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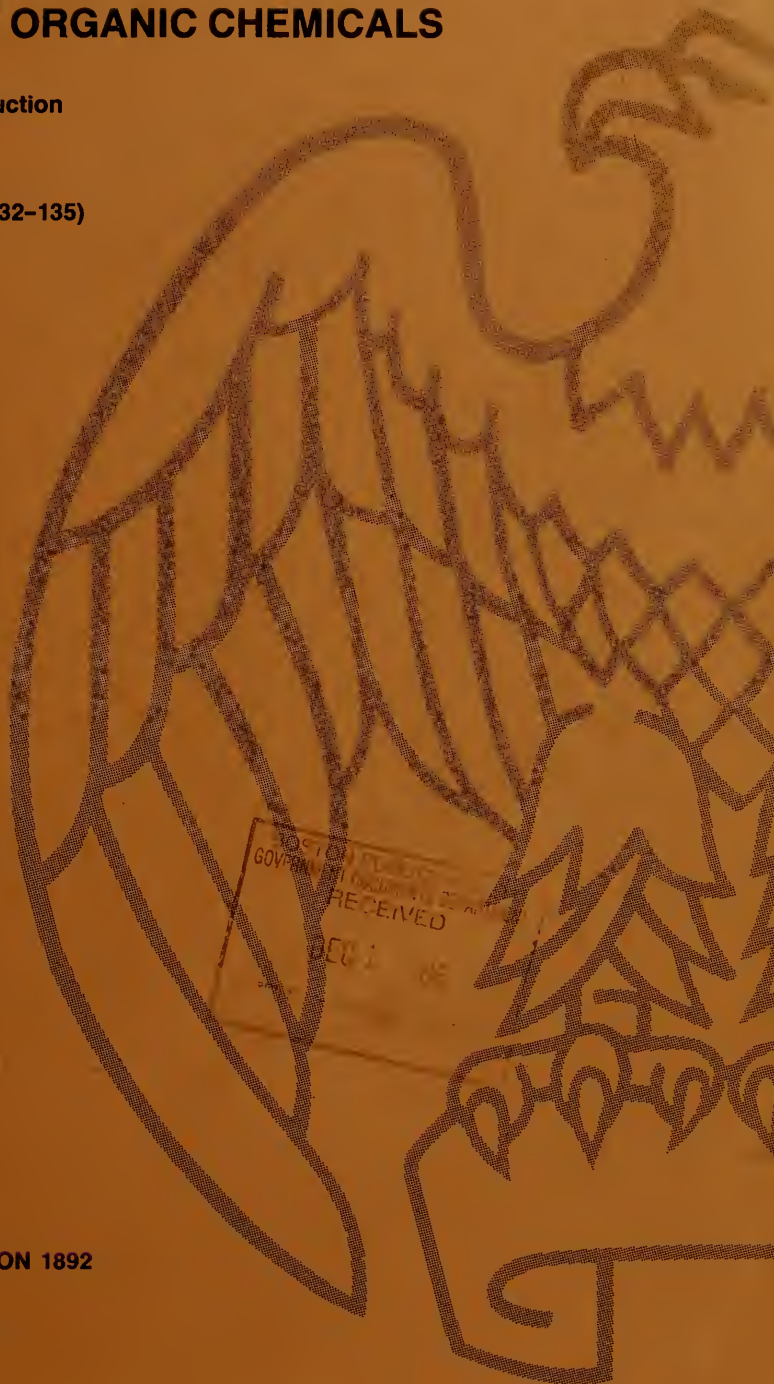


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# SYNTHETIC ORGANIC CHEMICALS

United States Production  
and Sales, 1985

(Investigation No. 332-135)



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**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**SYNTHETIC ORGANIC CHEMICALS**

**United States Production  
And Sales, 1985**

**U.S. GOVERNMENT PRINTING OFFICE  
WASHINGTON: 1986**

**USITC PUBLICATION 1892**

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## INTRODUCTION

This is the 69th 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 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 752 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.<sup>1</sup>

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 for all sections are 5,000 pounds of production or sales or \$5,000 of value of sales with the following exceptions: Plastics and resin materials—50,000 pounds or \$50,000; pigments, medicinal chemicals, flavor and perfume materials, and rubber-processing chemicals—1,000 pounds or \$1,000. They are usually given in terms of undiluted materials; however, 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.

Table 1 of the Appendix 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.

Table 2 of the Appendix 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.

Table 3 of the Appendix presents the data in this report aggregated in the format of the Harmonized System (HS) nomenclature on a 6-digit HS basis.

Table 4 of the Appendix is an alphabetical index of all the products in this edition of the report.

Data contained in this report are compiled primarily from Commission's 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

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<sup>1</sup> 18 U.S.C. § 1905 and 44 U.S.C. § 3508.

## INTRODUCTION

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:

- 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);
- 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 you *by others* under toll agreement;
- Shipments to subsidiary or affiliated companies, provided the ownership is less than 100%.

### SALES EXCLUDES:

- 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 are preferred, but if they are not readily available from your records, delivered values are acceptable.



# SUMMARY

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Combined production of all synthetic organic chemicals and primary products from petroleum and natural gas in 1985 was 329,186 million pounds—an decrease of 2.6 percent from the output in 1984 (which also included data on tars) (table 1). Sales of these materials in 1985, which totaled 173,077 million pounds, valued at \$63,783 million, were 3.3 percent smaller than in 1984 in terms of quantity and 2.6 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. The total output of these products declined from 331,147 million pounds in 1981 to 299,125 million pounds in 1982, then rose each year until 1985 (figure 1). During that period the output of these products generally followed the trend of the Federal Reserve Board Index of U.S. Production.

In 1985, production of all synthetic organic chemicals, including cyclic intermediates and finished products totaled 224,702 million pounds, or 0.2 percent less than the output in 1984. Only three sections showed an increase in production in 1985 over 1984. Pesticides and related products (1,235 million pounds) increased by 3.8 percent; plastics and resin materials (49,998 million pounds) increased by 3.6 percent; miscellaneous cyclic and acyclic chemicals (93,927 million pounds) increased by 2.1 percent; Of the remaining sections, medicinal chemicals (225 million pounds) showed a decrease in 1985 of 19.4 percent from that in 1984; elastomer (synthetic rubber) (3,828 million pounds) decreased 17.0 percent; flavor and perfume materials (152 million pounds) decreased 15.0 percent; rubber-processing chemicals (260 million pounds) decreased 9.5 percent; miscellaneous end-use chemicals and chemical products (22,214 million pounds) decreased 6.4 percent; organic pigments (81 million pounds) decreased 5.6 percent; dyes (222 million pounds) decreased 4.5 percent; plasticizers (1,710 million pounds) decreased 4.3 percent; cyclic intermediates (45,487 million pounds) decreased 3.3 percent; and surface-active agents (5,363 million pounds) decreased 2.8 percent.

