyacetic acid)	15	663.750	Hexadecylphenoxylbenzene	11	121.310
Glycolic acid, potassium salt	15	664.000	Hexadecyl stearate	12	230.000
Glycolic acid, sodium salt	15	84.000	Hexadecyl sulfate, sodium salt	12	494.000
Glycol pelargonate	11	41.700	Hexadecyltrimethylammonium bromide	12	495.000
Glycol phthalate esters, all others	11	1435.000	Hexadecyltrimethylammonium chloride	15	1267.000
Glycol residues	06	288.500	Hexafluoropropylene, monomer	15	691.947
Glycopyrrrolate	15	793.000	Hexaglycerol	12	926.500
Glyoxal	15	7.500	Hexahydro-1-[(2-aminophenyl)sulfonyl]-1h-azepine	03	87.850
Glyoxal-formaldehyde resins	08	692.900	Hexahydro-1,3-isobenzofurandione	15	87.880
Gonadorelin, acetate	06	292.000	Hexahydro-5-methyl-1,3-isobenzofurandione	15	87.880
Grease, other than wool, sulfated, sodium salt	12	292.000	Hexahydro-1-[(2-nitrophenyl)sulfonyl]-1h-azepine	03	927.000
Guaiaacwood acetate	07	96.100	Hexahydrophthalic anhydride	15	87.890
Guaifenesin	06	584.000	Hexahydro-1,3,5-triethyl-s-triazine	15	40.012
Guanethidine sulfate	06	356.000	Hexahydro-1,3,5-tri(2-hydroxyethyl)-s-triazine	13	40.022
Guanidines, cyclic, other	09	22.000	Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine	15	87.900
Guanine	03	921.500	Hexamethyldisilazane	15	1387.500
Halazepam	06	500.600			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Hexamethyldisiloxane	15	1387.510	Hydrocarbon phosphorous acid, barium salt	14	206.000
Hexamethylenediamine adipate (Nylon salt)	15	397.000	Hydrocarbon phosphoryl derivatives	14	207.000
Hexamethylenediaminetetra(methylenephosphonic acid), potassium salt	14	68.000	Hydrocarbons, all other	15	1349.000
Hexamethylenimine	03	927.870	Hydrocarbons, C ₄ , all other	02	52.000
Hexamethylenetetramine, tech.	15	88.000	Hydrocarbons, C ₅ , all other	02	59.000
N-hexanal	07	155.310	Hydrocarbons, C ₆ , all other	02	68.000
Hexane	02	65.000	Hydrocarbons, C ₇ , all other	02	73.000
Hexane-1,6-bis(tributylammonium bromide)	12	497.500	Hydrocarbons, C ₈ , all other	02	77.000
1,6-Hexanediamine (Hexamethylenediamine)	15	283.000	Hydrocarbons, C ₉ and above, all other, including mixtures	02	89.000
1,6-Hexanediol	15	1085.000	Hydrocarbons, C ₄ fraction	02	51.200
n-Hexanoic acid	15	530.000	Hydrocarbons, C ₂ -C ₃ mixtures	02	43.000
2-Hexenal	07	155.300	Hydrocarbons, C ₄ mixtures	02	49.600
1-Hexene	02	67.015	Hydrocarbons, C ₅ mixtures	02	58.500
Hexenes, mixed	02	67.020	Hydrocarbons, C ₅ -C ₆ mixtures	02	67.030
cis-3-Hexen-1-yl acetate	07	155.650	Hydrocarbons, C ₅ -C ₇ mixtures	02	58.050
cis-3-Hexenyl butyrate	07	155.653	Hydrochlorothiazide	06	722.000
cis-3-Hexenyl methyl carbonate	07	155.654	Hydrocinnamic acid	07	43.500
cis-3-Hexenyl salicylate	07	40.500	Hydrocodone bitartrate	06	433.000
cis-3-Hexenyl tiglate	07	155.656	Hydrocortisone	06	660.000
Hexyl acetate	15	984.000	Hydrocortisone acetate	06	661.000
Hexyl acrylate	15	985.000	Hydrocortisone	07	44.000
n-Hexyl alcohol	15	857.000	Hydrogenated castor oil, ethoxylated	12	670.000
N-Hexyl alcohol, ethoxylated	12	729.900	Hydrogenated marine glycerides, sulfated, sodium salt	12	299.500
Hexylalcohol, ethoxylated and phosphated	12	80.500	Hydrogenated menhaden fish oil	15	1329.050
n-Hexylamine	15	284.000	Hydrogenated nitrile (hnbr) type	10	12.500
Hexylamine ethoxylate	15	398.000	Hydrogenated tallow acids, (Ratio = 2/1)	12	558.000
α-Hexylcinnamaldehyde	07	41.000	(Hydrogenated tallow alkyl)amine	12	422.000
Hexyl n-decyl phthalate	11	44.000	(Hydrogenated tallow alkyl)amine acetate	12	394.000
Hexyl 2-methylbutyrate	07	155.715	(Hydrogenated tallow alkyl)amine, ethoxylated	12	329.000
Hexyl neopentanoate	15	985.200	(Hydrogenated tallow alkyl)trimethylammonium chloride	12	498.000
2-[2-(Hexyloxy)ethoxy]ethanol	15	1164.000	Hydrogenated tallow amides, ethoxylated	12	575.200
Hexyloxypropyl amine	12	328.600	1-(2-Hydrogenated tallow amidoethyl)-2-nor(hydrogenated tallow)-2-imidazoline	12	386.500
2-Hexyloxypropyl sulfate, sodium salt	12	275.000	Hydrogenated tallow diethylenetriamine condensate	12	394.050
Hexyl phosphate	12	99.900	Hydrogenated tallow fatty acid aminoethylethanolamine condensation products	14	488.000
Hexyl phosphate, potassium salt	12	99.910	Hydrogenated tallow glycerides diethylenetriamine	15	1329.000
Hexyl sulfate, potassium salt	12	231.000	Hydrogenated tallow glycerides	12	587.943
Hexyltrichlorosilane	15	1387.530	Hydrogenated tallow glycerides diethylenetriamine condensate	12	587.945
Homomenthol salicylate	15	88.999	Hydrogenated tallow glycerides diethylenetriamine condensate	06	401.400
Humatrope	06	693.500	Hydrogenated tallow glycerides diethylenetriamine condensate	15	91.250
Hydralazine hydrochloride	06	357.000	Hydroquinone, di(β-hydroxyethyl) ether	03	934.000
Hydratropaldehyde, dimethyl acetal	07	43.000	Hydroquinone, tech.	03	946.000
Hydrazine acetate	15	594.500	p-Hydroxybenzoic acid	03	946.000
Hydrindantin	15	91.000	p-Hydroxybenzoic acid, butyl ester	15	92.000
Hydrocarbon amine, sulfonate acid	14	281.000	p-Hydroxybenzoic acid, ethyl ester (Ethyl paraben)	15	93.000
Hydrocarbon carboxylic acid derivatives (specify)	14	205.000			
Hydrocarbon derivatives: all other hydrocarbon derivatives	02	97.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
p-Hydroxybenzoic acid, methyl ester	15	94.000	1-(2-Hydroxyethyl)-2-undecyl-3-carboxethylimidazoline, sodium salt	12	26.950
p-Hydroxybenzoic acid, propyl ester	15	95.000	Hydroxyethyl-2-undecyl-2,3-imidazoline	12	464.000
4-Hydroxy-2H-1,2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide	03	947.000	4-Hydroxy-3-methoxybenzaldehyde [Vanillin]	07	44.300
Hydroxychloroquine sulfate	06	175.000	4-(4-Hydroxy-3-methoxyphenyl)-2-butanone (Vanillyacetone)	07	44.800
Hydroxycitronellal methyl anthranilate	07	44.050	2-[(Hydroxymethyl)amino]-2-methylpropanol	13	245.014
Hydroxycitronellol	07	156.500	4-Hydroxy-2-methyl-2H-1,2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide	03	969.050
2-Hydroxy-5,9-dimethyl-6,7-benzomorphan	03	953.550	Hydroxymethyl-bis-oxazoline	15	99.300
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	07	156.000	2-Hydroxymethyl-17 α -ethynylandroster-17 β -ol-4-en-3-one	03	969.010
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal)	07	157.000	2-(Hydroxymethyl)ethanol	03	245.012
Hydroxyethane-1-diphosphonic acid	14	69.000	Hydroxymethyl-5,5-hydantoin	15	99.500
2-Hydroxyethane.sulfonic acid.sodium salt	15	666.000	Hydroxymethyl(methyl)dithiocarbamic acid, potassium salt	13	185.500
Hydroxyethyl acrylate	15	1119.000	2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylethane)	13	1086.000
3-[N-(2-Hydroxyethyl)anilino]propionitrile	03	956.000	2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-(hydroxymethyl)nitromethane)	15	401.000
Hydroxyethylcellulose	14	409.000	4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	15	823.000
N- β -Hydroxyethyl-2,4-dihydroxybenzamide	03	958.000	4-(4-Hydroxy-4-methyl pentyl)-3-cyclohexene-10-carboxaldehyde (Lyral)	07	97.200
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)ammonium nitrate	12	474.000	3-Hydroxy-2-methyl-4-pyrone (Maltol)	07	98.000
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine	12	351.000	3-Hydroxy-N-(3-N-morpholino- γ -propyl)-2-naphthimide	03	972.500
(N-Hydroxyethylethylenedinitrilo) triacetic acid	14	70.000	1-Hydroxy-2-naphthoic acid	03	990.000
(N-Hydroxyethylethylenedinitrilo)triacetic acid, iron salt	14	72.000	3-Hydroxy-2-naphthoic acid (B.O.N.)	03	992.000
(N-Hydroxyethylethylenedinitrilo)triacetic acid, magnesium salt	14	73.000	4-Hydroxynonanonic acid, γ -lactone (γ -Nonalactone)	07	99.000
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	14	74.000	2-(1-Hydroxypropyl)-cyclopentanone	07	99.500
Hydroxyethyl hydroxypropyl cellulose	14	409.500	p-Hydroxy phenylbutanone	07	44.850
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-nor-coconut oil fatty acids-2-imidazolium hydroxide	12	26.700	α -D-p-Hydroxyphenylglycine methyl ester K	15	100.200
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-oleyl-2-imidazolium hydroxide	12	26.800	Hydroxyprogesterone	06	679.600
N-(2-Hydroxyethyl)-12-hydroxystearamide	15	399.200	Hydroxyprogesterone caproate	06	679.800
Hydroxyethylidene diphosphonic acid, potassium salt	14	75.000	Hydroxypropyl acrylate	15	1120.000
Hydroxyethylidene diphosphonic acid, sodium salt	14	76.000	2-Hydroxypropyl cellulose	14	410.000
Hydroxyethyl methacrylate	15	1119.200	Hydroxypropyl guar gum	14	421.000
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	12	348.000	Hydroxypropyl methacrylate	15	1121.000
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline	12	349.000	N-2-hydroxy propyl-n-methyl-N,n-bis[tallow amide ethyl] ammonium ethyl sulfate	12	474.190
2-Hydroxyethyl n-octyl sulfide	12	350.000	4-Hydroxyundecanoic acid, γ -lactone (γ -Undecalactone)	07	101.000
N-(Hydroxyethyl)piperazine	13	233.010	Hydroxazine pamoate	06	502.000
3-Hydroxy-2-ethyl-4-pyrone (Ethylmaltol)	15	96.000	Hygromycin B	06	66.000
1-(2-Hydroxyethyl)-2-(tallow alkyl)imidazoline, fatty acid salt	07	97.000	Ibuprofen	06	401.500
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)-ethylenediamine	12	351.700	1H-imidazole-1-ethanamine, 4,5-dihydro-, 2-nor(tallow)-oil alkyl derivatives, acetates	12	360.470
	12	330.000	2-Imidazoline-1-(2-aminoethyl)-2-(tallow alkyl), ethoxylated	12	330.050
	12	330.000	Imidazoline from tallow fatty acids and diethylenetriamine	14	164.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Imidazolinium, 1-carboxymethyl)-4,5-dihydro-1-(hydroxyethyl)-2-nor(cocoalkyl), hydroxides, monosodium salts			Isobutyl isobutyrate	15	989.000
Iminodiacetic acid	12	474.400	Isobutyl methacrylate	15	989.500
N,N'-(1-imino)-2,1-ethanediy)bis-tail oil fatty amides	15	403.000	Isobutyl oleate	11	92.300
Imipramine hydrochloride	12	360.500	Isobutyl palmitate	11	97.000
1,2-Indantrione monohydrate (Ninhydrin)	06	528.000	Isobutyl quinoline	07	46.400
Indomethacin	15	103.000	Isobutyl stearate	11	121.390
Insect attractants, all other	06	402.000	Isobutyrimethoxysilane	15	1387.600
Insulin	13	120.000	Isobutyraldehyde	15	796.000
Iodinated glycerol	06	694.000	Isobutyric acid	15	534.000
Iodinated (Not otherwise halogenated) hydrocarbons, all other	06	586.000	Isobutyric anhydride	15	535.000
Iodobutane	15	1281.000	Isobutyronitrile	15	443.000
Iodochlorhydroxyquin	15	1277.900	Isobutyrophenone	03	1016.800
Iodoethane (Ethyl iodide), non-medical	06	176.000	Isocetyl stearate	15	971.800
Iodoform	06	262.000	Isocyanic acid derivatives, all other	03	1026.000
Iodomethane (Methyl iodide)	06	1280.000	Isodecyl acrylate	15	990.000
1-Iodo-perfluorohexane	15	1268.000	Isodecyl alcohol	15	857.500
3-Iodo-2-propynyl butylcarbamate	13	245.013	Isodecyl alcohol, ethoxylated	12	760.900
p-Iodotoluene	03	1016.695	Isodecyl alcohol, ethoxylated and propoxylated	12	760.910
Iohexol	06	566.000	Isodecyl diphenyl phosphate	11	12.500
Ionone(α - and β -)	07	104.000	Isodecyl mercaptoacetate	15	971.830
α -Ionone	07	102.000	Isodecyl methacrylate	15	990.700
Iothalamate, meglumine	06	570.000	Isodecyl neopentanoate	15	971.850
Iron α -alkylcarboxylate	15	670.000	Isodecylpropylamine	12	330.100
Iron 2-ethylhexanoate	15	636.000	Isodecylpropylamine, ethoxylated	12	330.103
Iron naphthenate	14	303.000	3-(3-Isodecylpropyl)aminopropyl amine	12	330.105
Isaomy phenylacetate	07	45.300	Isodecylpropyliminopropionic acid, monosodium salt	12	13.900
Isoscorbic acid (Erythorbic acid)	15	533.000	N-Isodecylpropyl trimethylene diamine	12	330.350
Isoscorbic acid, sodium salt (Sodium erythorbate)	15	667.000	Isodecyl pelargonate	11	85.000
Isobornyl acetate	07	105.000	Isodifluorone, acetate	06	670.001
Isobornyl methacrylate	15	103.540	Isoflurane	06	439.001
Isobornyl methyl ether	15	103.750	Isoheptanes	02	69.000
Isobornyl propionate	07	105.200	Isoheptyl alcohol	15	857.700
Isobutane (2-Methylpropane)	02	50.000	Iso-Hexadecenyl succinic anhydride	15	165.720
Isobutanol, ethoxylated and sulfated, ammonium salt	12	275.200	Isohexane	02	66.000
Isobutyl acetate	15	892.000	Isohexenyl tetrahydrobenzaldehyde (Myrac aldehyde)	07	47.200
Isobutyl acetate	07	158.000	Isoionolene epoxide	07	105.800
Isobutyl acrylate	15	987.000	Isomenthone	07	106.000
Isobutyl alcohol (Isopropylcarbinol)	15	849.000	Isonanoic acid, mono- and triethanolamine salt	12	564.150
Isobutylaluminum	15	1361.400	Isonanylamidocaproic acid, triethanolamine salt	12	27.000
Isobutylaluminum chloride	15	1361.500	Isonicotinic acid	03	1027.900
Isobutylbenzene	03	1016.750	Isonicotinonitrile	03	1029.000
Isobutylbiphenyl	03	1016.000	Isononyl alcohol	15	858.000
Isobutyl chloroformate	15	988.000	Isooctadecanol	15	876.500
Isobutylene (2-Methylpropene)	02	51.000	Iso-octadecenylsuccinic anhydride	15	165.750
			Isooctanoic acid, manganese salt	15	672.800
			Iso-octyl alcohol	15	859.000
			Iso-octyl alcohol, ethoxylated	12	761.000
			Isooctyl-3,5-di-t-butyl-4-hydroxyhydrocinnamate	15	103.930

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Iso-octyl hydrogen phosphate	15	1033.000	Isostearic amphopropionate	12	13.100
Iso-octyl mercaptacetate	15	991.000	Isostearyl alcohol, ethoxylated	12	730.200
Iso-octyl-3-mercaptopropionate	15	992.000	Isostearyl isostearate	15	972.300
Iso-octylphenol, ethoxylated	12	745.000	Isostearyl neopentanoate	15	995.000
Isooctyl phosphate	12	100.400	N-Isotridecyloxypropylamine	12	330.300
Isooctyl phosphate, potassium salt	12	100.420	N-Isotridecyloxypropyl trimethylene diamine	12	330.320
Isopentane (2-Methylbutane)	02	53.000	Isovalerone (Diisobutyl ketone)	15	824.000
Isopentyl acetate (Isoamyl acetate)	07	158.950	2-Isovaleryl-1,3-indandione	13	169.900
Isopentyl alcohol, ethoxylated and phosphated	12	81.500	Itaconic acid (Methylenesuccinic acid)	15	539.000
Isopentyl benzoate	07	47.700	Jojoba oil, ethoxylated	12	736.600
Isopentyl butyrate	07	159.000	Kanamycin	06	50.000
Isopentyl formate	07	160.000	Ketamine hydrochloride	06	437.000
Isopentyl isovalerate	07	161.000	Ketones, all other	15	839.000
Isophoronitrile	15	103.955	Ketoprofen	06	402.400
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	03	1031.000	Lactic acid, 100%	15	542.000
Isophthalic acid, dimethyl ester	03	1032.000	Lanolin, ethoxylated	12	671.000