**Table 1.—Synthetic organic chemicals and their raw materials: U.S. production and sales, 1984 and 1985**

Chemical	Production			Sales					
			Increase or decrease (-), 1985 over 1984 <sup>1</sup>	Quantity			Value		
	1984	1985		1984	1985	(-), 1985 over 1984 <sup>1</sup>	1984	1985	(-), 1985 over 1984 <sup>1</sup>
	<i>Million pounds</i>	<i>Million pounds</i>	<i>Percent</i>	<i>Million pounds</i>	<i>Million pounds</i>	<i>Percent</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Percent</i>
Grand total <sup>2</sup> .....	338,025	329,186	-2.6	179,061	173,077	-3.3	65,493	63,783	-2.6
Tar .....	4,144	(?)	...	2,223	(?)	...	311	(?)	...
Primary products from petroleum and natural gas .....	108,666	104,484	-3.8	51,178	49,885	-2.5	8,256	7,810	-5.4
Synthetic organic chemicals, total <sup>2</sup> .....	225,215	224,702	-0.2	125,659	123,193	-2.0	56,925	55,973	-1.7
Cyclic intermediates .....	47,052	45,487	-3.3	19,957	19,585	-1.9	6,930	6,337	-8.6
Dyes .....	233	222	-4.5	221	267	21.2	691	651	-5.8
Organic pigments .....	86	81	-5.6	76	69	-9.3	493	448	-9.2
Medicinal chemicals .....	279	225	-19.4	152	145	-5.1	1,369	1,339	-2.2
Flavor and perfume materials .....	179	152	-15.0	115	86	-25.0	637	587	-7.9
Plastics and resin materials .....	48,255	49,998	3.6	40,751	42,171	3.5	20,923	20,168	-3.6
Rubber-processing chemicals .....	288	260	-9.5	176	174	-0.9	287	281	-2.0
Plasticizers .....	1,788	1,710	-4.3	1,685	1,470	-12.8	849	741	-12.7
Surface-active agents .....	5,519	5,363	-2.8	3,433	3,328	-3.1	1,874	1,574	-16.0
Pesticides and related product .....	1,189	1,235	3.8	1,108	1,022	-7.8	4,730	4,437	-6.2
Miscellaneous end-use chemicals and chemical products .....	23,731	22,214	-6.4	14,931	16,217	8.6	3,834	6,178	61.1
Miscellaneous cyclic and acyclic chemicals .....	92,009	93,927	2.1	40,386	36,431	-9.8	12,043	11,179	-7.2

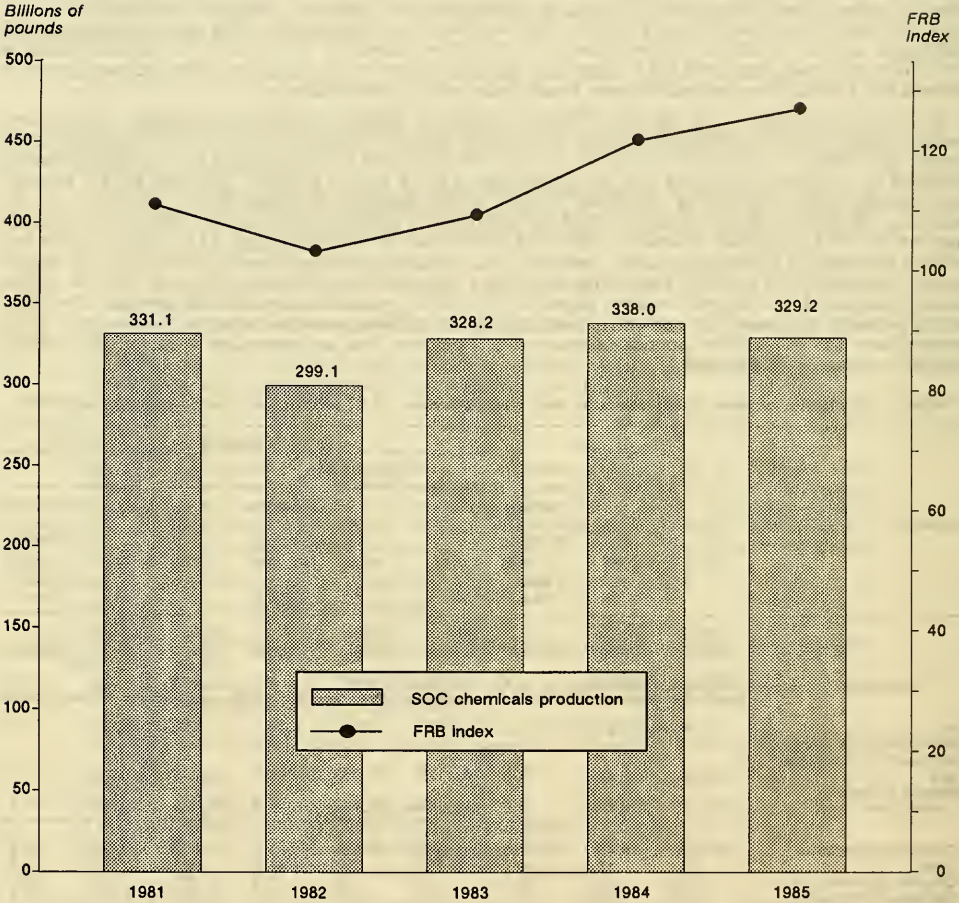
<sup>1</sup> Percentage calculated from figures rounded to thousands.

<sup>2</sup> Because of rounding, figures may not add to the totals shown.

<sup>3</sup> Not available

# SYNTHETIC ORGANIC CHEMICALS, 1985

Figure 1.—Synthetic organic chemicals and their raw materials, total, vs FRB Index.



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



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 necessarily include considerable duplication.

Total production of synthetic organic chemicals (intermediates and finished products combined) in 1985 was 224,702 million pounds, or 0.2 percent less than the output of 225,215 million pounds reported for 1984, and 114.6 percent more than the output of 104,711 million pounds reported in 1967 (see table 2). Sales of synthetic organic chemicals in 1985 amounted to 123,193 million pounds, valued at \$55,973 million, compared with 125,677 million pounds, valued at \$56,926 million, in 1984, and 55,177 million pounds, valued at \$10,438 million, in 1967. Production of all cyclic products (intermediates and finished products combined) in 1985 totaled 72,131 million pounds, or 1.1 percent less than the 72,927 million pounds reported for 1984, and 131.3 percent more than the 31,182 million pounds reported for 1967; 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 1967 than would otherwise have resulted. Production of all acyclic products in 1985 totaled 148,743 million pounds, or 0.7 percent more than the 147,678 million pounds reported for 1984, and 113.4 percent more than the 69,707 million pounds reported for 1967.

Table 2.— Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, 1967, 1984, and 1985

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

Chemical	1967 <sup>1</sup>	1984	1985	Increase or decrease (-)	
				1985 over 1967	1985 over 1984
Organic chemicals, cyclic and acyclic, grand total:					
Production .....	104,711,357	225,214,940	224,702,075	114.6	-0.2
Sales .....	55,176,823	125,676,661	123,193,035	123.3	-2.0
Sales value .....	10,438,453	56,925,687	55,972,673	436.2	-1.7
Cyclic, total: <sup>2</sup>					
Production .....	31,181,832	72,927,149	72,130,700	131.3	-1.1
Sales .....	17,388,529	38,791,816	39,408,923	126.6	1.6
Sales value .....	4,170,713	25,608,446	25,093,594	501.7	-2.0
Acyclic, total: <sup>2</sup>					
Production .....	69,706,980	147,678,486	148,743,434	113.4	0.7
Sales .....	34,526,250	84,199,037	81,556,256	136.2	-3.1
Sales value .....	5,393,503	29,050,916	28,825,019	434.4	-0.8
1. Cyclic Intermediates					
Production .....	20,793,132	47,051,869	45,487,054	118.8	-3.3
Sales .....	9,461,180	19,956,652	19,585,150	107.0	-1.9
Sales value .....	1,000,359	6,930,243	6,336,524	533.4	-8.6
2. Dyes					
Production .....	206,240	232,615	222,127	7.7	-4.5
Sales .....	198,592	220,520	267,283	34.6	21.2
Sales value .....	332,049	690,808	650,580	95.9	-5.8
3. Organic Pigments					
Production .....	53,322	85,664	80,857	51.6	-5.6
Sales .....	42,867	76,154	69,034	61.0	-9.3
Sales value .....	108,354	492,954	447,704	313.2	-9.2

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

Table 2.— Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, 1967, 1984, and 1985 —Continued

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

Chemical	1967 <sup>1</sup>	1984	1985	Increase or decrease (-)	
				1985 over 1967	1985 over 1984
<b>4. Medicinal Chemicals</b>					
Cyclic:					
Production	110,129	223,730	175,931	59.7	-21.4
Sales	70,120	108,357	100,923	43.9	-6.9
Sales value	348,873	1,240,696	1,199,304	243.8	-3.3
Acyclic:					
Production	69,941	54,910	48,729	-30.3	-11.3
Sales	56,804	44,091	43,695	-23.1	-0.9
Sales value	36,402	128,739	140,018	284.6	8.8
<b>5. Flavors and Perfume Materials</b>					
Cyclic:					
Production	57,978	113,913	101,217	74.6	-11.1
Sales	47,285	83,287	70,464	49.0	-15.4
Sales value	52,866	581,613	546,937	934.6	-6.0
Acyclic:					
Production	53,558	64,806	50,654	-5.4	-21.8
Sales	49,311	31,422	15,611	-68.3	-50.3
Sales value	40,495	55,189	39,623	-2.2	-28.2
<b>6. Plastics and Resin Materials</b>					
Cyclic:					
Production	5,033,497	14,331,668	14,849,367	195.0	3.6
Sales	4,224,121	11,899,168	12,313,993	191.5	3.5
Sales value	1,036,940	8,494,591	8,188,127	689.6	-3.6
Acyclic:					
Production	8,759,452	33,923,108	35,148,502	301.3	3.6
Sales	7,753,242	28,851,408	29,857,216	285.1	3.5
Sales value	1,635,690	12,428,047	11,979,673	632.4	-3.6
<b>7. Rubber-Processing Chemicals</b>					
Cyclic:					
Production	220,139	259,777	237,224	7.8	-8.7
Sales	169,970	153,960	154,709	-9.0	0.5
Sales value	116,318	260,701	258,438	122.2	-0.9
Acyclic:					
Production	43,894	27,802	22,940	-47.9	-17.5
Sales	30,878	21,949	19,564	-36.6	-10.9
Sales value	15,477	25,808	22,242	43.7	-13.8
<b>8. Elastomers (Synthetic Rubber)</b>					
Production	3,822,545	4,609,305	3,827,941	0.1	-17.0
Sales	3,262,044	2,685,808	2,227,856	-31.7	-17.1
Sales value	874,237	2,266,325	2,054,060	135.0	-9.4
<b>9. Plasticizers</b>					
Cyclic:					
Production	929,871	1,338,362	1,285,753	38.3	-3.9
Sales	865,084	1,307,210	1,118,334	29.3	-14.4
Sales value	167,827	577,694	498,761	197.2	-13.7
Acyclic:					
Production	332,908	449,166	424,106	27.4	-5.6
Sales	296,767	377,997	351,414	18.4	-7.0
Sales value	93,142	271,083	242,586	160.4	-10.5
<b>10. Surface-Active Agents</b>					
Cyclic: <sup>2</sup>					
Production	1,418,444	2,409,849	2,350,782	(*)	-2.5
Sales	852,238	1,843,375	1,814,388	(*)	-1.6
Sales value	95,810	790,721	565,176	(*)	-28.5

See footnotes at end of table.

# GENERAL

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**Table 2.— Synthetic organic chemicals: Summary of U.S. production and sales of Intermediates and finished products, 1967, 1984, and 1985 —Continued**

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

Chemical	1967 <sup>1</sup>	1984	1985	<i>Increase or decrease (-)</i>	
				1985 over 1967	1985 over 1984
<b>10. Surface-Active Agents-Continued</b>					
<b>Acyclic:</b>					
Production .....	2,060,851	3,109,332	3,012,401	(*)	-3.1
Sales .....	897,786	1,589,835	1,513,440	(*)	-4.8
Sales value .....	220,877	1,083,626	1,009,134	(*)	-6.9
<b>11. Pesticides and Related Products</b>					
<b>Cyclic:</b>					
Production .....	823,158	842,703	876,212	6.4	4.0
Sales .....	681,532	809,033	712,722	4.6	-11.9
Sales value .....	627,742	3,556,700	3,266,051	420.3	-8.2
<b>Acyclic:</b>					
Production .....	226,505	346,466	358,702	58.4	3.5
Sales .....	215,831	298,873	308,993	43.2	3.4
Sale value .....	159,301	1,173,611	1,170,784	635.0	-0.2
<b>12. Miscellaneous End-Use Chemicals and Chemical Product</b>					
<b>Cyclic:</b>					
Production .....	(1,535,922)	3,484,611	3,772,190	(°)	8.3
Sales .....	(775,540)	1,089,144	1,948,643	(°)	78.9
Sales value .....	(283,575)	901,196	2,039,900	(°)	126.4
<b>Acyclic:</b>					
Production .....	(58,159,771)	20,246,332	18,442,061	(°)	-8.9
Sales .....	(25,225,631)	13,842,307	14,268,507	(°)	3.1
Sales value .....	(3,192,119)	2,932,471	4,137,780	(°)	41.1
<b>13. Miscellaneous Cyclic and Acyclic Chemicals</b>					
<b>Cyclic:</b>					
Production .....	(°)	2,552,388	2,691,986	(°)	5.5
Sales .....	(°)	1,244,956	1,253,280	(°)	0.7
Sales value .....	(°)	1,090,529	1,096,092	(°)	0.5
<b>Acyclic:</b>					
Production .....	(°)	89,456,564	91,235,339	(°)	2.0
Sales .....	(°)	39,141,155	35,177,816	(°)	-10.1
Sales value .....	(°)	10,952,342	10,083,179	(°)	-7.9

<sup>1</sup> Standard reference base period for Federal Government general-purpose index numbers.