Isophthalonitrile	03	1034.000	Lard oil acids (ratio=1/1)	12	546.600
Isophthaloyl chloride	03	1034.100	Lard oil acids	12	533.650
Isoprene (2-Methyl-1,3-butadiene)	02	54.000	Lard, sulfated, sodium salt	12	293.000
Isopropanolamine condensates, all other	12	574.000	Lasalocid, sodium	06	66.600
Isopropenylaluminum	15	1362.000	Latic type polyvinylidene chloride resins	08	50.010
Isopropoxy-tris(2-ethylenediamino)ethyl titanate	12	330.270	3-Lauramido-N,N-dimethylpropylamine oxide	12	387.000
Isopropyl acetate	15	993.000	(3-Lauramidopropyl)trimethylammonium methyl sulfate	12	475.000
Isopropyl alcohol	15	860.000	Lauric acid	12	570.000
Isopropylamine, mono	15	287.000	Lauric acid (Ratio = 1/1)	12	547.000
2-Isopropylaminoethanol	15	411.000	Lauric acid (Ratio = 1/1)	12	564.300
Isopropylbiphenyl	03	1035.118	Lauric acid (Ratio = 2/1)	12	534.000
Isopropyl chloroformate	15	994.000	Lauric acid esters, all other	11	87.000
2-Isopropylcyclohexanol	07	106.200	Lauric acid, potassium salt	12	58.000
6-Isopropyldecalone	07	106.210	Lauric acid, zinc salt	15	678.000
Isopropyl ether	15	1319.000	Lauric and myristic acid (Ratio = 1/1)	12	547.200
4,4'-Isopropylidenediphenol (Bisphenol A)	03	1038.000	Lauric and myristic acids	12	571.000
4,4'-Isopropylidenediphenol, ethoxylated	03	1039.000	Lauric and myristic acids (Ratio = 2/1)	12	535.000
4,4'-Isopropylidenediphenol, propoxylated	03	1040.000	Lauric and myristic acids (Ratio = 1/1)	12	564.400
Isopropyl mercaptan (2-Propanethiol)	02	96.030	Lauronitrile (Dodecyl nitrile)	15	446.000
Isopropyl-11-methoxy-3,7,11-trimethyldodeca-2,4-dienoate	13	231.014	Lauryl chloride	15	543.000
Isopropyl myristate	11	88.000	Lauryl peroxide	15	1296.400
Isopropyl oleate, sulfated, sodium salt	12	260.000	N-Lauroylsarcosine, sodium salt	12	44.000
Isopropyl palmitate	11	98.000	Lauryl acrylate	15	995.270
o-Isopropylphenol	03	1041.000	Lauryl alcohol, ethoxylated and phosphated	12	81.800
N-Isopropyl-N'-phenyl-p-phenylenediamine	09	63.000	Lauryl alkyl dimethylamine acetate	14	489.250
Isopropyl phosphate	12	100.500	Lauryl alkyl dimethylamine phosphate	14	489.260
Isopropyl stearate	11	121.400	Laurylamidopropyl betaine	12	13.400
Isopulegyl acetate	07	106.220	Laurylamphoglycinate	12	13.500
Isostearic acid, aminoethylethanamide, acetate salt	12	575.340	Lauryl lactate	15	996.000
Isostearic acid, isopropyl titanium salt	12	29.600	Lauryl methacrylate	15	997.000
Isostearic acid, mixed isopropanolamines salt	12	29.490	Lauryl pyridinium chloride	12	498.500
Isostearic acid, triethanolamine salt	12	29.500	Lead acetate	15	595.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Lead t- α -alkylcarboxylate	15	670.500	Ligninsulfonic acid, mixed salt	12	157.500
Lead-cobalt neodecanoate	15	706.000	Ligninsulfonic acid, sodium salt	12	158.000
Lead/copper salicylate/resorcyliate	15	104.775	Ligninsulfonic acid, zinc salt	12	158.500
Lead 2-ethylhexanoate	15	637.000	l-Limonene	07	50.200
Lead naphthenate	14	306.000	Lincomycin (animal feed grade)	06	67.000
Lead neodecanoate	15	707.000	Lincomycin (medicinal grade)	06	51.000
Lead stearate, dibasic	15	757.000	Linear alcohols, sulfated, all other	12	240.000
Lead subacetate	15	596.000	Linoleic acid (Ratio = 1/1)	12	547.800
Lead tallate	15	176.000	Linoleic acid (Ratio = 2/1)	12	536.000
Leuco Sulfur Black 1	04	1107.000	Linoleic acid dimers, alkoxyated	12	711.200
Leuco Sulfur Black 2	04	1110.000	Lisinopril	06	357.300
Leuco Sulfur Black 11, 11:1	04	1115.000	5-Lithiosulfisophthalic acid	15	104.900
Leuco Sulfur Black 18	04	1115.018	Lithium heparin	06	627.000
Leuco Sulfur Blue 7	04	1075.000	Lithium hydroxystearate	15	1373.500
Leuco Sulfur Blue 11	04	1080.000	Lithium neodecanoate	15	708.000
Leuco Sulfur blue 20	04	1081.020	Lithium ricinoleate	15	741.000
Leuco Sulfur Brown 1, 1:1	04	1089.000	Lithium stearate	15	758.000
Leuco Sulfur Brown 3	04	1091.000	Local anesthetics, all other	15	716.000
Leuco Sulfur Brown 37	04	1101.000	Lovastatin	06	379.000
Leuco Sulfur Brown 52	04	1101.052	Lubricating oil and grease additives, acyclic, all other	06	379.000
Leuco Sulfur Brown 96	04	1104.996	Lubricating oil and grease additives, cyclic, all other	14	293.000
Leuco Sulfur Green 2	04	1084.000	2,6-Lutidine	14	294.000
Leuco Sulfur Green 16	04	1087.000	3,4-Lutidine	03	1047.000
Leuco Sulfur Green 34	04	1087.034	3,5-Lutidine	03	1048.000
Leuco Sulfur Green 35	04	1087.035	Mafenide acetate	03	1048.503
Leuco Sulfur Green 36	04	1087.036	Magnesium acetate	06	203.000
Leuco Sulfur Red 14	04	1070.014	Magnesium methyleate	15	598.000
Leuco Sulfur Yellow 21	04	1064.021	Magnesium salicylate	15	1352.000
Leuco Sulfur Yellow 22	04	1064.022	Magnesium stearate	06	262.500
Leuprolide acetate	06	278.600	Maleic anhydride	15	759.000
Levodopa	06	835.000	Maleic anhydride, polypropylene glycol copolymer	15	104.800
Levothyroxine, sodium	06	694.500	Malic acid	12	711.700
Levulinic acid	06	544.000	D-Maltose	15	547.000
Lidocaine	15	706.000	Manganese acetate	14	459.000
Lidocaine hydrochloride	06	706.100	Manganese t- α -alkylcarboxylate	15	599.000
Light-oil distillates, all other	06	9.000	Manganese 2-ethylhexanoate	15	671.000
Lignin amine	01	9.000	Manganese naphthenate	15	639.000
Lignin amine	15	104.798	Manganese neodecanoate	14	309.000
Lignin, ethoxyated	12	357.010	Manganese neodecanoate	15	709.000
Lignin, sodium salt	12	761.900	Manganese stearate	15	760.000
Ligninsulfates, all other	12	318.400	Manganese tallate	15	177.000
Lignin, sodium salt	12	159.000	Mannitol	15	1087.000
Ligninsulfonic acid, aluminum salt	12	152.000	Maprotiline hydrochloride	15	529.000
Ligninsulfonic acid, ammonium salt	12	153.000	Mecizine hydrochloride	06	81.000
Ligninsulfonic acid, calcium salt	12	154.000	Meclofenamate, sodium	06	402.500
Ligninsulfonic acid, chromium salt	12	155.000	Meclofenamic acid	06	402.600
Ligninsulfonic acid, iron salt	12	156.000	Medicinal chemicals, all other	06	837.000
Ligninsulfonic acid, manganese salt	12	157.100	Medroxyprogesterone acetate	06	680.000
Ligninsulfonic acid, mixed chromium and iron salts	12	157.200	Medrysone	06	662.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Mefenamic acid	06	403.000	4,7-Methano-1H-indene-2-methanol octahydro acetate	07	50.700
Megestrol acetate	06	680.500	Methanol, synthetic	15	861.000
Melamine	03	1050.000	Methenamine	06	239.000
Melamine formaldehyde methanol polymer	14	483.000	Methenamine mandelate	06	241.000
Melamine-formaldehyde resins	08	8.000	Methicillin, sodium	06	16.000
Melamine formaldehyde copolymer	14	489.500	Methimazole	06	645.000
Melamine stearyl alcohol polymer	14	490.000	Methionine (animal feed grade)	14	13.000
Melatonin	06	835.500	Methionine, hydroxy analogue, calcium salt	14	15.000
Melengestrol acetate	06	681.000	Methocarbamol	06	479.000
p-Mentha-1,3-diene (α -Terpinene)	07	107.600	4-Methoxyacetophenone	03	1055.000
p-Mentha-1,4-diene (γ -Terpinene)	07	107.700	o-Methoxy benzaldehyde	07	51.950
p-Mentha-1,4(8)-diene	03	1051.000	p-Methoxybenzyl alcohol (Anisyl alcohol)	07	52.000
p-Mentha-1,8-diene (Limonene)	07	50.000	4-Methoxybenzyl alcohol	03	1057.300
dl-p-Mentha-1,8-diene (Limonene)	03	1052.000	2-Methoxyethanol (Ethylene glycol monomethyl ether)	15	1168.000
p-Menthane	15	105.000	2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	15	1169.000
p-Menthane hydroperoxide	15	105.100	2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	15	1170.000
p-Menth-8-en-3-ol (Isopulegol)	07	108.300	2-(2-Methoxyethoxy)ethyl-2-methoxyethyl ether	15	1171.000
p-Menth-1-en-3-one (Piperitone)	07	108.400	(Triethylene glycol dimethyl ether)	15	1000.800
p-Menth-4(8)-en-3-one (Pulegone)	07	108.700	1-Methoxy-2-ethyl acetate	15	1001.000
dl-Menthofol, synthetic	07	110.100	2-Methoxyethyl acrylate	15	108.450
l-Menthofol, synthetic	07	110.200	Methoxyethyl morpholine	15	1001.000
Menthyl acetate	07	111.000	N-(4-Methoxy-3-nitrophenyl)acetamide	03	1060.100
Meperidine hydrochloride	06	404.000	4-Methoxyphenol	15	109.000
Mercaptoacetic acid (Thioglycolic acid)	15	549.000	3-(4-Methoxyphenyl)-2-methyl propanal	07	53.300
2-Mercaptobenzothiazole	09	30.000	1-p-Methoxyphenyl penten-1-one-3 (α -Methyl-anisalacetone)	07	53.400
2-Mercaptobenzothiazole, copper salt	09	30.300	3-(2-Methoxyphenyl)-2-propenal	07	76.700
2-Mercaptobenzothiazole, sodium salt	13	40.024	Methoxypolyethylene glycol	15	1172.000
2-Mercaptobenzothiazole, zinc salt	09	32.000	2-Methoxy-4-propenylphenol (Isoeugenol)	07	54.000
2-Mercaptoethanol	15	1353.000	3-Methoxypropionitrile	15	448.200
N-(Mercaptoethyl)phthalimide S-(O,O dimethylphosphorodithioate)	15	165.024	1-Methoxy-2-propyl acetate	15	1125.300
3-Mercapto-1,2-propanediol (Thioglycerol)	13	165.024	2-Methoxy-4-propylphenol	15	417.000
3-Mercaptopropionic acid	15	1088.000	Methscopolamine bromide	07	54.150
Mercaptopropyltrimethoxysilane	15	550.000	Methsuximide	06	620.700
Mercaptosuccinic acid (Thiomalic acid)	15	1388.000	Methyloamide	06	421.000
2-Mercaptotolimidazole, zinc salt	09	41.475	Methyl 3-	06	724.000
Mesalamine	06	404.500	N-Methylacetamide	13	118.072
Methacrylic acid	15	552.000	Methyl acetoacetate	15	248.000
α -Methacryloxypropyltrimethoxysilane	15	1389.000	4'-Methylacetophenone	15	1003.000
Methadone hydrochloride	06	405.000	Methyl acrylate, monomer	07	55.000
Methamphetamine	06	519.800	Methylal (Dimethoxymethane)	15	1004.000
Methamphetamine hydrochloride	06	520.000	Methylamine, mono	15	1320.000
Methane	02	37.000	Methylamine, mono	15	290.000
Methane sulfonic acid, monosodium salt (MSMA)	13	205.900	Methylaminoacetaldehyde dimethyl acetal (MAADMA)	15	418.800
Methane sulfonamide	15	247.100	2-Methylaminoethanol (N-Methylethanolamine)	15	419.000
Methanesulfonic acid	15	553.000			
Methanesulfonic acid, zinc salt	15	700.500			
Methanesulfonyl chloride	15	554.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
2-(N-Methylamino)ethanol	03	1070.000	1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	13	76.000
3-(N-Methylamino)propionitrile	03	1071.000	Methylcyclopentadiene	02	65.500
5-Methyl-o-anisidine [NH ₂ =1]	03	1072.000	Methylcyclopentadienylmanganese tricarbonyl	14	185.000
p-Methylanisole	07	56.000	Methylcyclopentane	02	16.000
Methyl anthranilate	07	57.000	Methyl 3-(2,2-dichloroethyl)-2,2-dimethyl-3-cyano-3-phenoxycyclopropanecarboxylate	13	166.035
2-Methylanthraquinone	03	1075.000	Methyl-3-(D- α -dihydrocarboxybenzylamino)crotonate, sodium salt	03	894.116
Methyl behenate	15	972.800	Methyl dihydrogen phosphate	15	1034.000
β -Methylbenzene propanal	07	57.070	Methyl 2-(4,6-dimethoxy-pyrimidin-2-yl) amino carbonyl amino sulfonyl methyl benzoate (Bensulfuron) (Londax)	13	76.045
Methylbenzene sulfonate	15	110.150	Methyl 3-dimethyl-4-pentenoate	13	231.010
Methyl-p-benzoquinone	07	57.100	Methyl 2-[[[(4,6-dimethyl-2-pyrimidinyl) amino]carbonyl]amino]sulfonyl]benzoate	15	1009.200
4-Methylbenzotriazole	15	110.200	N-Methyldioctadecylamine	13	118.055
o-Methylbenzoyl chloride	03	1078.300	Methyl-ditallowimidazolium methosulfate	12	443.000
α -Methylbenzyl acetate (Styralyl acetate)	07	1078.700	N-Methyldithiocarbamic acid, potassium salt	12	465.163
N-Methylbenzylamine	07	58.000	N-Methyldithiocarbamic acid, sodium salt (Metham)	13	241.000
2-Methyl-1,1-biphenyl(n-3-yl) methanol	03	1079.000	Methylcopa	06	358.000
N-Methylbis(coconut oil alkyl)amine	03	1080.300	2,2'-Methylenebis(6-tert-butyl-p-cresol)	09	90.000
N-Methylbis(hydrogenated tallow alkyl)amine	12	441.000	2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)	09	91.000
Methyl, bis-(2-hydroxyethyl) hydrogenated tallow alkylammonium chloride	12	442.000	4,4'-Methylenebis(2,6-di-tert-butylphenol)	03	1088.100
Methyl, bis-(2-hydroxyethyl) isodecylpropylammonium chloride	12	465.120	2,2'-Methylenebis(4-methyl-6-nonyl-p-cresol)	03	1089.100
Methyl, bis-(2-hydroxyethyl)	12	465.135	Methylene bis(thiocyanate)	13	195.010
isotritylcyclopropylammonium chloride	12	465.140	Methylene chloride (Dichloromethane)	15	1234.000
Methyl, bis-(2-hydroxyethyl) soyaalkylammonium chloride	12	465.160	4,4'-Methylenedianiline	03	1091.000
Methyl bromide (Bromomethane)	13	240.000	1,2-Methylenedioxy-4-propylene benzene (isoSafrole)	07	60.600
2-Methyl-1-butanol	15	841.000	5,5'-Methylenedisalicylic acid	03	1092.000
3-Methyl-1-butanol (isoamyl alcohol)	15	841.001	2-Methylene undecanal	07	163.200
Methyl-1-(butylcarbonyl)-2-benzimidazolecarbamate (Benomy)	07	162.012	Methyl esters of cottonseed oil	15	974.000
Methyl-t-butyl ether	13	24.900	Methyl esters of tallow	15	975.000
2-Methylbutyl isovalerate	14	184.000	Methyl ethyl ketone	15	826.500
Methylbutyl pyrophosphate, ethylenedioxy titanium salt	07	162.015	Methylethyl sulfide	15	1353.700
Methyl butynol	12	100.200	Methyl ethyl sulfide	02	93.800
Methyl butyrate	07	162.020	α -(1-methylethyl-x-4-trifluoro-methoxy phenyl)-5 pyrimidinemethanol (Flurprimidol)	13	168.997
Methyl-N-(L-carboxyl(hydrobenzyl))- β -amino crotonate, sodium salt	15	1006.300	Methyl formate	15	1010.000
Methylcellulose	15	110.500	Methyl formcel	15	1450.000
Methyl chloroformate	14	411.000	Methyl p-formylbenzoate	03	897.500
2-(2-Methyl-4-chlorophenoxy)propionic acid, iso-octyl ester	15	1008.000	Methyl turan	15	82.700
α -Methylcinnamaldehide	13	118.057	Methyl gallate	15	115.000
Methyl cyanoacetate	07	59.000	Methylglucoside laurate	12	713.000
Methylcyclohexane	15	448.650	Methyl glutaronitrile	15	448.700
2-Methylcyclohexylamine	03	1083.000	1-Methyl-2-(8-heptadecenyl)-1-(9-octadecenyl)amido ethyl fluoran	12	476.850
3-(N-Methyl-N-cyclohexylamino)-6-methyl-7-anilino fluoran	15	111.100			
	15	111.200			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
N-(1-Methylheptyl)ethanolamine	14	185.500	Methyl oleate	11	94.000
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine	09	64.000	Methyl oleate, sulfated, sodium salt	12	261.000
5-Methyl-2-hexanone (Methyl isoamyl ketone)	15	827.000	N-Methyl-N-oleoytaurine, sodium salt	12	184.000
Methyl hexyl ether	07	162.480	Methyl-3-oxo-2-pentane acetate	07	114.250
Methyl(hydrogenated tallow alkyl)diethylamine condensate polyethoxylated, methyl sulfate	12	465.165	Methyl pentachlorostearate	15	977.700
Methylhydroquinone	03	1094.000	2-Methyl-2,4-pentanediol (Hexylene glycol)	15	1089.000
Methyl-4-hydroxybenzoate	15	9.052	2-Methyl-1-pentanol	15	863.000