<sup>2</sup> Does not include data for elastomers.

<sup>3</sup> Includes ligninsulfonates.

<sup>4</sup> The data for 1967 are not comparable with current data as a result of a change in accounting procedures.

<sup>5</sup> Items in these two sections were previously included in the section named miscellaneous chemicals.

The following tabulation shows, by chemical groups, the number of companies that reported production in 1984 of one or more of the chemicals included in the groups listed in table 2:

Chemical Group	Number of Companies	Chemical Group	Number of Companies
Cyclic Intermediates .....	182	Elastomers (synthetic rubber) .....	28
Dyes .....	37	Plasticizers .....	45
Organic pigments .....	35	Surface-active agents .....	170
Medicinal chemicals .....	91	Pesticides and related products .....	82
Flavor and perfume materials .....	32	Miscellaneous end-use chemicals and chemicals products .....	156
Plastics and resins materials .....	273	Miscellaneous cyclic and acyclic chemicals	274
Rubber-processing chemicals .....	23		



# SYNTHETIC ORGANIC CHEMICALS, 1985

## SECTION I -- TAR AND TAR CRUDES

### STATISTICAL HIGHLIGHTS

Cynthia B. Foreso

202-523-1230

#### TAR

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.

Collection of data on coal tar by the Energy Information Administration, U.S. Department of Energy was discontinued; however, the U.S. International Trade Commission will begin collection of these data for the 1986 reporting year.

#### TAR CRUDES

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 (see figure 1).

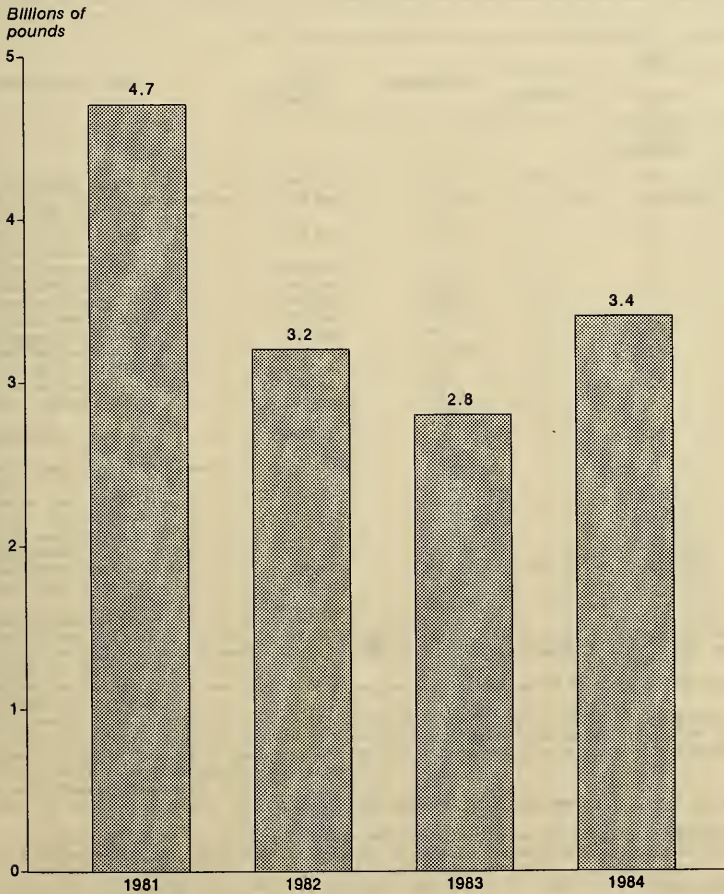
The domestic production by coke-oven operators of industrial and specification grades of benzene, toluene, and xylene cannot be published since to do so would disclose the operations of individual companies. However, the 1985 benzene production by petroleum refiners amounted to 1.3 billion gallons. The output of toluene from petroleum refiners (including material used for blending in aviation fuel) totaled 704 million gallons in 1985; and the refiners' output of xylene (including that produced for blending in motor fuels) was not publishable.

Production figures for road tar for 1985 cannot be published; however, production of tar for use other than as a road tar was 145 million gallons in 1985.

Some of the products obtained from tar and included in the statistics in table 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.

Data for 1985 tar crudes were supplied by 25 companies and company divisions.

Figure 1.—Crude coal tar.



Note.—Data for 1985 are not available.

Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.





I -- TAR AND TAR CRUDES

TABLE 1.--TAR AND TAR CRUDES; U.S. PRODUCTION AND SALES, 1985

[Listed below are all tar crudes for which any reported data on production or sales may be published. Table 2 lists all products for which data on production and/or sales were reported and identifies the manufacturers of each]

TAR AND TAR CRUDES	UNIT OF QUANTITY	PRODUCTION	SALES		
			QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
				<u>1,000</u>	
				<u>dollars</u>	
Coal tar: Coke-oven operators-----	1,000 gal--	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Crude light oil: <sup>3</sup> Coke-oven operators--	1,000 gal :	72,394 :	54,744 :	42,739 :	\$0.78
Intermediate light oil: Coke-oven operators-----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Light-oil distillates:					
Benzene, all grades, total <sup>5</sup> -----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Coke-oven operators-----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Petroleum refiners <sup>6</sup> -----	1,000 gal--	1,282,760 :	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Toluene, all grades, total-----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Coke-oven operator-----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Petroleum refiners <sup>7</sup> -----	1,000 gal--	703,740 :	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Xylene, all grades, total <sup>5</sup> -----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Coke-oven operators-----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Petroleum refiners-----	1,000 gal--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Naphthalene, crude-----	1,000 lbs--	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Creosote oil (Dead oil) (100% creosote basis):					
Distillate as such (100% creosote basis)-----	1,000 gal--	64,339 :	40,015 :	38,051 :	.95
Creosote in coal tar solution (100% solution basis)-----	1,000 gal--	66,587 :	42,311 :	38,152 :	.90
Tar, for uses other than road tar-----	1,000 gal--	145,347 :	154,719 :	111,698 :	.72
Pitch of tar: hard-----	1,000 tons-	515 :	473 :	125,441 :	265.04

<sup>1</sup>Unit value per gallon pound, or ton as specified.

<sup>2</sup>Collection of data on coal tar by the Energy Information Administration, U.S. Department of Energy (Quarterly Coal Report) was discontinued. The U.S. International Trade Commission will begin collection of these data for the 1986 reporting year.

<sup>3</sup>Data reported by tar distillers are not included because publication would disclose the operations of individual companies.

<sup>4</sup>Statistics cannot be published; to do so would disclose the operations of individual companies.

<sup>5</sup>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.

<sup>6</sup>Benzene, specification grades (1',2').