1-Methyl-(2-hydroxyethyl)piperidine	03	1094.600	4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	15	864.000
Methyl 12-hydroxystearate	15	976.000	4-Methyl-3-penten-2-one (Mesityl oxide)	15	829.000
2,2'-(Methylimino)diethanol (Methyldiethanolamine)	15	424.000	N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine	09	64.200
Methylionone(α - and β -)	07	114.000	Methyl pentynol	07	162.660
γ -Methylionone	07	114.100	Methylphenylacetate hydrochloride	06	545.700
6-Methyl- α -ionone	07	112.000	Methyl phenylacetate	07	63.000
Methyl isobutyl ketone	15	828.000	4-(1-Methyl-1-phenyl)ethylphenol	03	1114.600
Methyl isobutyrate	07	162.500	3-Methyl-5-phenyl-1-pentanol	07	63.200
Methylisopropyl ketone	15	828.200	1-Methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)pyridone (Fluridone)	13	118.063
2-Methylacetonitrile (Acetone cyanohydrin)	15	449.000	4-Methylphthalic acid	03	1120.502
Methyl mercaptan (Methanethiol)	02	94.000	1-Methylpiperidine	03	1123.500
Methyl methacrylate-butadiene styrene (MBS) resins	08	44.041	2-Methylpiperidine	03	1121.800
Methyl methacrylate, monomer	15	1011.000	3-(2-Methylpiperidino)propyl-3,4-dichlorobenzoate (Pipron)	13	40.026
N-Methyl-methanamine with borane (1:1)	15	1368.600	Methyl pivalate	15	977.750
methyl 2-(4-methoxy-6-methyl-1,3,5-triazin-2-yl) amino carbonyl amino sulfonyl benzozote (Metsulfuron methyl)	13	76.060	Methyl pivaloylacetate	15	1012.800
Methyl 2-[[[N-(4-methoxy-6-methyl-1,3,5-triazin-2-yl)thylamino]carbonylamino]sulfonyl]benzoate	13	76.062	N-Methyl-N-polyoxyethylene-N,N-bis(hydrogenated tallow amidoethyl)ammonium	12	476.920
Methyl-N-methylanthranilate	07	62.000	N-Methyl-N-polyoxyethylene-N,N-bis(tallow amidoethyl) Methyprednisolone	12	476.925
S-Methyl-N-[(methylcarbamoyl)oxy]thioacetimidate (Methornyl)	07	162.550	2-Methyl-2-propanamine with borane(1:1)	06	663.000
α -Methyl-3,4-methylene dioxhydrocinnamaldehyde	13	213.400	Methylpropyl ketone	15	1368.700
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazolesulfonic acid	07	62.200	Methylpseudoionone	15	830.000
4-Methylmorpholine	03	1097.000	1-Methyl-2-pyrrolidone, monomer	15	120.000
Methylnaphthalene	15	117.000	2- and 5-Methyl resorcinol	15	120.100
Methylnaphthalenesulfonic acid, sodium salt	01	12.500	Methyl ricinoleate	11	110.000
N-Methyl-p-nitroaniline	12	173.000	Methyl salicylate	07	64.000
4-Methyl-2-nitroanisole	03	1102.000	Methyl stearate	15	978.000
1-(2-Methyl-4-nitrophenyl)pyrrolidine	03	1104.000	p-Methylstyrene	03	1125.200
2-Methyl-2-nitro-1-propanol	03	1096.300	α -Methylstyrene	03	1125.100
3-Methyl-2-[ano3]nonene nitrile	03	426.000	ar-Methylstyrene (Vinyltoluene)	03	1125.100
Methyl-2-nonenone	15	162.750	α -Methyl styrene polymers	08	45.000
Methyl nonyl ketone (2-Undecanone)	07	162.600	Methyl sulfate (Dimethyl sulfate)	15	1013.000
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride	15	828.600	Methyl sulfide (Dimethyl sulfide)	15	1354.000
1-methyl-2-nor-tallow-1-[2-tallow amidoethyl]imidazoliummethyl sulfate	03	1108.000	Methyl sulfoxide (Dimethyl sulfoxide)	15	1355.000
Methyl oleate	15	977.650	N-Methyl-N-(tall oil acyl)taurine, sodium salt	12	186.000
			Methyl-1-tallowamidoethyl-2-tallowimidazolium-methyl sulfate	12	498.700
			Methylalloydiethylenetriamine condensate, polyethoxylated, methyl sulfate	12	465.200

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Methylalowladiethylenetriamine condensate, polypropoxylated, methyl sulfate	12	465.210	(Mixed alkyl)sulfobetaine	12	15.000
N-Methyl taurine, sodium salt (2-Methyl-2-aminoethanesulfonic acid, sodium salt)	15	701.300	N-(Mixed alkylsulfonyl)glycine, sodium salt	12	45.000
Methyltestosterone	06	641.200	Mixed alpha-olefins and vegetable	12	318.485
Methyl tetrahydrofuran	15	120.200	Mixed animal and vegetable oil, sulfated, sodium salt	12	299.800
Methyltetrahydrophthalic anhydride	15	120.300	Mixed carboxylic acids	12	536.450
Methyl tri(C9-10)ammonium chloride	12	499.900	Mixed carboxylic acids	12	547.850
1-Methyl-3,5,7-triaza-1-azonia tricyclodecane chloride	13	175.300	Mixed(coco and soya fatty acids), reaction products with chloromethane and diethylenetriamine, ethoxylated, quaternized	12	477.220
Methyltrimethoxysilane and polymethyltrisiloxane	15	1390.000	Mixed dialkyl hydrogen phosphates, amine salts	15	1034.502
Methyltrioctylammonium chloride	12	499.000	Mixed fatty acid amide with diethylene triamine/ethyl sulfate	12	477.226
Methyltris(mixed alkyl)ammonium chloride	12	500.000	Mixed fatty acids-alkylenediamine condensate, polyethoxylate	12	377.000
2-Methylundecanal	07	163.000	Mixed fatty acids, alkyl ether, ethoxylated	12	671.100
Meihvinyl cyclic siloxane	15	120.500	Mixed fatty acids camine/acid ratio=1/1	12	547.855
Methyl vinyl ether	15	1322.000	Mixed fatty acids, diethanolamine condensate	12	578.800
Metoclopramide hydrochloride	06	81.300	Mixed fatty acids, neutralized	12	536.570
Metolazone	06	739.600	Mixed fatty acids-polyalkylenepolyamine condensate	12	361.000
Metryrapone	06	177.000	Mixed fish oils, sulfated, ammonium salt	12	299.990
Minocycline	06	35.000	Mixed fish oils, sulfated, ammonium salt	12	300.000
Minoxidil	06	358.400	Mixed higher glycol amine (MHGA)	12	430.500
Miscellaneous acyclic chemicals, all other	06	1423.000	Mixed linear alcohols, alkoxyated, all other	15	741.000
Mitolane	15	279.380	Mixed linear alcohols, alkoxyated	12	736.950
Mixed alcohol borates	15	1868.720	Mixed linear alcohols, alkoxyated and phosphated, potassium salt	12	87.007
Mixed alcohols, ethoxylated	12	762.000	Mixed linear alcohols, ethoxylated	12	737.000
Mixed alkane sulfonic acid, sodium salt	12	212.000	Mixed linear alcohols, ethoxylated, benzyl ether	12	737.100
3-(Mixed alkoxy)propylamine, ethoxylated oxides	12	330.950	Mixed linear alcohols, ethoxylated and carbonated, sodium salt	12	318.500
3-(3-Mixed alkoxy)propylaminopropyl amine	12	330.955	Mixed linear alcohols, ethoxylated and phosphated, sodium salt	12	87.000
(Mixed alkyl)amine	12	423.000	Mixed linear alcohols, ethoxylated and propoxylated ammonium salt	12	276.000
(Mixed alkyl)amine, ethoxylated	12	331.000	Mixed linear alcohols, ethoxylated and sulfated, sodium salt	12	278.000
(Mixed alkyl)amine phosphate	12	394.700	Mixed linear alcohols, sulfated, ammonium salt	12	278.000
Mixed alkyl benzoate	12	714.450	Mixed linear alcohols, sulfated, diethanolamine salt	12	232.200
Mixed t- α -alkylcarboxylic acid salts	15	671.100	Mixed linear alcohols, sulfated, sodium salt	12	233.000
(Mixed alkyl)phenol alkylenediaminealkanolamine formaldehyde	12	782.950	Mixed linear olefin sulfonate	12	212.125
(Mixed alkyl)phenol epichlorohydrin-formaldehyde, alkoxyated	12	722.100	Mixed oleic, lauric, stearic, and palmitic hexaglycerol esters	12	692.000
(Mixed alkyl)phenol-formaldehyde, alkoxyated	12	722.000	Mixed(secondary linear alcohol)polyethylene propionic acid, sodium salt	12	45.700
Mixed alkyl phenol sulfate, ethoxylated, triethanolamine salt	12	244.300	Mixed tall oil and rosin acids, ethoxylated	12	671.300
Mixed alkyl phosphate, sodium salt	12	102.100			
Mixed alkyl phosphate, alkyamine salt	12	101.000			
Mixed alkyl phosphate, diethanolamine salt	12	101.500			
Mixed alkyl phosphate, potassium salt	12	102.000			
Mixed alkyl phosphate, triethanolamine salt	12	102.050			
N-(Mixed alkyl)polyethylenepolyamine	12	102.120			
Mixed alkyl stearate	12	412.000			
	12	714.520			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Mixed vegetable fatty acids, potassium salt	12	59,000	Naphthalene	02	17,000
Mixed vegetable oils, sulfated, sodium salt	12	307,900	Naphthalene, crude, solidifying at less than 74° C.	01	12,000
Mixed vegetable oils, sulfated, sodium salt	12	308,000	Naphthalene, crude, solidifying at 76° C to less than 79° C	01	14,000
Mixed wool grease and tall oil fatty acids	12	74,050	2,6-Naphthalenedicarboxylic acid	03	819,000
Mixtures not specifically itemized, all other	15	1500,000	Naphthalenesulfonates, all other	12	176,000
Mixtures of alcohols, C-12 and higher, other	15	883,360	2-Naphthalenesulfonic acid	03	1141,000
Modified melamine-formaldehyde, thermosetting	08	8,500	Naphthalenesulfonic acid, bis(1-methylethyl)-, compounded with cyclohexanamine (1:1)	12	174,300
Modified rosin (unesterified)	08	41,000	1-Naphthalenesulfonic acid, formaldehyde condensate and salt	14	465,000
Modified rosin esters	08	40,000	2-Naphthalenesulfonic acid, formaldehyde condensate and salt	14	466,000
Molindone hydrochloride	06	505,000	Naphthalene sulfonic acid, polymer with formaldehyde and 4,4'-dihydroxydiphenyl sulfone	12	722,445
Molybdenum 2-ethylhexanoate	15	639,500	Naphthalene sulfonic acid, polymer with formaldehyde, sodium salt	12	722,500
Mometasone	06	663,500	Naphthalene sulfonic acid, sodium salt, formaldehyde condensate	12	174,500
Monesin	06	68,000	Naphthalimide	03	1148,000
[Mono-(C ₁₀ -16)alkyl derivatives]benzenesulfonic acid, ammonium salt	12	137,450	Naphthenate driers, mixed salts	14	310,000
Monoethanolamine	15	379,000	Naphthenic acid, acid number 150-199	02	19,000
mono(2-Ethylhexyl)-2-ethylhexylphosphonic acid	15	1031,950	Naphthenic acid, acid number 200-224	02	20,000
Monohydric alcohol esters, all other	15	1070,000	Naphthenic acid, acid number less than 150	02	18,000
Monoisopropanolamine	15	407,000	Naphthenic acid, copper salt	13	26,000
Monomethyl tin	15	1404,877	Naphthenic acid, ethoxylated	12	45,800
Mordant Brown 1	04	871,000	Naphthenic acid/polyamine condensates	15	122,250
Mordant Brown 33	04	878,000	Naphthenic acids-polyalkylene polyamine condensate	12	361,150
Mordant Brown 70	04	882,000	Naphthenic acids-tall oil fatty acids-polyalkylene polyamine condensate	12	361,200
Mordant Orange 1	04	848,000	β-Naphthol, ethoxylated	12	748,500
Mordant Orange 3	04	848,003	1-Naphthol, ethoxylated and sulfated, free acid	12	286,090
Mordant Orange 6	04	850,000	Naphthol reds, all other	05	46,000
Mordant Yellow 16	04	841,000	p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine)	03	1160,000
Morphine sulfate	06	405,500	N-1-Naphthylphthalamic acid (NPA)	13	77,900
Morpholine	15	121,000	Natural fats and oils, ethoxylated, all other (NBR) type	12	673,000
Morpholine salt of gluconic acid	15	121,800	Neat's foot oil, sulfated, sodium salt	10	12,000
Morpholine salt of p-toluene sulfonic acid	15	122,000	Neo-C ₉ -C ₁₂ acids	15	294,000
N-Morpholinyl-2-benzothiazolyl disulfide	09	33,000	Neoalkoxy, dodecylbenzene-sulfonyl titanate	12	555,970
p-Morpholinyl-2,5-dibutoxybenzene diazonium chloride	14	370,000	Neoalkoxy, tri(m-amino)-phenyl titanate	12	137,500
Moxalactam	06	51,500	Neoalkoxy, trineodecanoyl titanate	12	331,850
Mustard seed oil fatty acids diethylenetriamine, phosphate salt	06	51,500	Neoalkoxy, tris(m-amino) phenyl zirconate	12	59,620
Myrcene	12	412,800	Neoalkoxy, tris(dioctyl) pyrophosphato zirconate	12	331,890
Myrcenyl acetate	15	1343,000	Neoalkoxy, tris (ethylene diamino) zirconate	12	102,550
Myristaldehyde	07	163,800	Neodecanoic acid	15	556,000
Myristic acid (Ratio=1/1)	12	164,000			
Myristic acid esters, all other	11	547,900			
Myristyl alcohol, propoxylated	12	89,000			
Myristyl lactate	15	738,300			
Myristyl myristate	15	1015,000			
Myristyl stearate	15	979,000			
Myristyl stearate	11	124,525			
Nadolol	06	358,500			
Nafcillin, sodium	06	17,000			
Naphazoline hydrochloride	06	336,000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Neodecanoic acid, diethanolamine salt	15	701.500	Nitromethane	15	460.000
Neodecanoic acid, potassium salt	15	709.600	2-Nitro-2-methyl-1,3-propanediol	15	1090.510
Neodecanoic acid salts, all other	15	712.000	p-Nitrophenethyl alcohol	03	1224.000
Neodecanoic chloride	15	557.000	p-Nitrophenol	03	1228.000
Neohexanoic acid	15	557.100	p-Nitrophenol, sodium salt	03	1229.000
Neohexanoic chloride	02	67.000	p-Nitrophenoxylethanol	03	1230.202
Neohexane (2,2-Dimethylbutane)	06	52.000	1-Nitropropane	15	461.000
Neomycin (medicinal grade)	06	69.000	2-Nitropropane	15	462.000
Neomycin (animal feed grade)	06	69.000	3-(and 5)-Nitrosalicylic acid	03	1239.000
Neopentanoic/neohexanoic acids	15	558.000	p-Nitrosophenol	03	1240.000
Neopentyl glycol adipate	11	64.500	4-Nitrosophenol, sodium salt	03	1240.100
Neopentyl glycol glutarate	11	85.650	N-Nitrosophenylhydroxylamine, ethanolamine salt	15	122.450
Neopentyl glycol hydroxyvalerate	15	1126.500	o-Nitrotoluene	03	1244.000
Neopentyl glycol oleate	15	1126.600	m-Nitrotoluene	03	1243.000
Neopentyl glycol vegetable oil ester	15	1126.700	p-Nitrotoluene	03	1245.000
Netilmicin	06	62.001	Nitrotoluene mixtures	03	1246.000
Niacin (medicinal grade)	06	779.000	Nizatidine	06	620.800
Niacinamide (medicinal grade)	06	780.500	Nonanal	07	165.000
Nickel acetate	15	601.000	1,3-Nonanediol acetate	07	165.200
Nickel 2-ethylhexanoate	15	640.000	Nonanoic acid (Pelargonic acid)	15	559.000
Nicotine polacrilex	06	836.000	Nonene (Tripropylene)	02	80.000
Nicotinonitrile (3-Cyanopyridine)	03	1162.000	Nonenylsuccinic anhydride	15	165.770
Nifedipine	06	374.200	Nonionic surface-active agents, all other	12	787.000
Nitarsone	06	158.000	Non-nylon type, polyamide resins	08	27.000
Nitrated lard oil	15	431.000	n-Nonylaldehyde (Nonanal)	15	800.000
Nitriles, all other	15	457.000	Nonyldiphenylamine mixture (Mono-, di-, and tri-tert-Nonyl mercaptan)	09	171.250
Nitroacetic acid, zinc salt	14	85.000	Nonyphenol	03	1262.000
Nitrotriacetate	14	78.000	Nonyphenol, barium salt	14	229.000
Nitrotriacetate acid, trisodium salt	14	81.000	Nonyphenol, ethoxylated	12	749.000
Nitro-tris-methylene triphosphonic acid	14	82.000	Nonyphenol, ethoxylated and carbonated, sodium salt	12	318.640
Nitro-tris-methylene triphosphonic acid, sodium salt	14	84.000	Nonyphenol, ethoxylated, coconut oil esters	12	714.620
o-Nitroaniline	03	1172.000	Nonyphenol, ethoxylated and phosphated	12	82.000
p-Nitroaniline	03	1173.000	Nonyphenol, ethoxylated and phosphated, diethanolamine salt	12	83.100
5-Nitroanthranilic acid	03	1184.000	Nonyphenol, ethoxylated and phosphated, sodium salt	12	83.200
-Nitrobenzamide	03	1187.503	Nonyphenol, ethoxylated, phosphate esters	12	750.010
Nitrobenzene	03	1190.000	Nonyphenol, ethoxylated and propoxylated	12	750.000
m-Nitrobenzenesulfonic acid, sodium salt	03	1195.000	Nonyphenol, ethoxylated and propoxylated, ammonium salt	12	287.000
o-Nitrobenzoic acid	03	1200.503	Nonyl phenol, ethoxylated with mixed fatty acids	12	750.050
m-Nitrobenzoic acid	03	1200.000	Nonyphenol-formaldehyde, alkoxylated	12	723.000
p-Nitrobenzoic acid	03	1201.000	Nonyphenol poly(ethyleneoxy)acetic acid, sodium salt	12	45.900
m-Nitrobenzoic acid, sodium salt	03	1205.000	nonylphenoxy ethoxycocaoate	12	750.900
2-Nitro-N-benzoylaniline	15	122.406	Nonyphenoxypoly(ethyleneoxy)ethyl iodide	12	751.000
4-(2-Nitrobutyl) morpholine	03	1210.000	Nonyphenyl phosphites, mixed	09	85.000
2-Nitro-p-cresol	03	1215.150	Nopyl acetate	07	115.000
5-Nitrodimethylisophthalate	03	1212.000	2-Nor-tail oil alkyl-1-tail oil amido-ethyl imidazole	12	361.050
Nitrodiphenylamine	03	1212.000	Nortriptyline hydrochloride	06	531.000
Nitroethane	15	459.000	Noscapine	06	434.500
2-Nitro-2-ethyl-1,3-propanediol	15	1090.500			
Nitrogenous compounds, acyclic, all other	15	484.000			
5-Nitroisophthalic acid	03	1215.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Novobiocin, sodium	06	53.000	n-Octylamine, mono	15	293.000
Nylon 6 (Polymer for fiber, only)	14	388.000	Octyl chloride	15	1241.000
Nylon 6/6	14	389.000	n-Octyl n-decyl phthalate	11	49.000
Nylon 6,6-acrylonitrile-butadiene-styrene	08	52.150	Octyldimethylamine oxide	12	333.050
Nylon type, polyamide resins	08	26.000	Octyldiphenylamine	09	77.000
Nystatin (medicinal grade)	06	3.000	Octyldiphenylamine, alkylated	09	78.000
Ocimene	07	165.700	Octyl diphosphate, oxoethylene titanium salt	12	104.600
Ocimenyl acetate	07	165.800	2-n-Octyl-4-isothiazolin-3-one	13	25.500
Octabromodiphenyl oxide	15	122.500	Octyl isovalerate	07	166.360
n-Octadecane	15	1346.000	n-Octyl mercaptan	09	171.400
Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, sodium salt	15	1355.150	tert-Octyl mercaptan	09	171.500
1-Octadecanol (Stearyl alcohol)	15	877.000	Octylphenol	03	1265.000
Octadecanenitrile (Oleonnitrile)	15	450.000	n-Octylphenol, ethoxylated	12	752.000
cis-9-Octadecen-1-ol (Oleyl alcohol)	15	878.000	Octylphenol, ethoxylated and phosphated	12	85.000
9-Octadecenyl alcohol, ethoxylated	12	731.000	Octylphenol, ethoxylated and sulfated, sodium salt	12	290.000
9-Octadecenyl alcohol, ethoxylated and phosphated	12	84.000	n-Octylphenol, ethoxylated and sulfonated, sodium salt	12	208.000
9-Octadecenylamine	12	424.000	tert-Octylphenol-formaldehyde, ethoxylated	12	724.000
(9-Octadecenyl)amine, ethoxylated	12	332.000	Octylphenoxydiethoxy chloride	03	1265.118
Octadecyl succinic anhydride	15	165.800	Octyl phosphate	12	105.000
N-(9-Octadecenyl)trimethylenediamine	12	413.000	Octyl phosphate, alkylamine salt	12	106.000
Octadecylamine, ethoxylated and phosphated, sodium salt	12	112.630	Octyl phosphate, isopropoxy titanium salt	12	106.400
Octadecyl alcohol, ethoxylated	12	732.000	Octyl phosphate neoalkoxy titanium salt	12	106.700
Octadecylamine	12	425.000	Octyl polyphosphate	12	108.000
Octadecylamine acetate	12	396.000	Octyl polyphosphate, potassium salt	12	109.000
Octadecylamine, ethoxylated	12	333.000	Octyl pyrophosphate, ethylenedioxy titanium salt	12	110.100
Octadecyl chloride	12	1240.000	Octyl pyrophosphate, isopropoxy titanium salt	12	110.150
Octadecyl-dibenzyltrimethyl-1,3-propane diammonium chloride	15	527.670	Octyl pyrophosphate neoalkoxy titanium salt	12	110.160
N-Octadecyl-N,N-di(2-hydroxyethyl)-N-methylammonium chloride	12	465.400	Octyl pyrophosphate, oxoethylenedioxy titanium salt	12	110.170
Octadecyl-3-mercaptopropionate	15	1016.000	Octyl sulfate, sodium salt	12	238.000
Octadecylnitrile	15	450.100	N-Octyltriethoxy silane	15	1390.500
N-Octadecylsulfosuccinamic acid, disodium salt	12	179.000	Oil-soluble petroleum sulfonate, all other	14	217.000
Octahydro-5-methoxy-4,7-methano-1H-indene, 2-carboxaldehyde	07	64.600	Oil-soluble petroleum sulfonate, barium salt	14	212.000
(-)Octamandelate	03	1263.300	Oil-soluble petroleum sulfonate, calcium salt	14	213.000
Octanal	07	166.000	Oil-soluble petroleum sulfonate, magnesium salt	14	214.000
n-Octane	15	1348.000	Oil-soluble petroleum sulfonate, mixed salts	14	214.500
n-Octane	02	75.000	Oil-soluble petroleum sulfonate, sodium salt	14	215.000
n-Octanesulfonic acid, sodium salt	12	212.100	Oleamide (Octadecene amide)	15	250.000
Octanoic acid (Caprylic acid)	15	560.000	Oleamidopropyl betaine	12	15.900
1-Octanol	15	866.000	Oleamidosulfosuccinamic acid, disodium salt	12	179.900
2-Octanol (sec-Capryl alcohol)	15	867.000	Oleic acid (Ratio = 1/1)	12	548.000
2-Octanone (Hexyl methyl ketone)	15	831.000	Oleic acid (Ratio = 2/1)	12	538.000
Octenes, mixed	02	75.700	Oleic acid	15	563.000
Octenylsuccinic anhydride	15	165.820	Oleic acid-1-(2-aminoethyl)piperazine condensate	12	362.000
N-Octyl acetate	07	166.300	Oleic acid, diethanolamine salt	12	29.990
tert-Octylamine	15	293.100	Oleic acid-N,N-dimethyltrimethylenediamine condensate	12	365.000
			Oleic acid esters, all other	11	96.000
			Oleic acid, mixed isopropanolamine salt	12	30.400
			Oleic acid, morpholine salt	12	30.500
			Oleic acid,N-octyl ester	12	714.720

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Oleic acid, potassium salt	12	60.000	Oxybutynin chloride	06	301.500
Oleic acid, sodium salt	12	61.000	Oxycodone hydrochloride	06	406.000
Oleic acid, sulfated	12	261.600	Oxycodone terephthalate	06	406.100
Oleic acid, triethanolamine salt	12	31.000	4,4'-Oxydianiline	03	1275.000
Oleic amide, N,N-bis(hydroxyethyl)-(Z)	15	250.500	N-Oxydiethylene-2-benzothiazolesulfenamide	09	34.000
N-(Oleoyloxyisopropyl)sulfosuccinamic acid	12	180.000	Oxygen-containing quaternary ammonium salts (Except those having amide linkages), all other	12	467.000
Oleoylpalmitamide	15	251.000	Oxyquinoline benzoate (benoxiquine)	06	268.000
Oleyl alcohol, ethoxylated	12	732.100	Oxyquinoline citrate	06	269.000
Oleyl betaine	12	16.100	Oxyquinoline sulfate	06	270.000
Oleyl oleate	11	94.500	Oxytracycline (animal feed grade)	06	72.000
Oleoyoxyethylamide oxypropanol sulfonic acid	12	212.200	Paint dryers, naphthenic acid salts, all other	14	316.000
Oleyl sulfate, sodium salt	12	238.200	Palmitic acid esters, all other	11	101.000
Olive oil acids, potassium salt	12	61.950	Palm kernel oil acids (Ratio=1/1)	12	549.100
Organo-aluminum compounds, all other	15	1367.000	Palm oil acids, sodium salt	12	63.000
Organo-boron compounds, all other	15	1371.000	Palm oil, hydrogenated	15	1329.500
Organo-nickel compounds	13	165.000	Panthenol	06	790.000
Organophosphorus insecticides, cyclic, all other	15	1399.000	Papain	14	102.000
Organo-silicone compounds, all other	15	1407.000	Papaverine hydrochloride	06	746.000
Organo-tin compounds, all other	15	1404.910	para-Cymene	07	95.400
Organotin mercaptides	15	1409.000	n-Paraffins, other	02	85.000
Organo-zinc compounds, all other	15	1409.000	n-Paraffins, C ₁₀ -C ₁₄	02	84.000
Ormetoprim	06	279.390	n-Paraffins, C ₁₂ -C ₁₈	02	84.260
Orphenadrine citrate	06	265.500	n-Paraffins, C ₆ -C ₁₁	02	82.000
Other copolymer resins of acrylic and/or methacrylic acid esters	08	479.500	n-Paraffins, C ₆ -C ₉	02	81.000
Other ethylene copolymer resins	08	20.000	n-Paraffins, C ₉ -C ₁₅	02	83.000
Other homopolymer resins of acrylic and/or methacrylic acid esters	08	31.800	Parafomaldehyde	15	1176.500
Other hydrolytic enzymes	08	20.050	Parahydroxyphenylglycine potassium methyl dane salt	03	1121.650
7-Oxabicyclo-[2.2.1]-heptane-2,3-dicarboxylic acid, disodium salt (Endothall)	14	120.000	Pectinase	14	116.000
Oxacillin, sodium	13	83.000	Pelargonic acid, barium salt (Barium nonoate)	15	730.150
Oxalic acid salts, all other	06	18.000	Pelargonic acid, calcium salt (Calcium nonoate)	15	730.200
Oxamide	15	727.000	Pelargonic acid esters, all other	11	101.500
Oxidized Fischer-Tropsch wax	15	251.250	Pelargonic acid-tetraethylenepentamine condensate	12	366.000
Oxidized hydrocarbon mixture	15	566.000	Pemoline	06	547.500
Oxirane, methyl-, polymer with oxirane, didodecylbenzenesulfonate	14	218.000	Penicillin V	06	26.000
Oxalcohol bottoms, sulfated, sodium salt	12	138.600	Penicillin G, benzathine	06	21.000
Oxaluminum isopropoxide	12	238.500	Penicillin G, potassium	06	22.000
Oxaluminum stearate	15	1363.050	Penicillin V, potassium	06	29.000
3-Oxo-1,2-benzisothiazoline-2-acetic acid, methyl ester, 1,1-dioxide	15	1363.100	Penicillin G, procaine (animal feed grade)	06	74.000
3-Oxo-2-pentylcyclopropane acetic acid	03	1272.000	Penicillin G, procaine (medicinal grade)	06	23.000
Oxo process bottoms	07	115.050	Pentabromodiphenyl oxide	15	125.780
Oxtriphylline	15	1451.300	Pentachloronitrobenzene (PCNB)	13	27.000
Oxvaluminum octanoate	06	745.800	Pentachlorophenol, sodium salt	13	29.000
p,p'-Oxybis(benzenesulfonhydrazide)	15	1363.200	Pentaerythritol	15	1091.000
	09	109.000	Pentaerythritol esters	15	286.000
			Pentaerythritol stearate	14	286.000
			Pentaerythritol tetrakis (3-Mercaptopropionate)	12	715.100
			Pentaerythritol tetraacetate	15	1131.000
			Pentaerythritol tetraoleate	15	1131.050
				12	715.300

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Pentaerythritol tetrapelargonate	12	715.310	Phenol, alkylated	09	101.000
Pentaerythritol tetrastearate	15	1131.300	Phenol, ethoxylated	12	754.000
Pentaerythritol tribenzoate	15	125.700	Phenol, ethoxylated and phosphated	12	88.000
Pentaerythrenehexamine	15	294.000	Phenol-formaldehyde resin (with lignite)	12	725.100
1,1,3,3,5-Pentamethyl-4,6-dinitroindan (Moskene)	07	64.900	Phenol, hindered	09	102.000
N,N,N',N'-Pentamethyl-N-(tallow alkyl)trimethylene bislammonium chloride]	12	501.000	Phenolic antioxidants, all other	09	105.000
Pentamidine isethionate	06	270.700	Phenolic and other tar acid resins	08	9.000
n-Pentane	02	55.000	Phenol, natural, from petroleum, U.S.P.	08	1291.000
1,5-Pentanediol	15	1092.000	Phenol polymers	03	52.190
2,4-Pentanedione (Acetylacetone)	15	833.000	Phenol salts, all other	14	231.000
2,4-Pentanedione peroxide	15	1296.420	Phenols, ethoxylated, all other	12	758.000
1-Pentanol	15	843.000	Phenol, styrenated	03	1298.703
3-Pentanone (Diethyl ketone)	15	835.000	Phenol, styrenated, mixtures	09	103.000
Pentazocine	06	416.001	Phenol-sulfonated formaldehyde rosin	15	125.960
Pentazocine hydrochloride	06	416.003	Phenolsulfonic acid	03	1299.200
1-Pentene	02	56.000	1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated)	14	467.000
2-Pentene	02	57.000	Phenolsulfonic acid, sodium salt	03	1299.802
Pentenes, mixed	02	58.000	Phenol, synthetic, all other	03	1298.000
Pentobarbital	06	456.000	Phenol, synthetic, by caustic fusion, all other	03	1294.000
Pentylamine, mono	15	296.000	Phenol, synthetic, from cumene by oxidation, U.S.P.	03	1297.000
α -Pentylcinnamaldehyde	07	65.000	Phenoxathiin	03	1298.500
2-Pentyl-cyclopenten-1-one	07	115.060	Phenoxyacetic acid, sodium salt	03	1299.600
o-Pentylphenol (o-Amylphenol)	03	1279.000	Phenoxybenzamide	06	359.300
p-tert-Pentylphenol	03	1279.100	2-Phenoxyethanol (Ethylene glycol monophenyl ether)	15	127.000
Perchloroethylene (Tetrachloroethane)	15	1243.000	Phenoxyethyl acrylate	15	128.500
Perfluoroalkyl polyether	15	1410.100	2-Phenoxyethyl isobutyrate	07	74.000
Peroxyacetic acid (Peracetic acid)	15	1296.430	3-(Phenoxyphenyl) methyl-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethyl cyclopropanecarboxylate	13	166.025
3,4,9,10-Perylene-tetracarboxylic-3,4,9,10-dianhydride	03	1280.503	2-Phenoxypropanol	15	129.000
3,4,9,10-Perylene-tetracarboxylic-3,4,9,10-diimide	03	1281.000	Phenoxy (R) resin (other than for coating and adhesives)	08	25.000
Pesticides and related products, acyclic, all other	13	245.000	m-Phenoxytoluene	03	1299.750
Pesticides and related products, cyclic, all other	13	175.000	Phensuximide	06	423.000
Petroleum hydrocarbon resins	08	24.000	Phentermine	06	549.000
Petroleumsulfonic acid, water soluble (Acid layer), sodium salt	12	213.000	Phenylacetaldehyde	07	75.000
1,10-Phenanthroline	03	1281.950	Phenylacetalddehyde, dimethyl acetal	07	76.000
Phenethyl acetate	07	66.000	Phenyl acid phosphate	15	129.300
Phenethyl alcohol	07	67.000	4-(Phenylazodiphenylamine	03	1311.000
2-Phenethylamine	03	1282.000	2-Phenylbenzimidazole	03	1312.600
Phenethyl formate	07	68.000	m-Phenylenebismaleimide	03	1321.200
Phenethyl isobutyrate	07	69.000	m-Phenylenebismaleimide	09	45.000
Phenethyl isovalerate	07	70.000	o-Phenylenediamine	03	1320.000
2-Phenethyl phenylacetate	07	71.000	m-Phenylenediamine	03	1319.000
1-Phenethyl-2-picolinium bromide	12	527.700	p-Phenylenediamine	03	1321.000
Phenethyl propionate	07	72.000	p-Phenylenediamines, substituted, other	09	65.000
p-Phenetidine	03	1286.000	Phenylephrine bitartrate	06	340.000
Phenobarbital	06	458.000	Phenylephrine hydrochloride	06	341.000
Phenobarbital, sodium	06	459.000	Phenyl ether (Diphenyl oxide)	03	1322.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
d(+)- α -Phenylethylamine	03	1322.025	Phthalic acid, lead salt, (Dibasic)	15	135.000
Phenylethyl benzoate	07	77.100	Phthalic anhydride	03	1348.000
Phenylethyl 2-methyl butyrate	07	77.250	Phthalic anhydride esters, all other	11	51.000
N-Phenylglycine	03	1322.850	Phthalic anhydride type alkylid resins	08	2.000
Phenylglycine, potassium salt	03	1322.702	Phthalimide	03	1351.000
Phenylglycine, sodium salt	03	1323.000	[Phthalocyaninato(2-)]copper	03	1352.000
1-Phenyl-2-hydroxy-2-methyl-propanone-1	15	132.100	Phthalocyaninetetrasulfonyl chloride, copper derivative	03	1353.800
2,2'-(Phenyl)imino]diethanol (N-Phenyldiethanolamine)	03	1327.000	Phthaloyl chloride (Phthalyl chloride)	03	1355.000
2,2'-(Phenyl)imino]diethanol, diacetate ester	03	1327.500	Picoline (3,4-mixture)	03	1359.000
Phenyl-5-mercaptotetrazole	14	375.000	2-Picoline (α -Picoline)	03	1356.000
o-Phenylphenol	03	1330.000	3-Picoline (β -Picoline)	03	1357.000
p-Phenylphenol	03	1331.000	4-Picoline (γ -Picoline)	03	1358.000
p-Phenylphenol, alkoxylated	12	754.050	Picolinonitrile (2-Cyanopyridine)	03	1359.100
o-Phenylphenol, sodium salt	03	1333.000	3-Picolylamine	03	1361.000
Phenylpropanolamine	15	134.660	Picramic acid, sodium salt	15	136.000
Phenylpropanolamine bitartrate	06	343.500	Picric acid (Trinitrophenol)	03	1362.000