<sup>7</sup>Sales data for toluene produced by petroleum refiners includes only high purity (98-100%) toluene.

Note 1.--Statistics for materials produced in coke and gas-retort ovens are compiled by the Energy Information Administration, U.S. Department of Energy. Statistics for materials produced in tar and petroleum refineries are compiled by the U.S. International Trade Commission.

Note 2.--Data for all other tars and tar crudes are not included in the 1985 report because publication would disclose the operations of individual companies.

TABLE 2.--TAR AND TAR CRUDES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

TAR AND TAR CRUDES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
LIGHT OIL, LIGHT OIL DISTILLATES, AND TAR BASES:	
CRUDE LIGHT OIL:	
*Crude light oil-----	ABP, ALS, BTS, CHA, EKO, IGC, ILL, INL, LTV, NTS, SGO, USS, WPS.
Intermediate light oil: coke-oven operators-----	EKO, X.
PYRIDINE, TAR BASES:	
BENZENE (BENZOL):	
Tar bases: crude bases (dry basis)-----	INL, NTS, USS, WPS.
Benzene (Benzol) 90-100%-----	BTS, USS.
TOLUENE (TOLUOL):	
Tar bases: semirefined or denaturing grade-----	USS.
Toluene (Toluol) 90-100%-----	BTS, USS.
XYLENE (XYLOL):	
xylene (xytol): 90-100%-----	USS.
SOLVENT NAPHTHA:	
Solvent naphtha-----	IGC.
ALL OTHER:	
Light-oil distillates, all other-----	BTS, USS.
OTHER TAR DISTILLATES:	
NAPHTHALENE, CRUDE:	
Methylnaphthalene-----	KPT.
Naphthalene, crude, solidifying at less than 74° C-----	BTS, IGC, LTV.
Naphthalene, crude, solidifying at 76° C to less than 79° C-----	ACS, KPT.
CRUDE TAR ACID OILS:	
Crude tar acid oils having a tar acid content of: 5 percent to less than 24 percent-----	ACS, X.
CREOSOTE OIL (DEAD OIL):	
Creosote oil (Dead oil): creosote content in solution (100 Percent basis)-----	KPT, RIL.
*Creosote oil (Dead oil): creosote in coal tar solution (100 Percent solution basis)-----	ACS, KPT, RIL, USS, WTC.
*Creosote oil (Dead oil): distillate as such (100 Percent creosote basis)-----	ACS, COP, KPT, RIL, USS, WTC.

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT]

TABLE 2.--TAR AND TAR CRUDES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

TAR AND TAR CRUDES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
OTHER TAR DISTILLATES--CONTINUED	
ALL OTHER DISTILLATE PRODUCTS:	
Carbon black oil-----	ACS, KPT.
Creosote tar acid oil-----	ACS.
Crude coal tar solvent-----	KPT, ILI.
Priming and refractory oil-----	BTS.
Sodium phenate or carbolate-----	NTS.
Tetralin, crude (Tetrahydrophthalene)-----	KPT.
Tar distillates, all other-----	GIV, KPT, LYP.
TAR AND TAR PITCHES:	
Tar, road-----	ACS, RIL.
Tar, road-----	ACS, RIL.
TAR FOR OTHER USES:	
*Tar for other uses: crude-----	ABP, ALS, BTS, HUS, IGC, LTV, SGO, USS.
*Tar for other uses: refined-----	ACS, RIL, X.
PITCH OF TAR:	
*Pitch of tar: hard (M.P. 161° F and Over)-----	ACS, KPT, RIL, WTC.
*Pitch of tar: medium (M.P. 110° To 160° F)-----	ACS, COP, KPT, RIL, USS.
*Pitch of tar: soft (M.P. 80° To 109° F)-----	KPT, USS.

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I -- TAR AND TAR CRUDES

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1985

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of tar and tar crudes to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
ABP :	Alabama By-Products Corp.	KPT :	Koppers Co., Inc.
ACS :	Allied Corp., Chemicals Sector	LSS :	Lone Star Steel Co.
ALS :	Armco, Inc.	LTV :	LTV Steel Company
BTS :	Bethlehem Steel Corp.	LYP :	Lyondell Petrochemical Co.
CHA :	Chattanooga Coke & Chemicals Co., Inc.	NTS :	National Steel Corp., Great Lakes Plant
COP :	Coopers Creek Chemical Corp.	RIL :	Reilly Tar & Chemical Corp.
EKO :	Empire Coke Co.	SGO :	Shenango, Inc.
GIV :	Givaudan Corp.	USS :	U.S. Steel Corp.: Clairton Plant
HUS :	Husky Industries, Inc.		Gary Works
IGC :	Indiana Gas & Chemical Corp.		Geneva Plant
ILI :	Interlake, Inc.		USS Chemicals Div.
INL :	Inland Steel Co.	WPS :	Wheeling-Pittsburg Steel Corp.
		WTC :	Witco Chemical Corp.

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION II -- PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL  
GAS FOR CHEMICAL CONVERSION

STATISTICAL HIGHLIGHTS

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202-523-0453

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 tar<sup>1</sup> 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 xylene). 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 xylene, which are used in blending aviation and motor fuel.

The total production of primary products derived from petroleum and natural gas during 1981-85 is shown in figure 1. Production decreased 16,465 million pounds or by 15 percent from 1981-82 as a result of economic conditions. Between 1984-85 production also decreased 4 percent from 108,666 million pounds to 104,484 million pounds.

The output of primary products derived from petroleum and natural gas as a group amounted to 104,484 million pounds in 1985. Production in 1984 was 108,666 million pounds. The output of aromatic and naphthenic products from petroleum amounted to 23,453 million pounds in 1985, compared with 24,563 million pounds in 1984. Sales amounted to \$1,973 million in 1985 and \$2,162 million in 1984. In 1985, production of benzene was 9,390 million pounds; production of toluene was 5,074 million pounds; and production of high purity mixed xylenes were 4,464 million pounds (table 1).

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 81,031 million pounds in 1985, compared with 84,103 million pounds in 1984. Sales of these products were valued at \$5,837 million in 1985, compared with \$6,094 million in 1984. Production of ethylene was 29,847 million pounds in 1985. The output of 1,3-butadiene in 1985 was 2,340 million pounds. Production of propylene in 1985 was 14,887 million pounds (table 1).

Data for 1985 primary products from petroleum and natural gas for chemical conversion were supplied by 70 companies or company divisions.