Phenylpropanolamine hydrochloride	06	343.000	Pigment Black 7	05	143.007
Phenyl-2-propanone	03	1339.000	Pigment black toners, all other	05	144.000
3-Phenylpropyl acetate	07	79.000	Pigment Blue 1, (PMA)	05	99.000
4-Phenylpropylpyridine	03	1339.853	Pigment Blue 1, (PTA)	05	100.000
1-Phenyl-3-pyrazolidone	14	377.000	Pigment Blue 2, (PMA)	05	102.000
Phenylstyrene, ethoxylated	12	754.080	Pigment Blue 14, (PMA)	05	111.000
5-Phenyltetrazole	09	109.200	Pigment Blue 15, (a form)	05	113.010
Phenyltoloxamine citrate	06	104.000	Pigment Blue 15:1, (a form)	05	113.020
N-Phenylurea	03	1343.500	Pigment Blue 15:2, (a form)	05	113.030
Phenytol	06	423.300	Pigment Blue 15:3, (b form)	05	114.010
Phenytol, sodium	06	423.600	Pigment Blue 15:4, (b form)	05	114.020
Phosgene (Carbonyl chloride)	15	1411.000	Pigment Blue 19	05	116.000
Phosphated and polyphosphated alcohols, all other	12	111.000	Pigment Blue 25	05	119.000
Phosphonate ester, cyclic	15	134.900	Pigment Blue 61	05	120.061
Phosphonic acid, (1-hydroxy ethylidene)bis compounded with 2-aminomethanol	12	762.300	Pigment Blue 62	05	120.062
Phosphonic acid, [1,2 ethanediybis[nitriobis(methylene)]tetrakis-, ammonium salt	12	465.520	Pigment blue toners, all other	05	124.000
Phosphonic acid, [nitriobis(methylene)]-tris-, ammonium salt	12	465.565	Pigment Brown 5	05	140.000
Phosphonic acid, [nitriobis(methylene)]-tris, sodium salt	12	465.570	Pigment Green 1, (PMA)	05	125.000
2-(Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	14	86.000	Pigment Green 2, (PMA)	05	127.000
N-(Phosphonomethyl)glycine, isopropylamine salt	13	205.950	Pigment Green 2, (PTA)	05	128.000
Phosphoric acid esters, all other	11	16.000	Pigment Green 4, (PMA)	05	130.000
Phosphoric and polyphosphoric acid esters, all other	12	113.000	Pigment Green 7	05	132.000
Phosphorodithioates used as lubricating oil and grease additives, all other	14	244.000	Pigment Green 10	05	134.000
Phosphorus acid esters, all other	15	1049.000	Pigment Green 36	05	134.260
Photographic chemicals, all other	14	383.000	Pigment green toners, all other	05	135.000
Phthalic acid	03	1346.000	Pigment Orange 1	05	19.000
			Pigment Orange 2	05	20.000
			Pigment Orange 5	05	21.000
			Pigment Orange 13	05	23.000
			Pigment Orange 15	05	24.000
			Pigment Orange 16	05	25.000
			Pigment Orange 17	05	206.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Pigment Orange 34	05	25.180	Pigment Red 194	05	83.194
Pigment Orange 38	05	25.250	Pigment Red 195	05	84.000
Pigment Orange 46	05	26.046	Pigment Red 200	05	84.202
Pigment Orange 48	05	26.048	Pigment Red 202	05	84.206
Pigment orange toners, all other	05	29.000	Pigment Red 206	05	84.207
Pigment Red 1, (light)	05	48.000	Pigment Red 207	05	84.209
Pigment Red 2	05	30.000	Pigment Red 209	05	84.209
Pigment Red 3	05	49.000	Pigment Red 210	05	45.910
Pigment Red 4	05	50.000	Pigment Red 214	05	84.214
Pigment Red 5	05	31.000	Pigment Red 224	05	84.224
Pigment Red 13	05	36.000	Pigment Red 238	05	84.238
Pigment Red 17	05	39.000	Pigment Red 63:1, calcium	05	70.001
Pigment Red 21	05	40.021	Pigment red toners, all other	05	86.000
Pigment Red 22	05	43.000	Pigment Violet 1, (fugitive)	05	87.000
Pigment Red 23	05	44.000	Pigment Violet 1, (PMA)	05	88.000
Pigment Red 31	05	45.000	Pigment Violet 1, (PTA)	05	89.000
Pigment Red 38	05	52.000	Pigment Violet 3, (fugitive)	05	90.000
Pigment Red 41	05	54.000	Pigment Violet 3, (PMA)	05	91.000
Pigment Red 48:1, (barium)	05	55.100	Pigment Violet 3, (PTA)	05	92.000
Pigment Red 48:2, (calcium)	05	55.200	Pigment Violet 4, (fugitive)	05	92.004
Pigment Red 48:3, (strontium)	05	55.300	Pigment Violet 19	05	93.160
Pigment Red 48:4, (manganese)	05	55.400	Pigment Violet 23	05	93.200
Pigment Red 49:1, (barium)	05	57.000	Pigment Violet 29	05	93.229
Pigment Red 49:2, (calcium)	05	58.000	Pigment Violet 39, (PMA)	05	93.439
Pigment Red 52:1, (calcium)	05	61.000	Pigment violet toners, all other	05	98.000
Pigment Red 52:2, (manganese)	05	62.000	Pigment Yellow 1	05	1.000
Pigment Red 53:1, (barium)	05	64.000	Pigment Yellow 2	05	1.500
Pigment Red 57:1, (calcium)	05	68.000	Pigment Yellow 3	05	2.000
Pigment Red 60:1	05	209.000	Pigment Yellow 12	05	8.000
Pigment Red 63	05	70.000	Pigment Yellow 13	05	9.000
Pigment Red 81, (PMA)	05	74.000	Pigment Yellow 14	05	10.000
Pigment Red 81, (PTA)	05	75.000	Pigment Yellow 16	05	13.000
Pigment Red 83	05	211.000	Pigment Yellow 17	05	11.000
Pigment Red 101	05	79.101	Pigment Yellow 60	05	6.460
Pigment Red 112	05	45.810	Pigment Yellow 65	05	6.465
Pigment Red 122	05	79.320	Pigment Yellow 73	05	6.620
Pigment Red 123	05	80.000	Pigment Yellow 74	05	6.630
Pigment Red 135	05	80.135	Pigment Yellow 75	05	6.640
Pigment Red 146	05	45.846	Pigment Yellow 83	05	11.660
Pigment Red 147	05	45.847	Pigment Yellow 87	05	6.697
Pigment Red 149	05	80.149	Pigment Yellow 98	05	6.698
Pigment Red 168	05	80.550	Pigment Yellow 119	05	6.717
Pigment Red 169	05	80.555	Pigment Yellow 124	05	11.724
Pigment Red 170	05	45.870	Pigment Yellow 139	05	14.839
Pigment Red 176	05	80.635	Pigment Yellow 176	05	11.776
Pigment Red 179	05	80.660	Pigment Yellow 194	05	6.792
Pigment Red 181	05	80.680	Pigment yellow lakes, all other	05	204.999
Pigment Red 188	05	80.688	Pigment yellow toners, all other	05	18.000
Pigment Red 190	05	80.770	Pinane	15	136.200

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Pinane hydroperoxide	15	136.500	Polyaliphalefins	15	1411.150
2-Pinanol (cis and trans)	15	136.800	Polyamine polymethane phosphonic acid	14	87.000
Pinanols/pinol mixtures	15	136.900	Polyamines	14	437.000
α-Pinene	15	137.000	Polybasic acid type alkylid resins	08	3.000
β-Pinene	15	138.000	Polybutadiene acrylic acid acrylonitrile terpolymer (PBAN)	10	13.300
α-Pinene oxide	15	139.500	Polybutadiene, emulsion-polymerized	10	14.000
Pinene oxide	07	115.250	Polybutadiene resins	10	14.000
Pinene, sulfate	15	140.000	Polybutadiene, solution-polymerized	08	15.000
Pinene, wood	15	141.000	Polybutylene terephthalate (PBT)	10	30.020
Pine oil, natural, sulfate	15	141.195	Polybutylene type resins	08	28.000
Pine oil, synthetic	15	141.200	Polybutylether carbamate	14	169.000
Pipelicolic acid	03	1362.953	Polycarbonate resins	08	29.000
Piperacillin	06	19.200	Polycarboxylic acid, alkylate	12	719.200
Piperazine	06	123.000	Polycarboxylic acid, alkylphenoxyalkoxylate	12	719.210
Piperazine dihydrochloride	06	125.000	Polychloroprene (Neoprene) (CR) type	10	17.000
Piperazine hydrochloride	06	127.000	Polydextrose	14	438.000
Piperazine sulfate	06	129.000	Poly(diallyldimethylammonium chloride)	14	439.000
Piperidine	03	1365.000	Poly(epichlorohydrin)	12	762.400
Piperonal (Heliotropin)	07	80.000	Polyepichlorohydrin	15	1411.180
Piperonal, sodium bisulfite complex	15	143.000	Polyester resins, saturated, all other	08	30.050
Piperylene (1,3-Pentadiene)	02	58.600	Polyester resins, unsaturated	08	12.000
Piroxicam	06	412.500	Polyether diols	12	762.730
Pitch of tar, all other	01	30.000	Polyether and polyester polyols for urethanes	08	12.050
Pitch of tar: hard (M.P. 161° F and Over)	01	28.000	Polyether polyols based on propylene oxide, all other	15	1187.560
Pitch of tar: medium (M.P. 110° To 160° F)	01	27.000	Polyether triols	12	762.750
Pitch of tar: soft (M.P. 80° To 109° F)	01	26.000	Polyethoxylate/polypropoxylate dibenzyl ether	12	762.800
Pivaloyl chloride	15	569.000	Polyethoxy methylester/yl ammonium chloride	12	465.600
2-Pivaloyl-1,3-indandione (Pindone)	13	170.000	Polyethylbenzene (80 percent diethylbenzene)	03	1369.000
Plant growth regulators, acyclic, all other	13	231.590	Polyethylene glycol	15	1181.000
Plant growth regulators, cyclic, all other	13	168.990	Polyethylene glycol butyl ether, propoxylated	15	1181.080
Plinol	07	115.300	Polyethylene glycol dibenzoate	11	52.000
Polyacrylamide	14	403.000	Polyethylene glycol diester of coconut oil acids	12	684.290
Polyacrylamide copolymers, all other	14	405.500	Polyethylene glycol diester of coconut oil and oleic acids	12	684.300
Polyacrylate methacrylate copolymers	14	427.000	Polyethylene glycol diester of mixed liner acid/oleic acid	12	684.400
Polyacrylate poly(hydroxypropylacrylate) copolymer	14	428.000	Polyethylene glycol diester of tall oil acids	12	684.500
Polyacrylic acid	15	570.000	Polyethylene glycol dimethyl ether	15	1181.200
Polyacrylic acid	14	430.000	Polyethylene glycol dioleate	12	675.000
Poly(acrylic acid, ethyl ester)	14	423.000	Polyethylene glycol distearate	12	676.000
Poly(acrylic acid, methyl ester/ethylene/1,1-dichlorosuccinic acid, methylene-) with ethyl acrylate	14	425.000	Polyethylene glycol ester of mixed fatty acids	12	684.700
Polyacrylic acid salts, all other	14	434.000	Polyethylene glycol esters of chemically defined acids, all other	12	684.000
Polyacrylic (ACM) type elastomers	10	13.000	Polyethylene glycol esters of mixed acids, all other	12	691.000
Polyacrylonitrile and acrylonitrile copolymers	14	391.000	Polyethylene glycol monocaprylate	12	677.500
Polyacrylonitrile, hydrolyzed	14	435.000	Polyethylene glycol monoester of coconut oil acids	12	685.510
Polyacrylonitrile, starch hydrolyzed polymer	14	436.000			
Polyalicyclic polyamines and salts and quats	12	417.500			
Polyalkylene glycol oleate	12	719.050			
Polyalkylene polyamine, ethoxylated	12	333.700			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Polyethylene glycol monoester of tall oil acids	12	685.700	Polyol aluminum chelate	15	1363.500
Polyethylene glycol monolaurate	12	678.000	Poly- α -olefins	14	453.000
Polyethylene glycol mono(nonyphenol)ether ammonium sulfate	12	762.970	Poly- α -olefins, sulfurized	14	454.000
Polyethylene glycol mono-oleate	12	679.000	Polyoxyalkene silicones	15	1391.000
Polyethylene glycol mono-oleate, ethoxylated	12	679.100	Polyoxyalkylated cyclic amines	14	468.000
Polyethylene glycol monopalmitate	12	680.000	Polyoxyalkylene glycol	15	1181.800
Polyethylene glycol monopelargonate, methoxylated	12	680.250	Poly(oxyalkylene glycol)polymer with polymethylene		
Polyethylene glycol monopelargonate	12	680.200	polyphenylene isocyanate urethane prepolymer	15	1411.330
Polyethylene glycol monoricinoleate	12	681.000	Poly(oxy-1,2-ethanediy), w-(2-carboxyethoxy)-w'-hydroxy-s, a-(iminodi-2, 1-ethanediy) bis-,N-tallow alkyl derivs., potassium salt	12	47.490
Polyethylene glycol monostearate	12	682.000	Poly(oxy-1,2-ethanediy)- α -carboxymethyl, omega-(tridecyloxy), potassium salt	06	457.000
Polyethylene glycol (mixed ester) of tall oil acids	12	682.250	Poly(oxy-1,2-ethanediy), α -(1-oxotetradecyl)	15	1322.500
Polyethylene glycol, propoxylated	12	762.960	Poly(oxy-1,2-ethanediy), α -phenylmethyl-70-hydroxy,C-12 C-15 alkyl ethers	12	763.450
Polyethylene glycol sesquiester of coconut oil acids	12	687.000	Poly(oxy-1,2-ethanediy), α -phenylmethyl-70-hydroxy, ethoxylated nonylphenol alkyl ether	12	763.500
Polyethylene glycol sesquiester of tall oil acids	12	689.000	Poly(oxyethanyl, 2-diy)-di-[2-bis(2-aminoethyl) methylamiummethyl]	12	465.640
Polyethylene glycol sesquiester of tallow acids	12	690.000	ethylene dichloride]	13	195.013
Polyethylene glycol sesquinoleate	12	683.200	Poly[oxy(methyl-1,2-ethanediy)], α -hydro	12	754.520
Polyethylenepolyamine polymer with 1,4-dihydroxy-2-butyne	14	171.000	Polyoxypropylene polyoxyethylene glycol, mixed	15	1185.000
Polyethylene terephthalate	14	390.000	Polyoxypropylene triamine	15	468.250
Polyethylene terephthalate (PET)	14	30.040	Polyphenolic phosphites, polyalkylated	09	86.000
Polyglycerol distearate	08	692.500	Poly-m-phenylene isophthalamide	14	392.000
Polyglycerol esters, all other	12	698.000	Polyphenylene oxide type resins	08	35.500
Polyglycerol mono-oleate	12	696.000	Polyphenylene sulfide resins	08	35.500
Polyglycerol monostearate	12	697.000	Poly-p-phenylene terephthalamide	14	393.000
Polyglycols, ethylene glycol and glycol ether, mixed	15	1184.000	Polypropoxy diethylmethyl ammonium chloride	12	465.650
Polyglycols-toluene diisocyanate reaction product	15	144.600	Polypropylene glycol	15	1187.480
Polyhexafluoropropylene oxide	15	1411.200	Polypropylene glycol, alkoxyated, polymer with maleic anhydride, acrylic acid, and alkylphenol-formaldehyde resin, alkoxyated	12	764.400
Polyhydric alcohol esters, all other	15	1196.000	Polypropylene glycol butyl ether (Polypropoxy butyl ether)	15	1187.500
Polyhydric alcohol ethers, all other	15	1141.000	Polypropylene glycol butyl ether, ethoxylated	15	1187.503
Polyhydric alcohol, ethoxylated and phosphated	12	88.800	(Polypropoxy butyl ether, ethoxylated)	12	764.000
Polyhydric alcohols, all other	15	1096.000	Polypropylene glycol, ethoxylated	12	764.000
Polyimides and amide-imide polymers	08	34.000	Polypropylene glycol glycerol triether (Polypropoxyglyceryl triether)	15	1187.520
Polyisobuteryl succinic anhydride	14	288.000	Polypropylene glycol glycerol triether, copolymer with epichlorhydrin bisphenol epoxy resin	12	764.110
Polyisoprene (IR) type	10	19.000	Polypropylene glycol, phosphated	12	89.000
Polymerization regulators, acyclic, other	09	173.000	Polypropylene polymer and copolymer resins	08	36.000
Polymers for fibers, all other	14	394.000	Polysulfide (T) type elastomers	10	20.000
Polymers, water soluble, all other	14	452.000	Polyterpene resins	08	38.000
Polymethacrylic acid esters	15	1411.300			
Polymethacrylic acid, sodium salt	14	445.000			
Polyethylene polyphenylisocyanate	03	1023.000			
Poly(1,1'-(methylimino)bis(3-chloro-2-propanol)) tetramethylethylenediamine	14	446.000			
Polyethyl methacrylate (PMMA)	08	20.040			
Poly(mixed ethylene, propylene)glycol	12	763.000			
Poly(mixed ethylene/propylene glycol) capped with alkyl oxirone	12	763.050			
Polymyxin B	06	56.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Polytetrafluoroethylene (PTFE)	08	38,100	Propanedioic acid, diethylidimethyl ester, polymer with	15	147,600
Polytetramethylene glycol ether	15	1187,000	4-hydroxy-2,2,6,6-tetramethyl-1-piperidine ethanol		
Poly(1,1,1-trichlorobutane-2-ol)ethylene glycol dextrose ether	15	1187,200	1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, polymer with oxirane	12	698,800
Polyurethane elastomers	08	13,040	1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, polymer with oxirane and methyloxirane	12	698,805
Polyurethane resins	08	13,080	1,2-Propanediol dioctanoate/decanoate	12	699,080
Polyvinyl acetate resins	08	47,000	Propanediol esters, all other	12	704,000
Polyvinyl alcohol resins	08	48,000	1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with oxirane	15	1187,615
Polyvinyl butyral resins	08	49,000	1,2-Propanediol monoaurate	12	701,000
Polyvinyl chloride copolymer resins, all other	08	49,020	1,2-Propanediol mono-oleate	12	702,000
Polyvinyl chloride homopolymer resins	08	49,010	1,2-Propanediol monostearate	12	703,000
Polyvinyl fluoride	08	38,280	p-Propenylanisole (Anethole)	07	81,000
Polyvinyl formal resin	08	49,050	Propionaldehyde	15	802,000
Polyvinylidene fluoride	08	38,300	Propionic acid	15	572,000
Poly(vinyl-O-sulfobenzal)	14	379,000	Propionic acid salts, all other	15	739,000
Potassium acetate	15	602,000	Propionic blends	15	1460,000
Potassium benzoate	15	10,800	Propionitrile	15	450,500
Potassium citrate	15	625,000	Propiophenone	03	1374,000
Potassium hexanoate	15	641,000	Propoxyethanol (Ethylene glycol monopropyl ether)	15	1187,750
Potassium glutamate	14	9,000	Propoxylated starches	14	496,000
Potassium lactate	15	673,700	Propoxyphene hydrochloride	06	413,000
Potassium 2-methyl-2-butanol	15	1411,400	Propoxyphene napsylate	06	414,000
Potassium 2-methyl-2-propanol	15	1411,600	Propranolol hydrochloride	06	381,500
Potassium oxalate	15	725,000	Propyl acetate	15	1050,000
Potassium salicylate	06	387,000	Propyl alcohol (Propanol)	15	868,000
Potassium and sodium salts of fatty, rosin, and tall oil acids, all other	12	74,000	n-Propylamidethanol	15	252,700
Potassium stearate	15	761,500	Propylamine, mono	15	301,000
Potassium tallate	15	177,200	p-Propylanisol (Dihydroanethole)	07	81,200
Potassium warfarin	06	629,000	S-Propyl butylethythiocarbamate (Pebulate)	13	206,000
Povidone iodine	06	271,000	n-Propyl chloroformate	15	1050,300
Pramoxine hydrochloride	06	710,000	S-Propyl dipropylthiocarbamate (Vernolate)	13	207,000
Prazosin	06	359,650	Propylene	02	42,000
Prednisolone	06	664,000	Propylene carbonate	15	1132,280
Prednisolone acetate	06	665,000	Propylene glycol (1,2-Propanediol)	15	1093,000
Prednisone	06	666,000	Propylene glycol, alkoxylated	15	1187,900
Prilocaine hydrochloride	06	716,001	Propylene glycol t-butyl ether	15	1187,357
Primary monoamines, all other	12	430,000	Propylene glycol dibenzoate	15	147,800
Priming and refractory oil	01	21,040	Propylene glycol dicaprylatecaprate	15	1132,300
Probenecid	06	740,000	Propylene glycol esters of hydrogenated palm oil	12	719,500
Procainamide hydrochloride	06	380,000	Propylene glycol ethers (and propylene glycols), all other	15	1187,475
Prochlorperazine	06	486,800	Propylene glycol, mixed ethers	15	1187,425
Prochlorperazine edisylate	06	487,000	Propylene glycol monobutyl ether	15	1187,355
Prochlorperazine maleate	06	488,000	Propylene glycol monomethyl ether (1-Methoxy-2-propanol)	15	1187,400
Progesterone	06	683,000	Propylene glycol monoricinoleate	11	110,500
Progestins, all other	06	684,000	Propylene glycol sebacate	11	115,500
1-Propanamine, 3-(C ₁₂ -C ₁₅ alkoxy derivatives)	12	413,500			
1-Propanaminium,N-ethyl-N,N-dimethyl-3-[(1-oxooctadecyl)amino]-, ethyl sulfate	12	477,280			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Propylene imine	15	469.700	Reactive Blue 21	04	944.000
Propylene oxide	15	1323.000	Reactive Blue 28	04	944.028
Propyl gallate	15	148.000	Reactive Blue 38	04	946.000
Propylhexedrine	06	344.000	Reactive Blue 41	04	946.041
n-Propyl mercaptan (1-Propanethiol)	02	96.000	Reactive Blue 71	04	946.071
n-Propyl oleate	11	95.000	Reactive Blue 89	04	946.089
Propyl oleate, sulfated, sodium salt	12	262.000	Reactive Blue 199	04	946.199
2-Propyn-1-ol (Propargyl alcohol)	15	869.000	Reactive Blue 214	04	946.212
2-Propynyl 3,7,11-trimethyl-(2e,4e)-dodecadienoate	13	231.019	Reactive blue dyes, all other	04	947.000
Protease (bacterial)	14	104.000	Reactive Brown 1	04	949.000
Proteases, all other	14	108.000	Reactive Brown 17	04	949.017
Protein hydrolyzates, sodium salts	15	739.200	Reactive Brown 18	04	949.018
Protein hydrolysates	14	17.000	Reactive Green 19	04	948.019
Pseudoephedrine hydrochloride	06	346.000	Reactive Orange 1	04	912.000
Pseudoephedrine sulfate	06	347.000	Reactive Orange 4	04	913.000
Pseudoionone	15	836.000	Reactive Orange 12	04	914.000
Pseudo linally acetate (Neobergamate)	07	166.700	Reactive Orange 13	04	915.000
Pyridine hydrochloride	03	1382.000	Reactive Orange 16	04	917.000
2-Pyridine, refined	03	1378.000	Reactive Orange 20	04	917.020
Pyridine, refined all other grades	03	1379.000	Reactive Orange 72	04	917.072
2-Pyridinethiol-1-oxide, sodium salt	03	1380.003	Reactive Orange 84	04	917.084
2-Pyridinethiol-1-oxide, zinc salt	03	1380.053	Reactive Orange 86	04	917.086
Pyridostigmine bromide	06	319.000	Reactive orange dyes, all other	04	918.000
Pyridoxine	06	800.000	Reactive Red 2	04	920.000
Pyromellitic dianhydride	03	1392.000	Reactive Red 11	04	924.000
2-Pyrrolidone (2-Pyrrolidone)	03	1391.000	Reactive Red 21	04	925.000
4-N-(1-Pyrrolyl)-m-toluenediazonium chloride	14	380.000	Reactive Red 24	04	925.024
Pyrvinium pamoate	03	797.200	Reactive Red 31	04	927.000
Quaternary ammonium salts having amide linkages, all other	12	479.000	Reactive Red 33	04	928.000
Quaternary ammonium salts, not containing oxygen, acyclic, all other	12	507.000	Reactive Red 43	04	930.043
Quaternary ammonium salts not containing oxygen, cyclic, all other	12	528.000	Reactive Red 49	04	930.049
Quinaldine	03	1393.000	Reactive Red 94	04	931.094
Quinone dioxime	03	1397.500	Reactive Red 120	04	931.120
Rapeseed acids (ratio=1/1)	12	549.200	Reactive Red 141	04	931.141
Rare earths 2-ethylhexanoate	15	642.000	Reactive Red 180	04	931.180
Rare earths naphthenate	14	312.000	Reactive Red 243	04	521.243
Rare earths neodecanoate	15	709.750	Reactive red dyes, all other	04	932.000
Rare sugars, all other	14	461.000	Reactive Violet 1	04	933.000
Reactive Black 5	04	952.000	Reactive Violet 5	04	936.000
Reactive Black 9	04	953.000	Reactive violet dyes, all other	04	937.000
Reactive black dyes, all other	04	954.000	Reactive Yellow 7	04	904.000
Reactive Blue 3	04	939.000	Reactive Yellow 15	04	905.000
Reactive Blue 4	04	940.000	Reactive Yellow 18	04	907.000
Reactive Blue 5	04	941.000	Reactive Yellow 42	04	910.042
Reactive Blue 7	04	942.000	Reactive Yellow 86	04	910.086
Reactive Blue 19	04	943.000	Reactive Yellow 135	04	910.135
			Reactive Yellow 160	04	910.160
			Reactive Yellow 165	04	910.165
			Reactive yellow dyes, all other	04	911.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Reactive Red 35	04	928.035	Silicone (Q) type elastomers	10	21.000
Remnin	14	106.000	Simvastatin	06	328.500
Resorcinol	06	272.000	Sisomycin	06	56.700
Resorcinol monobenzoate	15	9.055	Sitosterols	06	618.000
Resorcinol, tech.	03	1399.000	Sodium acetate	15	603.000
β -Resorcylic acid	03	1402.000	Sodium ammonium polyacrylate and copolymers	14	431.000
Rhodinol	07	167.000	Sodium ascorbate	06	809.000
Riboflavin (animal feed grade)	06	801.000	Sodium benzoate	15	11.000
Ricinoleamide	15	252.000	Sodium n-butylxanthate	14	142.000
Ricinoleic and acetylrinoleic acid esters, all other	11	111.000	Sodium caprylate	06	137.000
Ricinoleic acid (Hydroxyoleic acid)	15	573.080	Sodium carboxymethyl amylose	14	432.000
Ricinoleic acid, magnesium salt	15	741.500	Sodium carboxymethylcellulose (100%)	14	412.000
Rose oxide	07	115.500	1-(Sodium carboxymethyl)-1-(sodium carboxymethyleneoxyethylene)-2-nor-(coconut oil fatty acids)-2-imidazolium lauryl sulfate	12	27.200
Rosin acid salts, all other	15	160.000	Sodium carboxymethyl starch	14	432.200
Rosin acids, potassium salt	12	65.000	Sodium citrate	15	626.000
Rosin acids, sodium salt	12	66.000	Sodium diacetate	15	604.000
Rosin acids, triethanolamine salt	12	32.000	Sodium di-sec-butyl/diethyl phosphorodithioate	15	731.000
Rosin amine, ethoxylated	12	355.000	Sodium di-sec-butyl phosphorodithioate	15	732.000
Rosin amines	14	136.000	Sodium dihydro-bis(2-methoxyethoxy)aluminat	15	733.000
Rosin esters, unmodified (Ester gums)	08	39.000	Sodium diisobutyl phosphorodithioate	15	1363.898
Rosin/fatty acid mixtures	15	1470.000	Sodium diisopropyl phosphorodithioate	15	734.500
Rosin/fatty acid/pitch mixtures	15	1475.000	Sodium di-ethylhexanoate	15	735.000
Roxarsone	06	159.000	Sodium fluoroacetate	15	642.500
Roxarsone, sodium	06	160.000	Sodium formate, technical	15	655.000
Rubber modified polystyrene	08	44.020	Sodium gluconate	15	662.000
Rubber-processing chemicals, acyclic, all other	09	180.000	Sodium heparin	06	630.000
Rubber-processing chemicals, cyclic, all other	09	127.000	Sodium lactate (Nalac)	15	674.000
Rust preventing additives	14	172.000	Sodium lactate (Sodium methylene)	15	697.000
Saccharin (1,2-Benzothiazolin-3-one,-1,1-dioxide)	07	85.000	Sodium methoxide	15	1418.000
Saccharin, sodium salt	07	87.000	Sodium nitroprusside	06	359.800
Salicylaldehyde oxime	03	1404.502	Sodium oleate	15	719.500
Salicylic acid	06	557.000	Sodium oxalate	15	726.000
Salicylic acid, lead salt	15	162.000	Sodium polyacrylate	14	433.000
Salicylic acid magnesium salt	15	162.200	Sodium polyacrylate, grafted	14	438.100
Salicylic acid, tech.	03	1406.000	Sodium propionate	15	738.000
Salsalate	06	389.000	Sodium salicylate	06	390.000
Salts of organic acids, all other	15	781.000	Sodium stearate	15	762.100
Sarcosine	14	18.000	Sodium p-sulfophenylmethyl ether	03	1410.100
Sebacic acid	15	574.000	Sodium tetradecyl sulfate	06	382.000
Secobarbital, sodium	06	461.000	Soil fumigants, etc., all other	13	243.000
Secondary and tertiary monoamines, all other	12	447.000	Solid type polyvinylidene chloride resins	08	50.020
Selegiline hydrochloride	06	836.750	Solubilized Sulfur Black 2	04	1111.000
Semisynthetic penicillins, all other	06	20.000	Solubilized Sulfur Green 11	04	1085.085
Sertraline	06	533.250	Solvent Black 5	04	1052.000
Silicone fluids	15	1392.000	Solvent Black 7	04	1053.000
Silicone greases	14	462.000			
Silicone resins	08	14.000			
Silicone resins for mold release agents	15	1480.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Solvent Black 13	04	1055.000	Solvent Red 207	04	1012.207
Solvent Black 26	04	1057.000	Solvent Red 208	04	1012.208
Solvent Black 46	04	1057.046	Solvent Violet 8	04	1014.000
Solvent Black 47	04	1057.047	Solvent Violet 9	04	1015.000
Solvent Black 49	04	1057.049	Solvent Violet 11	04	1015.011
Solvent Blue 3	04	1020.000	Solvent Violet 13	04	1016.000
Solvent Blue 5	04	1022.000	Solvent Violet 38	04	1018.038
Solvent Blue 23	04	1028.023	Solvent violet dyes, all other	04	1019.000
Solvent Blue 35	04	1028.035	Solvent Yellow 3	04	957.000
Solvent Blue 36	04	1029.000	Solvent Yellow 13	04	958.000
Solvent Blue 38	04	1031.000	Solvent Yellow 14	04	959.000
Solvent Blue 58	04	1033.000	Solvent Yellow 16	04	959.016
Solvent Blue 59	04	1034.000	Solvent Yellow 18	04	959.018
Solvent Blue 98	04	1037.000	Solvent Yellow 33	04	963.000
Solvent Blue 99	04	1037.099	Solvent Yellow 40	04	965.000
Solvent Blue 100	04	1038.000	Solvent Yellow 42	04	966.000
Solvent Blue 102	04	1038.102	Solvent Yellow 43	04	967.000
Solvent Blue 128	04	1038.128	Solvent Yellow 44	04	971.000
Solvent Blue 129	04	1038.129	Solvent Yellow 56	04	973.000
Solvent Brown 12	04	1045.000	Solvent Yellow 72	04	974.096
Solvent Brown 20	04	1047.000	Solvent Yellow 96	04	975.131
Solvent Brown 22	04	1048.000	Solvent Yellow 131	04	975.135
Solvent Brown 38	04	1049.000	Solvent Yellow 135	04	975.143
Solvent Brown 52	04	1049.052	Solvent Yellow 143	04	975.160
Solvent Green 3	04	1042.000	Solvent Yellow 160	04	975.161
Solvent Orange 2	04	977.000	Solvent Yellow 161	04	975.167
Solvent Orange 3	04	978.000	Solvent Yellow 167	04	976.000
Solvent Orange 7	04	980.000	Solvent yellow dyes, all other	04	976.000
Solvent Orange 20	04	981.000	Sorbitol (70% by Weight)	15	1094.000
Solvent Orange 23	04	982.000	Sorbitol, alkoxyated	15	1188.900
Solvent Orange 31	04	982.000	Sorbitol, crystalline	15	1094.001
Solvent Orange 60	04	985.000	Sorbitol, ethoxyated	15	1189.000
Solvent Orange 60	04	987.060	Sorbitol monooleate	15	1190.200
Solvent Orange 77	04	987.077	Sorbitol monostearate	15	1190.300
Solvent Orange 97	04	987.097	Sorbitol monostearate	15	252.900
Solvent orange dyes, all other	04	988.000	Soya amide, N,N-bis(hydroxyethyl)	15	477.350
Solvent Red 1	04	988.000	Soya fatty acids, reaction products with chloromethane	12	477.360
Solvent Red 23	04	989.000	and diethylenetriamine, ethoxyated, quaternized	12	450.800
Solvent Red 24	04	991.023	Soya fatty acids, reaction products with chloromethane	15	549.300
Solvent Red 26	04	992.000	and diethylenetriamine, propoxyated, quaternized	12	427.000
Solvent Red 27	04	993.000	Soya nitrile	12	335.000
Solvent Red 49	04	994.000	Soybean oil acids (Ratio=1/1)	12	414.000
Solvent Red 68	04	999.000	(Soybean oil alkyl)amine	12	312.000
Solvent Red 111	04	1001.000	(Soybean oil alkyl)amine, ethoxyated	12	31.100
Solvent Red 164	04	1008.000	N-(Soybean oil alkyl)trimethylenediamine	08	31.400
Solvent Red 166	04	1011.000	Soybean oil, sulfated, sodium salt	08	32.000
Solvent Red 168	04	1012.000	Specific gravity 0.940 and below	06	75.000
Solvent Red 169	04	1012.168	Specific gravity over 0.940	06	57.000
Solvent Red 175	04	1012.169	Spectinomycin (animal feed grade)	06	
Solvent Red 175	04	1012.175	Spectinomycin (medicinal grade)	06	
Solvent Red 179	04	1012.179			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Spirolactone	06	740.500	3-Stearylamidopropyl dimethylammonium lactate	15	474.121
Stannous dioctyl tellate	15	177.500	Stearylamidopropyl dimethyl myristyl acetate ammonium chloride	12	477.400
Stannous 2-ethylhexanoate	15	643.000	Stearylmethacrylate	15	254.000
Stanozolol	06	641.600	Stearyl pyridium chloride	15	1053.000
Starch, hydrolyzed and hydrogenated	15	1094.200	Stearyl stearamide	15	254.200
Stearamide (Octadecane amide)	15	253.000	Stearyl stearate	15	979.600
Stearamideethyldiethylamine	12	388.900	Straight polystyrene	08	44.030
Stearamidoethylethanolamine acetate	12	388.950	Streptomycin	06	76.000
Stearamidoethyl-2-heptadecyl imidazoline	12	414.500	Streptozocin	06	279.500