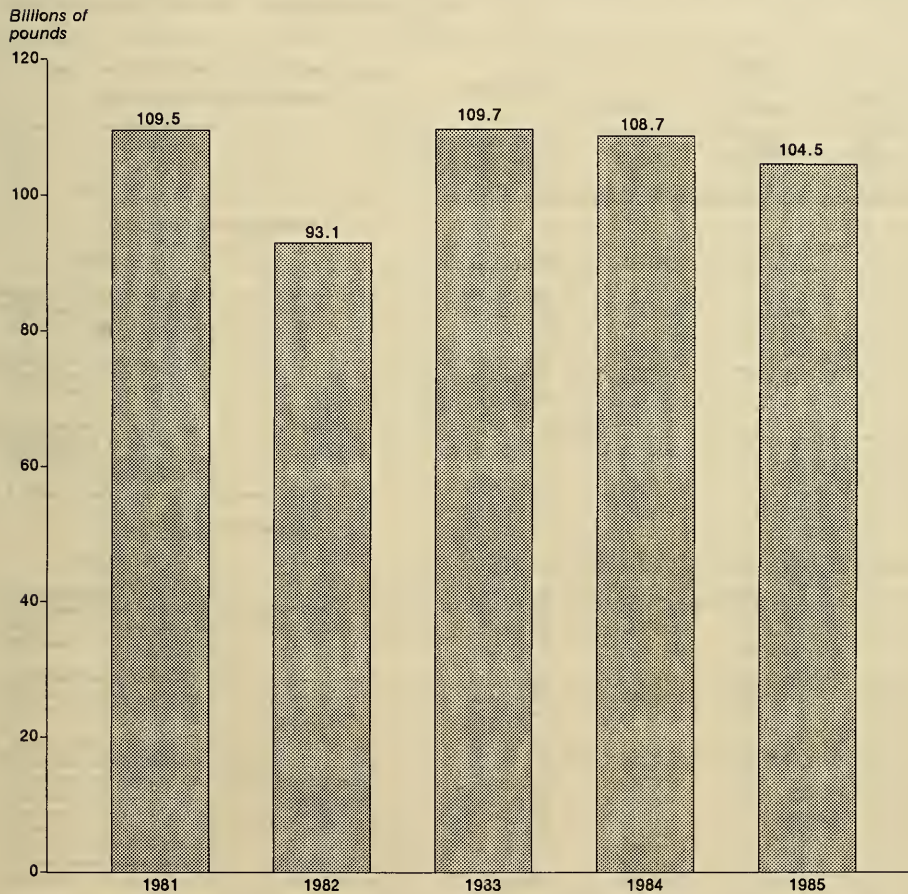
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<sup>1</sup> Statistics on chemicals from coal tar are given in Section 1 (Tar and Tar Crudes) of this report.



## II -- PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION

Figure 1.—Primary products from petroleum and natural gas.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1985

[Listed below are the primary products from petroleum and natural gas for chemical conversion for which any reported data on production or sales may be published. (Leaders (...) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all primary products from petroleum and natural gas for chemical conversion for which data on production and/or sales were reported and identifies the manufacturers of each]

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	104,483,734	49,885,047	7,810,050	\$0.16
AROMATICS AND NAPHTHENES <sup>2</sup>				
Total-----	23,452,681	13,266,929	1,973,405	.15
Benzene, all grades, total-----	9,389,805	...	...	...
High purity (98-100%)-----	8,251,465	4,051,856	718,904	.18
Other (90-97.9%)-----	1,138,340	...	...	...
Toluene, all grades, total-----	5,073,965	...	...	...
High purity (98-100%)-----	4,008,129	3,658,709	565,335	.15
Other (90-97.9%) <sup>4</sup> -----	1,065,836	...	...	...
Xylene, mixed, total-----	...	...	...	...
High purity (98-100%)-----	4,463,807	2,416,928	355,840	.15
Other (90-97.9%) <sup>4</sup> -----	...	...	...	...
All other aromatics and naphthenes <sup>5</sup> -----	4,525,104	3,139,436	333,326	.11
ALIPHATIC HYDROCARBONS				
Total-----	81,031,053	36,618,118	5,836,645	.16
C <sub>2</sub> Hydrocarbons, total-----				
Acetylene <sup>6</sup> (For chemical use only)-----	277,558	102,781	43,842	.43
Ethane-----	5,631,262	2,769,057	185,231	.07
Ethylene-----	29,846,726	9,728,703	1,527,216	.16
C <sub>3</sub> Hydrocarbons, total-----				
Propane-----	25,191,952	13,918,244	1,869,516	.13
Propylene <sup>7</sup> -----	10,305,103	6,240,393	685,713	.11
Propylene <sup>7</sup> -----	14,886,849	7,677,851	1,183,803	.15
C <sub>4</sub> Hydrocarbons, total-----				
Butadiene and butylene fractions-----	1,017,666	972,754	159,274	.21
1,3-Butadiene, grade for rubber (elastomers)-----	2,340,484	2,039,338	682,789	.33
n-Butane-----	2,214,392	1,332,556	153,004	.11
1-Butene-----	414,248	198,186	45,629	.23
1-Butene and 2-Butene mixed <sup>8</sup> -----	639,775	242,814	31,793	.13
Isobutane-----	1,638,820	686,096	87,837	.13
Isobutylene-----	...	303,384	66,057	.22
All other <sup>9</sup> -----	3,385,550	181,934	45,832	.25
C <sub>5</sub> Hydrocarbons, total-----				
Isoprene (2-Methyl-1,3-butadiene)-----	65,577	44,904	10,679	.24
n-Pentane-----	107,108	...	...	...
Pentenes, mixed-----	973,397	286,297	43,806	.15
All other <sup>10 11</sup> -----	899,627	226,706	48,252	.21
All other aliphatic hydrocarbons, derivatives and mixtures, total-----				
Alpha olefins, C <sub>6</sub> -C <sub>10</sub> -----	6,386,911	3,584,364	835,888	.23
Alpha olefins, C <sub>6</sub> -C <sub>10</sub> -----	517,474	336,445	93,810	.28

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1985--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ALIPHATIC HYDROCARBONS--Continued				
All other aliphatic hydrocarbons, derivatives and mixtures--Continued				
Alpha olefins, C <sub>11</sub> and higher-----	785,336	482,550	121,501	\$0.25
Dodecane (Tetrapropylene)-----	349,989	118,189	25,397	.21
n-Heptane-----	123,948	121,660	26,099	.21
Hexane-----	482,457	306,577	63,505	.21
Nonene (Tripropylene)-----	..	160,672	40,338	.25
n-Paraffins <sup>2</sup> -----	1,295,557	913,618	178,908	.20
All other <sup>3</sup> -----	2,832,150	1,144,653	286,330	.25

<sup>1</sup>Calculated from rounded figures.

<sup>2</sup>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 of the report on "Tar and Tar Crudes."

<sup>3</sup>Includes toluene, solvent grade, 90 percent.

<sup>4</sup>Includes toluene and xylene used as solvents; may include that which is blended in aviation and motor gasolines.

<sup>5</sup>Includes data for alkyl aromatics, crude cresylic acid, cyclopentane, naphthalene, naphthenic acid, carbon black feedstock, distillates, solvents and miscellaneous cyclic hydrocarbons. Includes sales data only for the other than high purity grades of benzene, toluene, and mixed xylenes.

<sup>6</sup>Production figures on acetylene from calcium carbide for chemical synthesis are collected by the U.S. Bureau of the Census.