Stearamidopropyl dimethylcetyl ammonium tosylate and propylene glycol	12	477.390	Strontium stearate	15	762.200
Stearic acid (Octadecanoic acid)	15	576.500	Styrenated-alkyds, or copolymer alkyds	08	3.500
Stearic acid (Ratio = 2/1)	12	542.000	Styrene (Vinylbenzene)	03	1411.000
Stearic acid (Ratio = 1/1)	12	565.000	Styrene-acrylonitrile copolymer resins (SAN)	08	43.000
Stearic acid (Ratio = 2/1)	12	562.000	Styrene-acrylonitrile- α -methyl styrene	08	44.052
Stearic acid (Ratio = 1/1)	12	550.000	Styrene-allyl alcohol copolymer resins	08	44.043
Stearic acid aminoethanolamine (amine acid ratio = 1.0/1.65)	12	575.450	Styrene-butadiene, dry type	10	3.100
Stearic acid-N-aminoethyl ethanolamine condensate	12	581.200	Styrene-butadiene latexes	08	44.060
Stearic acid, ammonium salt	12	67.990	Styrene-butadiene, latex type	10	3.500
Stearic acid-N-(2-cyanoethyl)diethylenetriamine condensate (Amine/acid ratio = 1/2)	12	389.000	Styrene-butadiene type elastomers, other	10	4.000
Stearic acid, diethanolamine condensate, methyl sulfate	12	389.500	Styrene-butadiene-vinylpyridine	10	4.000
Stearic acid-diethylenetriamine condensate	12	367.000	Styrene copolymers, all other	08	44.049
Stearic acid-diethylenetriamine condensate, ethyl sulfate	12	367.500	Styrene-divinylbenzene copolymer resins	08	44.044
Stearic acid esters, all other	12	367.500	Styrene latexes, all other	08	44.080
Stearic acid ethylenediamine condensate	11	125.000	Styrene-maleic anhydride copolymer resins	08	44.045
Stearic acid-ethylenediamine condensate amine/acid ratio=1/2	12	368.290	Styrene-maleic anhydride, glass filled	08	44.056
Stearic acid-ethylenediamine condensate, monoethoxylated	12	586.000	Styrene-maleic anhydride-isobutanol terpolymer	08	44.058
Stearic acid mixed amine condensate	12	382.000	Styrene-methyl methacrylate copolymer resins	08	44.047
Stearic acid monoethanolamine condensate	12	369.500	Styrene oxide	15	165.000
Stearic acid, potassium salt	12	581.500	Styrene type plastics materials, all other	08	45.500
Stearic acid salts, all other	12	68.000	Succinylcholine chloride	06	480.000
Stearic acid-sodium salt	15	764.000	Succinyl peroxide	15	1296.500
Stearic acid-tetraethylenepentamine condensate	12	69.000	Sucralfate	06	621.500
Stearic acid, triethanolamine salt	12	370.000	Sucrose acetate isobutyrate	11	126.000
N-Stearoyl-p-aminophenol	09	34.000	Sucrose benzoate	15	9.057
Stearoyl chloride	15	104.000	Sucrose octa-acetate	15	1133.000
Stearoyl isocrylate	12	577.000	Sulfentanil citrate	06	414.300
Stearoyl iso-lactylate, sodium salt	12	318.770	Sulfacetamide, sodium	06	212.000
Stearoyl-2 lactylate, calcium salt	12	318.780	Sulfadiazine, silver	06	215.200
Stearoyl lactylate, mixed sodium and calcium salt	12	318.800	Sulfamethizole	06	223.000
Stearoyl lactylate, sodium salt	12	318.790	Sulfamethoxazole	06	224.000
Stearoyl lactylate, sodium salt	12	318.785	Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	03	1414.000
Stearyl acid phosphate	15	1035.300	Sulfapyridine	06	228.000
Stearyl alcohol, propoxylated	12	733.310	Sulfasalazine	06	232.000
Stearyl alcohol, propoxylated	12	738.700	Sulfated animal fats and oils, all other	12	297.000
Stearyl alcohol, propoxylated	12	388.200	Sulfated cyclic ethers, all other	12	291.000
Stearylamidopropyl dimethyl amine	12		Sulfated ethers, all other	12	283.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Sulfated fish and marine fat oils, all other	12	304.000	Tail oil acids	12	551.000
Sulfioxazole, acetyl	06	201.000	Tail oil acids/laminoethylpiperazine condensate	12	370.900
5-Sulfisophthalic acid, 1,3-dimethyl ester, sodium salt	03	1417.100	Tail oil acids, diethanolamine salt (Condensate)	12	34.300
5-Sulfisophthalic acid, sodium salt	03	1417.500	Tail oil acids-diethylenetriamine condensate	12	371.000
Sulfonic acids, all other	12	215.000	Tail oil acids-dimethylamine condensate (Amine acid ratio = 1/1)	12	587.500
Sulfonic acids having amide linkages, all other	12	189.000	Tail oil acids, ethoxylated	12	672.400
Sulfonic acids with ether linkages, all other	12	209.000	Tail oil acids, ethoxylated and propoxylated	12	672.420
Sulfonic acid with ester linkages, all other	12	204.000	Tail oil acids-polyalkylenepolyamine condensate	12	372.000
Sulfosuccinamic acid derivatives, all other	12	181.000	Tail oil acids-polyalkylene polyamine condensate, salts, with dodecylbenzene sulfonic acid and/or tall oil fatty acids	12	372.010
Sulfosuccinic acid, bis(diisobutyl)ester, amidodisodium salt	12	190.000	Tail oil acids, potassium salt	12	70.000
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl)ester, sodium salt	12	191.000	Tail oil acids, sodium salt	12	71.000
Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt	12	192.000	Tail oil acids, sulfated, sodium salt	12	268.700
Sulfosuccinic acid, dihexyl ester, sodium salt	12	194.000	Tail oil acyl chloride	15	167.400
Sulfosuccinic acid, diisodecyl ester, sodium salt	12	194.200	Tail oil, chemically modified	15	168.000
Sulfosuccinic acid, diisooctyl ester, sodium salt	12	194.220	Tail oil, diethanolamine salt	15	168.010
Sulfosuccinic acid, dioctyl ester, sodium salt	12	195.000	Tail oil fatty acid nitrile	15	167.500
Sulfosuccinic acid, dipentyl ester, sodium salt	12	195.000	Tail oil fatty acids (Ratio = 1/2)	12	555.300
Sulfosuccinic acid, ditridecyl ester, sodium salt	12	196.000	Tail oil fatty acids (ratio = 2.7/1)	12	555.310
Sulfosuccinic acid, (lauryl polyethylene glycol ether) ester, disodium salt	12	196.450	Tail oil fatty acids (ratio = 1.5/1)	12	555.305
Sulfosuccinic acid esters, all other	12	197.000	polyethylenepolyamine-tall oil fatty acid reaction products	12	356.700
Sulfosuccinic acid, (coconut oil alkyl)iminoisopropanol half-ester, sodium salt	12	193.400	Tall oil fatty acids, polymerized	15	167.600
Sulfosuccinic acid, lauramidomonoethanolamine, disodium salt	12	196.440	Tall oil fatty acids, reaction products with diethylenetriamine acetates	12	373.600
Sulfosuccinic acid, monolaurate ester, disodium salt	12	196.495	Tail oil fatty acids-triethanolamine condensate (Tall oil fatty acids), triethanolamine salt	12	575.600
Sulfosuccinic acid myristyl ester disodium monoethanolamine salt	12	196.580	Tall oil monohydric esters	15	34.370
Sulfosuccinic acid, olearmidopolyethyleneglycol, disodium salt	12	196.600	Tall oil monomer	15	168.040
Sulfoxone, sodium	06	149.000	Tall oil monomer	15	168.050
Sulfur Black 2	04	1109.000	Tall oil: Pentaerythritol tallate	15	168.100
Sulfur Black 11, 11:1	04	1114.000	Tall oil, refined, ethoxylated	12	672.500
Sulfur Brown 37	04	1100.000	Tall oil salts, all other (Linoleic-rosin acid salts)	15	179.000
Sulfur Brown 96	04	1104.096	Tall oil, sulfated, ammonia salt	12	312.500
Sulfur compounds, all other	14	264.000	Tall oil, sulfated, sodium salt	12	312.700
Sulfuric acid esters, all other	12	317.000	Tall oil, triethanolamine salt	15	168.030
Sulfurized lard oil	14	200.000	Tallow acids (Ratio = 2/1)	12	544.000
Sulfurized sperm oil substitutes	14	202.000	Tallow acids	12	552.000
Sulfur orange dyes, all other	04	1067.000	Tallow acids, diethanolamine salt	12	34.390
Sulfur Red 10	04	1070.000	Tallow acids, potassium salt	12	72.000
Sulfur yellow dyes, all other	04	1065.000	Tallow acids, sodium salt	12	73.000
Sulindac	06	414.500	Tallow alcohol, ethoxylated	12	34.500
Synthetic fatty alcohol ester, sulfated, sodium salt	12	302.500	(Tallow alkyl)amine	12	740.000
Synthetic sweetener material, all other	07	88.000	(Tallow alkyl)amine acetate	12	429.000
Tacrine	06	837.007	(Tallow alkyl)amine, ethoxylated	12	399.000
Tall oil acids (Ratio = 2/1)	12	543.000	(Tallow alkyl)amine, propoxylated	12	336.000
				12	336.000
				12	336.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
N-(Tallow alkyl)dipropylenediamine	12	415.000	Tetracaine hydrochloride	06	715.100
Tallow alkyl)ethoxylated, ethyl sulfate	12	465.947	1,2,3,4-Tetrachlorobenzene	03	1433.100
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt	12	18.000	2,4,5,6-Tetrachloroisophthalonitrile	13	31.200
N-(Tallow alkyl)trimethylenediamine	12	416.000	Tetrachlorophthalic anhydride	03	1435.600
N-(Tallow alkyl)trimethylenediamine acetate	12	400.000	Tetracycline	06	37.000
N-(Tallow alkyl)trimethylenediamine, ethoxylated	12	337.000	n-Tetradecane	15	1348.500
N-(Tallow alkyl)trimethylenediamine oleate	12	402.000	Tetradecanoic acid (Myristic acid)	15	579.000
Tallow amide	15	254.900	1-Tetradecanol (Myristyl alcohol)	15	879.000
Tallow amine, ethoxylated, quarternary ammonium salt	15	255.000	n-Tetradecyl chloride	15	1244.000
Tallow, n-3-(dimethylamino)propyl (amine/acid ratio=1/3)	12	477.700	N-Tetradecyl-N,N-dimethylamine	15	302.900
[Tallow ethyl alkyl]amine, ethoxylated, sulfate	12	587.600	1-Tetradecylpropionate	15	979.900
Tallow fatty acids-aminoethylethanolamine condensates	12	336.020	Tetra-(2,2-dialkylloxymethylene)-1-butoxy titanium bis (citridecy) phosphite	12	784.500
Tallow nitrite	12	373.550	Tetraethyl ammonium bromide	15	474.500
Tallow nitrile, hydrogenated	15	453.000	Tetraethylene glycol	15	1191.000
Tallow, partially hydrogenated	15	454.000	Tetraethylene glycol di(2-ethylhexanoate)	11	126.100
Tallow, sulfated, sodium salt	15	1330.200	Tetraethylene glycol diheptanoate	15	126.095
Tannic acid,N.F.	12	295.000	Tetraethylenepentamine	15	303.000
Tanning materials, synthetic, all other	15	180.000	O,O',O''-TetraethylS,S'-methylene bisphosphorodithioate (Ethion)	13	227.000
Tar bases: crude bases (Dry basis)	01	471.000	Tetraethyl orthosilicate (Tetraethyl silicate)	15	1054.000
Tar distillates, all other	01	10.000	1,2,2,2-Tetrafluoroethane (F-134a)	15	1269.800
Tar for other uses: crude	01	24.000	Tetrafluoroethylene (F-1114)	15	1270.000
Tar for other uses: refined	01	25.000	Tetrafluoromethane (F-14)	15	1271.000
Tar, road	01	23.000	Tetrahydroalcoocimery hydrochloride (Tetrahydro dimethylatriene hydrochloride)	15	1244.400
Tepyl acetate	07	169.000	Tetrahydro-5,5-dimethyl-2(1H)-pyrimidinone)3-4-trifluoromethyl)phenyl-1-2-4-(trifluoromethyl)phenyl-2-propen	13	166.053
Terazosin	06	359.900	Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (DMTT)	13	12.000
Terephthalic acid	06	347.500	Tetrahydrofuran	03	1438.000
Terephthalic acid, dimethyl ester	03	1422.000	Tetrahydrofurfuryl alcohol	15	83.000
Terephthaloyl chloride	03	1424.000	2-Tetrahydrofurfurylamine	15	186.800
Terfenadine	03	1424.500	Tetrahydrofurfuryl oleate	11	53.000
Terpene hydrocarbons, monocyclic (Solvenol)	06	109.000	Tetrahydrofurfuryl acetate	07	169.050
Terpene residues	15	182.000	Tetrahydromyrcenol	07	169.170
Terphenyl (Phenylbiphenyl) (m-,o-, and p-isomers)	15	1490.000	1,2,3,4-Tetrahydronaphthalene (Tetralin)	15	186.000
Terpinene-ol	03	1426.000	Tetrahydropyrimidine from tall oil fatty acids and propylenediamine	14	174.000
α-Terpineol	07	116.500	Tetrahydrothiophene	15	187.000
α-Terpinyol acetate	07	117.000	Tetrahydrothiophene-1,1-dioxide (Sulfolane)	15	188.000
α-Terpinyol propionate	07	121.000	2,2',4,4'-Tetrahydroxybenzophenone	14	497.000
Tertiary amyl per-2-ethylhexanoate	15	1283.200	Tetrahydrozoline hydrochloride	06	348.000
Testosterone	06	641.800	Tetra-isopropoxy titanium (bis dioctyl) phosphite	12	784.550
Testosterone cyponate	06	642.000	Tetraisopropylmethylene diphosphonate	15	1035.400
Testosterone propionate	06	642.300	Tetraisopropyl titanate	15	1061.000
Tetramobisphenol A	15	184.000	Tetrakis(2-ethylhexyl)titanate	15	1062.000
Tetrabromophthalic anhydride	03	1429.000			
N,N,N',N'-Tetrabutylhexanediamine	15	302.800			
Tetrabutyl titanate	15	1060.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
N,N,N',N'-Tetrakis(2-Hydroxyethyl)ethylenediamine, propoxylated	12	338.100	Thiostrepton	06	58.000
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, propoxylated and ethoxylated	12	339.000	Thyroglobulin	06	695.800
1,1,3,3-Tetramethoxypropane	15	1324.000	Thyroid	06	696.000
Tetramethylammonium chloride	15	477.000	Ticarcillin, disodium	06	19.500
1,2,4,5-Tetramethylbenzene (Durene)	03	1442.100	Timolol maleate	06	321.500
p-(1,1,3,3-Tetramethylbutyl)phenol	03	1443.000	Titanic acid esters, all other	15	1063.000
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated	12	768.000	Titanium acetylacetonate	15	1281.650
Tetramethyldisiloxane	15	1394.700	N-2(C-5 to C-17)alkylamido-N-carboxyethyl,N-2-hydroxyethyl, 3-amino-2-myoxypropyl phosphate, disodium salt	12	102.600
Tetramethylethylenediamine	15	305.000	d-a Tocopherol	06	815.000
2,4,6,8-Tetramethylnonan-1-yl acetate	07	169.250	d-a Tocopheryl acetate	06	817.000
Tetramethyl, octahydro acetophenone	07	88.800	dl-a Tocopheryl acetate (animal feed grade)	06	818.000
Tetramethyl octahydro acetyl naphthalene	07	88.810	dl-a Tocopheryl acetate (medicinal grade)	06	819.000
Tetra octyloxy titanium (bis-tridecyl phosphite)	12	784.100	d-a Tocopheryl acid succinate	06	821.000
Tetra/penta glycols, mixed	15	1192.000	Tolazamide	06	689.000
Textile chemicals, other than surface active agents, all other	14	507.000	Tolbutamide	06	690.000
Thebaine	06	435.000	Toluene-2,3-(and 3,4)-diamine (35/65Mixture)	03	1454.803
Theophylline	06	746.300	Toluene-2,4-diamine (4-m-Tolylenediamine)	03	1455.000
Thermoplastic resins, benzenoid, all other	08	52.000	Toluene-2,4-(and 2,6)-diamine (80/20Mixture)	03	1455.313
Thermosetting acrylate resins	08	20.030	Toluene-3,4-diamine	03	1455.402
Thermosetting resins, benzenoid, all other	08	18.000	Toluene 2,4-and 2,6-diisocyanate (80/20Mixture)	03	1025.600
Thermoplastic elastomers (such as styrene-block copolymers, thermoplastic olefin elastomers, and thermoplastic polyurethanes elastomers, and copolyester)	10	5.000	Toluene High purity (98-100%)	02	27.500
Thiabenzazole	06	132.000	Toluene Other	02	28.500
1,3,4-Thiadiazole, 2,5-bis(dialkyl/dithio) derivatives	14	290.000	p-Toluenesulfonamide	03	1459.000
Thiamine hydrochloride	06	804.000	p-(p-Toluenesulfonamido)diphenylamine	09	83.000
Thiamine mononitrate	06	805.000	p-Toluenesulfonic acid, aniline salt	03	1461.300
Thiamylal, sodium	06	463.000	p-Toluenesulfonic acid monohydrate	03	1464.000
Thiazole derivatives, cyclic, other	09	36.000	Toluenesulfonic acid, potassium salt	12	146.000
Thioacetic acid, potassium salt	15	770.500	Toluenesulfonic acid, sodium salt	12	147.000
4,4'-Thio-bis(6-t-butyl-o-cresol)	03	1450.100	p-Toluenesulfonyl isocyanate	03	1025.700
4,4'-Thiobis(6-t-butyl-m-cresol)	03	1450.200	p-Toluenesulfonylsemicarbazide	09	109.800
Thiocarbamide (Diphenylthiourea)	14	137.000	Toluene xylene sulfonic acid	12	147.500
Thiocyanic acid, methylene ester	13	207.500	m-Toluic acid	03	1469.000
2-(Thiocyanomethylthio)benzothiazole	13	40.018	p-Toluic acid, methyl ester	03	1471.202
2-Thiodiethanol (Thiodiglycol)	15	1193.000	o-Toluidine	03	1473.000
Thiodiphenol	03	1452.500	m-Toluidine	03	1472.000
O,O'-(Thiodi-4,1-phenylene)bis(o,o-dimethyl phosphorothioate (Temphos))	13	165.025	p-Toluidine	03	1474.000
3,3'-Thiodipropionic acid	15	582.000	p-Toly acetate	07	90.000
3,3'-Thiodipropionitrile	15	455.000	2,2'-(m-Tolyimino)diethanol	03	1487.000
Thiodisuccinic acid	15	582.100	p-Toly isobutyrate	07	90.100
Thiopental, sodium	06	464.000	p-Toly octanoate	07	90.400
Thiophane (Tetrahydrothiophene)	02	96.095	p-Tolyphenylacetate	07	90.600
Thiophene	15	198.000	Tolytriazole	03	1487.700
			Tolytriazole, potassium salt	15	199.500
			TPSA/polyamine condensates	15	165.900
			Tranylcypromine	06	533.500
			Trialkyl thiophosphate	15	1036.200
			Triallylamine	15	258.200

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Triallyl trimellitate	15	200.050	Tricresyl phosphate	11	14.000
Triamcinolone	06	667.000	1-Tridecano	15	880.000
Triamcinolone acetonide	06	668.000	Tridecyl alcohol, ethoxylated and phosphated, polyalkylene polyamine salt	12	90.010
Triamcinolone diacetate	06	669.500	Tridecyl alcohol, ethoxylated	12	769.000
Triamcinolone hexacetonide	06	741.000	Tridecyl alcohol, ethoxylated and carbonated, sodium salt	12	319.000
Triamterene	09	86.500	Tridecyl alcohol, ethoxylated and phosphated	12	90.000
Triaryl phosphites	15	200.150	Tridecyl alcohol ethoxylated and phosphated, potassium salt	12	90.020
Triazine	14	498.000	Tridecyl alcohol, ethoxylated and sulfated, sodium salt	12	282.000
Tri(behenoyloxymethyl)trimethoxymethylmelamine	03	1488.289	Tridecyl alcohol, propoxylated and ethoxylated	12	770.000
2,4,6-Tribromophenol	11	102.000	Tridecylbenzenesulfonic acid	12	139.100
Tri(2-butoxyethyl) phosphate	11	71.100	Tridecylbenzenesulfonic acid, sodium salt	12	139.200
Tributyl acetylcitrate	15	1363.950	Tridecylpoly(ethyleneoxy)acetic acid, sodium salt	12	50.000
Tri-n-butylaluminum	15	266.000	Tridecylpoly(ethyleneoxy)propionic acid, potassium salt	12	18.500
Tri-n-butylamine	11	71.200	3-(3-Tridecylxy)propylaminopropyl amine	12	339.600
Tributyl citrate	11	105.010	Tridecylphenol, ethoxylated	12	756.000
Tributyl phosphate	14	289.000	Tridecylphenol, ethoxylated and phosphated	12	90.300
Tributyl phosphite	13	208.000	Tridecyl phosphate	12	110.300
S,S,S-Tributyl phosphorotrithioate	06	455.400	Tridecyl stearate	15	980.000
Trichloroacetone	15	455.400	Tridecyl stearate	11	124.800
Trichloroacetonitrile	03	1491.100	Tridecyl sulfate, sodium salt	12	246.000
1,2,3-Trichlorobenzene	03	1490.000	Tridecyl-3-(trimethyleneamine), ethoxylated	12	339.400
1,2,3-(and 1,2,4)-Trichlorobenzene	03	1491.100	Tri(dimethylaminomethyl)phenol	03	1499.208
1,2,4-Trichlorobenzene	03	1490.000	Tri(2,4-ditertiarybutylphenyl) phosphite	15	204.500
1,1,1-Trichloro-2-bis(p-methoxyphenyl)ethane (Methoxychlor)	03	1491.000	Triethanolamine	15	381.000
3,4,4'-Trichlorocarbanilide	13	146.000	Triethanolamine, ethoxylated	12	340.000
1,1,1-Trichloroethane (Methyl chloroform)	15	203.000	Triethanolamine hydrochloride	15	482.150
1,1,2-Trichloroethane (Vinyl trichloride)	15	1245.000	Triethanolamine phosphate ester	12	340.050
Trichloroethylene	15	1247.000	Triethanolamine, sulfuric phosphoric acid salts	15	482.200
Trichlorofluoromethane (F-11)	15	1272.000	Triethanolamine titanate	15	1062.500
Trichloromelamine	15	203.500	Triethyl acetylcitrate	11	71.300
α -(Trichloromethyl)benzyl acetate (Rosetone)	07	91.000	Triethylaluminum	15	1364.000
Trichloromethylsilane	15	1394.000	Triethylamine	15	279.000
3-Trichloromethyl-1,2,4-thiadiazole	03	1492.500	Triethylamine, nitric acid salt	15	482.300
N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide (Caplan)	13	34.000	Triethyl citrate	11	71.400
1,2,4-Trichloro-5-nitrobenzene	03	1493.000	Triethylenediamine	15	305.600
Trichloronitromethane (Chloropicrin)	13	242.000	Triethylene glycol	15	1194.000
Trichlorophenylsilane	03	1494.000	Triethylene glycol di(caprylate-caprate)	11	127.000
1,2,3-Trichloropropane	15	1248.000	Triethylene glycol di(2-ethylbutyrate)	11	128.000
Trichloropropylsilane	15	1395.000	Triethylene glycol di(2-ethylhexanoate)	11	129.000
3,5,6-Trichloro-2-pyridinyloxyacetic acid	13	118.064	Triethylenetetramine	15	306.000
α,α,α -Trichlorotoluene (Benzotrifluoride)	03	1495.000	Triethylenetetramine, propoxylated	15	482.500
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	03	1499.000	Tri(2-ethylhexyl) trimellitate	11	54.750
1,3,5-Trichloro-s-triazine-2,4,6-(1H,3H,5H)trione (Trichloroisocyanuric acid)	15	204.000	Triethyl orthoacetate	15	1064.000
Trichlorotrifluoroethane (F-113)	15	1273.000	Triethyl orthoformate	15	1065.000
Trichlorovinylsilane	15	1396.000			

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Triethyl orthoformate	15	1066.000	1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl- α -ionone)	07	122.010
Triethyl phosphate	11	103.000	Trimethylcyclohexyl salicylate	07	91.080
Triethyl phosphite	15	1040.000	2,2,5-Trimethyl-3-(dichloroacetyl)-1,3-oxazolidine	13	175.014
Triethyl phosphonate	15	1040.100	3,5,5-Trimethyl hexanal	07	169.500
Triethyltrimethylenetriamine	09	7.000	1,3,3-Trimethyl- δ^5 , α -indolineacetaldehyde	03	1515.000
Trifluoroacetic acid	15	584.009	N,N,N-Trimethyl methanaminium octahydrotriborate	15	1370.500
Trifluoroacetic anhydride	15	584.010	Trimethyl(mixed alkyl)ammonium chloride	12	502.000
Trifluoroacetyl chloride	15	584.015	2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	15	838.000
α , α , α -Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin)	13	116.000	Trimethylinonyl alcohol, ethoxylated	12	773.000
α , α , α -Trifluoro-2,6-dinitro-N-ethyl-N-(2-methyl-2-propenyl)-p-toluidine (Ethylfluralin)	13	116.100	Trimethyl norbornane methanol	07	122.020
Trifluoroethanol	15	1420.300	Trimethyloctadecylammonium chloride	12	503.000
Trifluoropropene	15	1273.550	Trimethylolpropane, alkoxylated	12	774.000
Triglycerol distearate	12	697.500	Trimethylolpropane ester	14	291.000
Tri-n-hexyl aluminum	15	1364.900	Trimethylolpropane tallowate (TMP tallowate)	15	1139.300
Tri-n-hexyltrimellitate	11	54.850	Trimethylolpropane triacrylate	15	1140.010
Trihydrogenated tallow ammonium chloride	12	501.800	Trimethylolpropane trimethacrylate	15	1140.300
Trisobutylaluminum	15	1365.000	Trimethylolpropane trioleate (TMP trioleate)	15	1140.007
Trisobutylene polysulfide	14	263.000	Trimethylolpropane tris-3-mercaptopropionate	15	1066.200
Trisodecylamine	12	444.300	Trimethyl orthoacetate	15	1068.000
Trisodocylphosphite	15	1040.500	Trimethyl orthoformate	02	76.000
Trisodecyl trimellitate	11	54.900	2,2,4-Trimethylpentane (iso-octane)	15	1095.000
Trisononyl trimellitate	11	54.950	2,2,4-Trimethyl-1,3-pentanediol	11	129.600
Trisooctyl phosphite	15	1041.000	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	15	1140.500
Triso-octyl trimellitate	11	55.000	2,2,3-Trimethyl-1,3-pentanediol monoisobutyrate	15	1043.000
Trisopropanolamine	15	409.000	Trimethyl phosphite	12	504.000
Trisopropyl phosphite	15	1042.000	Trimethyl(soybean oil alkyl)ammonium chloride	12	505.000
Triaurylamine	12	444.600	Trimethyl(tallow alkyl)ammonium chloride	12	505.000
all other Trimellitic acid esters	11	57.000	trimethyl trimellitate	11	55.400
Trimellitic anhydride, acid chloride	03	1509.100	5-(2,2,3-Trimethyl(cyclopent-3-en-1-yl)-3-methylpentan-2-yl	07	122.010
Trimellitic trichloride	03	1509.300	2-ol	12	444.700
Trimeprazine	06	110.000	Tri(mixed alkyl)amine	15	207.900
Trimer dibasic acids	06	584.100	Trinitrophenyl methyl nitramine (Nitramine)	15	1366.400
Trimethoprim	06	275.000	Tri-n-octylaluminum	12	445.000
Trimethoxyboroxine	15	1369.000	Triocetylamine	11	104.000
Tri(methoxymethyl) tri(stearoxymethyl) melamine	15	205.500	Triocetyl phosphates	11	56.000
Trimethylaluminum	15	1366.000	Triocetyl trimellitate	03	1522.500
Trimethyl amine	15	292.000	Trioxane	06	837.050
1,2,4-Trimethylbenzene (Pseudocumene)	03	1513.000	Trioxsalen	15	1366.500
1,3,5-Trimethylbenzene (Mesitylene)	03	1513.100	Tri-oxyaluminum tri-isopropoxide	06	111.000
Trimethyl benzyl dioxane	07	91.070	Tripelennamine	06	113.000
Trimethyl borate	15	1370.000	Tripelennamine hydrochloride	15	297.000
Trimethyl-cyclododeca-trienyl ethanone	07	169.700	Tripentylamine	03	1523.602
3,3,5-Trimethylcyclohexanol (m-homomenthol)	15	206.950	Tripentylmethane	11	15.000
3,3,5-Trimethyl cyclohexanol (m-Homomenthol)	07	121.800	Triphenyl phosphate	15	209.900
3,5,5-Trimethyl-2-cyclohexene-1-one (Isophorone)	15	207.000	Triphenyl phosphine	15	210.000
Trimethyl cyclohexenyl butenone	07	121.850	Triphenyl phosphite	06	114.000
			Tripropilidene hydrochloride	06	114.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Tripalmitin	06	114.500	Vat Green 7	04	1180.007
Tripalmitolein	15	302.000	Vat Orange 1, 20%	04	1129.000
Tripalmitolein glycol diacrylate	15	1187.450	Vat Orange 2, 12%	04	1131.000
Tripalmitolein glycol monomethyl ether (3-(3-[3-methoxypropoxy]propoxy)propanol)	15	1140.600	Vat Orange 7, 11%	04	1136.000
Tris(2-chloroethyl)phosphate	15	1187.460	Vat Orange 9, 12%	04	1137.000
Tris(2-chloroethyl)phosphate	15	1043.998	Vat Red 10, 18%	04	1144.000
Tris(1,3-dichloro-2-propyl)phosphate	15	1045.400	Vat Red 15, 10%	04	1148.000
a,a',a''-Tris(dimethylamino)mesitol	15	1046.500	Vat red dyes, all other	04	1154.000
1,1,1-Tris(p-hydroxyphenyl)ethane	03	1525.000	Vat Violet 13, 6-1/4%	04	1159.000
Tris(2-methoxyethoxy)vinyl silane	03	1396.500	Vegetable glycerides, hydrogenated	15	1330.400
Tris(2-methyl-1-aziridinyl)phosphine oxide	03	1526.000	Vegetable oils, sulfated, all other	12	313.000
Tri-(pentamethyldisiloxanyl)-3-methacrylatopropylsilane	15	1397.500	Veratraldehyde (3,4-Dimethoxybenzaldehyde)	03	1529.000
Tri- and tetraacrylate monomers	15	1324.200	Very high molecular weight (>1000) hydrocarbons	14	292.000
Tubocurarine	06	481.000	Vetvenol	07	124.000
Tylosin	06	77.000	Vetvenyl acetate	07	125.000
Undecanal	07	170.000	Vinyl acetate-acrylate copolymers	08	50.080
Urea-formaldehyde resins	15	869.700	Vinyl acetate, monomer	15	1069.000
Urea in feed compounds (100% Basis)	14	509.000	Vinyl chloride, monomer (Chloroethylene)	15	1250.000
Urea in liquid fertilizer (100% Basis)	14	510.000	Vinyl fluoride, monomer	15	1274.000
Urea in solid fertilizer (100% Basis)	14	511.000	Vinylidene chloride, monomer (1,1-Dichloroethylene)	15	1251.000
Urea polymers with formaldehyde and methanol	14	503.000	Vinylidene fluoride, monomer	15	1275.000
Urea, primary solution (Report on 100% urea-content basis)	14	508.000	Vinyl-maleic anhydride copolymer resins	08	50.100
Urease	14	127.000	Vinylmethyldichlorosilane	15	1397.920
7,7-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J-Acid urea)	03	1528.000	5-Vinyl-2-picoline (MVP)	03	1534.000
Uricase	15	804.000	2-Vinylpyridine	03	1535.000
Valeraldehyde (Pentanal)	06	423.900	4-Vinylpyridine	03	1536.000
Valeric acid	06	61.000	1-Vinyl-2-pyrrolidinone ether copolymers	15	216.000
Valproic acid	06	1208.000	1-Vinyl-2-pyrrolidinone, copolymers with vinyl acetate	14	450.500
Vancomycin	04	1209.000	1-Vinyl-2-pyrrolidinone-methylacrylic acid, dimethylamine ethyl ester, copolymer	15	214.000
Vat Black 22, 19%	04	1164.000	1-Vinyl-2-pyrrolidinone, monomer	15	215.000
Vat Black 25, 12-1/2%	04	1167.000	1-Vinyl-2-pyrrolidinone, polymers	14	450.000
Vat Blue 1, 20%	04	1171.000	1-Vinyl-2-pyrrolidinonevinyl acetate copolymer	15	217.000
Vat Blue 6, 8-1/3%	04	1172.019	Vinyl resins, all other	08	51.000
Vat Blue 16, 16%	04	1173.029	Vinyl toluene alkyls	08	3.800
Vat Blue 19	04	1175.000	Vinyltriethoxysilane	08	1398.000
Vat Blue 29	04	1175.066	Vinyl trimethoxy silane	15	1398.300
Vat Blue 43	04	1177.000	Violet 5:1	05	220.000
Vat Blue 66	04	1200.000	Violet 27	05	93.227
Vat blue dyes, all other	04	1178.000	Vitamin A, all other	06	776.000
Vat Brown 57, 12.8%	04	1180.000	Vitamin A alcohol	06	773.000
Vat Green 1, 6%	04		Vitamin B-complex, all other	06	806.000
Vat Green 3, 10%	04		Vitamin A palmitate (medicinal grade)	06	775.000
			Waxes and paraffinic products	09	178.800
			Wool wax alcohols, ethoxylated	12	740.500
			Xanthan gum	14	451.000
			o-Xylene (90-100% of o-xylene isomer)	03	1540.000
			m-Xylene (90-100% of m-xylene isomer)	03	1539.000
			p-Xylene (90-100% of p-xylene isomer)	03	1541.000

Chemical Name	Sect. No.	Item No.	Chemical Name	Sect. No.	Item No.
Xylene High purity (98-100%)	02	30.500	Zinc dibutyl phosphorodithioate	14	239.000
Xylene Other	02	31.500	Zinc dihexyl phosphorodithioate	14	240.000
2,4-Xylenesulfonic acid	03	1542.800	Zinc 2-ethylhexanoate	15	644.000
Xylenesulfonic acid, ammonium salt	12	148.000	Zinc gluceptate	06	767.000
Xylenesulfonic acid, mixed isomers	03	1543.502	Zinc hydrocarbon dithiophosphate	14	242.000
Xylenesulfonic acid, potassium salt	12	149.000	Zinc isopropyl xanthate	09	154.800
Xylenesulfonic acid, sodium salt	12	150.000	Zinc laurate (Activator, physical property improver, and processing auxiliary)	09	179.000
2,6-Xylenol	03	1544.500	Zinc naphthenate	14	315.000
Xylenol crystals	03	1544.000	Zinc neodecanoate	15	710.000
Xylenol, low boiling point	03	1545.000	Zinc phenolsulfonate	06	560.000
Xylenols, not classified as to boiling point	03	1547.000	Zinc resinates	15	159.000
2,4-Xylidine (m-4-Xylidine)	03	1548.000	Zinc stearate	15	763.000
Xylidine, original mixture	03	1550.000	Zinc tallate	15	178.000
Xylose (intestinal malabsorption test)	06	581.500	Zinc undecylenate	06	140.000
Zeranol	06	643.000	Zirconium compounds	15	1409.400
Zinc acetate	15	606.000	Zirconium acetate	15	607.000
Zinc t- α -alkylcarboxylate	15	671.950	Zirconium t- α -alkylcarboxylate	15	671.975
Zinc bis(monoethanolamine)dichloride	15	483.390	Zirconium 2-ethylhexanoate	15	645.000
Zinc dialkyldithiophosphate	14	235.000	Zirconium neodecanoate	15	711.000
Zinc dialkylphenol dithiophosphate	14	236.000			