<sup>7</sup>Includes data for refinery propylene.

<sup>8</sup>The statistics represent principally the butene content of crude refinery gases from which butadiene is manufactured.

<sup>9</sup>Includes production and/or sales data for mixed C<sub>4</sub> streams, and 2-butene. Includes production data only for isobutylene.

<sup>10</sup>Includes data for mixtures of C<sub>5</sub> hydrocarbons, isopentane, 1-pentene, 2-pentene, and piperylene.

<sup>11</sup>Includes sales data only for n-pentane and isoamylene.

<sup>12</sup>Includes data for the following chain lengths: C<sub>6</sub>-C<sub>9</sub>, C<sub>9</sub>-C<sub>15</sub>, C<sub>10</sub>-C<sub>14</sub>, C<sub>10</sub>-C<sub>16</sub>, C<sub>12</sub>-C<sub>18</sub> and others.

<sup>13</sup>Includes production and/or sales data for methane, methylcyclopentadiene, isoheptanes, isohexane, iso-octane, mixed hexenes, mixed heptenes, mixed octenes, n-octane, di-isobutylene, eicosane, nonane, mixtures of C<sub>2</sub> and C<sub>3</sub>, C<sub>5</sub>-C<sub>6</sub>, C<sub>5</sub>-C<sub>7</sub>, C<sub>6</sub>-C<sub>7</sub> hydrocarbons, hydrocarbon derivatives, and other hydrocarbons.



TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985  
 [CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3.]

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>AROMATICS AND NAPHTHEMS</b>	
<b>ALKYL AROMATICS:</b>	
Cyclohexols-----	CXL
Alkyl aromatics, all other-----	SHC
*BENZENE:	
*Benzene, High purity (98-100%)-----	AMO, APR, ASH, CRF, CSD, DOM, EXK, ENJ, GRS, HES, LYP, MOC, PLC, PPR, SHC, SIO, SM, SOC, SUN, SWR, TOC, TX, UCC, UOC, USI, VEL.
*Benzene, Other-----	ACH, AMO, DUP, KHI, KLM.
Cresylic acid (Less than 75 percent distilling over 215° C)-----	FER, KHI.
Cyclopentane-----	PLC
Naphthalene-----	CXL, DUP, YX.
<b>NAPHTHENIC ACID:</b>	
Naphthenic acid, acid number 150-199-----	GRS, HEC, HER, SUN.
Naphthenic acid, acid number 200-224-----	FER, MER.
Naphthenic acid, acid number less than 150-----	AYR, FEN, HEC, SHC, SUN.
*TOLUENE:	
*Toluene, High purity (98-100%)-----	APR, ASH, CSD, DOM, EXK, ENJ, GRS, HES, HST, KHI, LYP, MOC, MON, PLC, PPR, SHC, SIO, SH, SUN, SWR, TOC, TX, UCC, UOC.
*Toluene, Other-----	DUP, PPR, SHC, SOC.
*XYLENES, MIXED:	
*Xylene, High purity (98-100%)-----	AMO, ASH, CSD, EXK, ENJ, HES, MOC, PLC, PPR, SHC, SUN, SWR, UCC, UOC.
Xylene, Other-----	AMO, DUP, TOC.
<b>*ALL OTHER AROMATICS AND NAPHTHEMS:</b>	
Aromatics, C <sub>9</sub> -----	KHI, MOC.
Benzene, toluene, xylene, mixtures-----	ELP.
Carbon black feedstock-----	ENJ.
All other products from petroleum and natural gas, cyclic-----	AMO, ASH, BAS, BFG, EXK, ELP, ENJ, KHI, LYP, NWP, SHC, SWR, UCC, VST.
<b>ALIPHATIC HYDROCARBONS</b>	
<b>C<sub>1</sub> HYDROCARBONS:</b>	
Methane-----	NWP, SHO.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS--CONTINUED	
*C <sub>2</sub> HYDROCARBONS:	
*Acetylene (For chemical use only)-----	BAS, BOR, RH, UCC.
*Ethane-----	ACU, AMO, CGO, ENJ, OMC, PLC, SHG, SHO, USI.
*Ethylene-----	ACU, AMO, BAS, BEG, CRF, DOM, DUP, EKI, ELP, ENJ, GOC, LYP, MCB, NWP, OMC, PLC, SHG, SM, SHO, TX, UCC, USI, USS, VST.
C <sub>3</sub> HYDROCARBONS:	
*Hydrocarbons, C <sub>3</sub> -C <sub>4</sub> , mixtures-----	CLK, TU.
*Propane (Commercial and hd-5)-----	KHI, MOC, OMC, PLC, SHG, SHO, SM, SOG, SUN, TCR, TUS, UOC, USI.
*Propylene-----	ACU, AMO, ASH, BAS, BEG, CCP, CGO, CLK, CRP, CSD, DOM, DUP, EKI, ELP, ENJ, EPC, GOC, KHI, LYP, MCB, MOC, NWP, PLC, SHG, SIO, SM, SOG, SOG, SUN, TCR, TX, UCC, USS, VST.
*C <sub>4</sub> HYDROCARBONS:	
*Butadiene and butylene fractions-----	ACU, BAS, CRF, DOM, EKI, ELP, ENJ, GOC, NWP, PLC, TUS, UCC, VST.
*1,3-Butadiene, grade for rubber (Elastomers)-----	AMO, DOM, DUP, ELP, ENJ, LYP, SHC, SH, TFC, TUS.
*n-Butane-----	AMO, ASH, CSD, CSP, EPC, KHI, OMC, PLC, SHG, SHO, SM, SUN, TNA, TUS, USI.
*1-Butene-----	ENJ, GOC, SHG, TNA, TFC.
2-Butene-----	PLC, TFC.
*1-Butene and 2-butene, mixed-----	ATR, DOM, ENJ, LYP, SHC, SM, SOG, TNA.
Hydrocarbons, C <sub>4</sub> , fraction-----	KHI, TX, USS.
Hydrocarbons, C <sub>4</sub> , mixtures-----	EPC, KHI, MCB, PFR.
*Isobutane (2-Methylpropane)-----	AMO, CSP, ENJ, EPC, KHI, OMC, PLC, SHO, SUN, TUS, USI.
*Isobutylene (2-Methylpropene)-----	ATR, ENJ, SHC, TFC, TUS.
Hydrocarbons, C <sub>5</sub> , all other-----	ENJ, LYP, TX, USI.
*C <sub>5</sub> HYDROCARBONS:	
Hydrocarbons, C <sub>5</sub> mixtures-----	LYP.
Isobutylene-----	TRU.
Isopentane (2-Methylbutane)-----	PLC, SHO.
*Isoprene (2-Methyl-1,3-butadiene)-----	DOM, ENJ, GOC, LYP.
*n-Pentane-----	ASH, PLC, SHO, SOH.
1-Pentene-----	PLC, SOC.
2-Pentene-----	BEG, DOM.
*Pentenes, mixed-----	CSP, ENJ, PLC, SHC, SHO, SM, TUS, USS.



TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ALIPHATIC HYDROCARBONS--CONTINUED</b>	
<b>C<sub>4</sub> HYDROCARBONS--Continued</b>	
Piperylene (1,3-Pentadiene)-----	DOM.
Hydrocarbons, C <sub>5</sub> , all other-----	ENJ, TX, UCC.
<b>*ALL OTHER ALIPHATIC HYDROCARBONS, DERIVATIVES, AND MIXTURES:</b>	
<b>C<sub>4</sub> HYDROCARBONS:</b>	
Di-isopropane (2,3-Dimethylbutane)-----	PLC.
Hexanes-----	ASH, ENJ, HMY, PLC, SHO, TX, UOC VST.
Hexanes, mixed-----	ENJ.
Hydrocarbons, C <sub>5</sub> -C <sub>6</sub> , mixtures-----	PLC.
Hydrocarbons, C <sub>5</sub> -C <sub>7</sub> , mixtures-----	ENJ.
Isobexanes-----	PLC.
Methylcyclopentadiene-----	ENJ.
Neohexane (2,2-Dimethylbutane)-----	PLC.
Hydrocarbons, C <sub>6</sub> , all other-----	SHC, SH, TX.
<b>C<sub>7</sub> HYDROCARBONS:</b>	
*n-Heptane-----	ENJ, PLC, TX, UOC.
Heptenes, mixed-----	ENJ, TX.
Hydrocarbons, C <sub>6</sub> -C <sub>7</sub> , mixtures-----	PPR, TX.
Isoheptanes-----	PLC.
Hydrocarbons, C <sub>7</sub> , all other-----	EKK.
<b>C<sub>8</sub> HYDROCARBONS:</b>	
Di-isobutylene (Di-isobutene)-----	EKT, TPC.
Octenes, mixed-----	ENJ, TX.
2,2,4-Trimethylpentane (Iso-octane)-----	PLC.
Hydrocarbons, C <sub>8</sub> , all other-----	SHC.
<b>C<sub>9</sub> AND ABOVE HYDROCARBONS (EXCEPT ALPHA OLEFINS):</b>	
*Dodecene-----	ENJ, SOC, SUN, UOC.
Tricosane-----	HRI.
*Nonene (Tripropylene)-----	CSP, ENJ, TX, UOC.
<b>ALPHA OLEFINS:</b>	
*Alpha olefins, C <sub>6</sub> -C <sub>10</sub> -----	
*Alpha olefins, C <sub>11</sub> and higher-----	GOC, PLC, SHC, SOC, TMA, USL.
<b>*N-PARAFFINS - CARBON CHAIN LENGTH:</b>	
n-Paraffins, C <sub>10</sub> -C <sub>14</sub> -----	FER, GOC, SHC, SOC, TMA.
n-Paraffins, C <sub>10</sub> -C <sub>16</sub> -----	ENJ, SHC, UOC.
n-Paraffins, C <sub>12</sub> -C <sub>18</sub> -----	VST.
n-Paraffins, C <sub>6</sub> -C <sub>9</sub> -----	UCC.
n-Paraffins, C <sub>9</sub> -C <sub>15</sub> -----	SHC, TX, UOC.
n-Paraffins, other-----	ENJ, UOC.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ALIPHATIC HYDROCARBONS--CONTINUED</b>	
ALL OTHER ALIPHATIC HYDROCARBONS, DERIVATIVES, AND MIXTURES, TOTAL--Continued	
Hydrocarbons, C <sub>5</sub> -C <sub>8</sub> , mixtures	ELP.
Polybutene	AMO, CSD, SOC.
HYDROCARBON DERIVATIVES:	
n-Butyl mercaptan (1-Butanethiol)	PAS, PLC.
sec-Butyl mercaptan (2-Butanethiol)	HAP, PLC.
tert-Butyl mercaptan (2-Methyl-2-propanethiol)	HAP, PAS, PLC.
Di-tert-butyl disulfide	PLC.
Diethyl sulfide (ethyl sulfide)	HAP, PAS.
Dimethyl sulfide	PAS.
Ethyl mercaptan (ethanethiol)	HAP, PAS.
Ethylthioethanol	HAP.
Isopropyl mercaptan (2-Propanethiol)	HAP, PAS, PLC.
Methyl ethyl sulfide	HAP.
Methyl mercaptan (methanethiol)	PAS.
Octyl mercaptans	PAS.
n-Propyl mercaptan (1-Propanethiol)	PAS, PLC.
Thiophane (Tetrahydrothiophene)	HAP.
Hydrocarbon derivatives: all other hydrocarbon derivatives	PAS, PLC, SHC, TK.
Hydrocarbons, C <sub>6</sub> and above, all other, including mixtures	COC, NES, PLC, TNA.

II -- PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CONVERSION

TABLE 3.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION:  
 DIRECTORY OF MANUFACTURERS, 1985

ALPHABETICAL DIRECTORY BY CODE

Names of manufacturers that reported production and/or sales of crude products from petroleum and natural gas for chemical conversion to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

Code	Name of Company	Code	Name of Company
ACU	Allied Corp., Union Texas Petroleum Corp.	MCB	Borg-Warner Corp., Borg-Warner Chemicals
AMO	Amoco Corp.	MER	Merichem Co.
APR	Atlas Processing Co.	MOC	Marathon Petroleum Co., Texas Refining Div.
ASH	Ashland Oil, Inc., Ashland Petroleum Co.	MON	Monsanto Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.	NES	Ruetgers Nease Chemical Co.
		NWP	Norchem, Inc.
BAS	BASF Wyandotte Corp.	OMC	Olin Corp.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	PAS	Pennwalt Corp.
BOR	Borden, Inc., Borden Chemical Div.	PLC	Phillips Petroleum Co.
		PPR	Phillips Puerto Rico Core, Inc.
CCP	Crown Central Petroleum Corp.		
CGO	Citgo Petroleum Corp.	RH	Rohm & Haas Co.
CLK	Clark Oil & Refining Corp.		
CPS	CPS Chemical Co., Inc.	SHC	Shell Oil Co., Shell Chemical Co. Div.
CRP	Corpus Christi Petrochemical Co.	SHO	Shell Oil Co.
CSD	Fina Oil & Chemical Co., Cosden Chemical Div.	SIO	Standard Oil Co. (Ohio)
CSP	Coastal Refining & Marketing, Inc.	SKO	Texaco Refining & Marketing, Inc.
CXI	Chemical Exchange Industries, Inc.	SM	Mobil Oil Corp.
			Gas Liquids Dept.
DOW	Dow Chemical Co.		Mobil Chemical Co., Petrochemicals Div.
DUP	E. I. duPont de Nemours & Co., Inc. Petrochemicals Dept.	SNO	SunOlin Chemical Co.
		SOC	Chevron Corp., Chevron Chemical Co.
	Eastman Kodak Co.	SOG	Charter International Oil Co.
EKT	Tennessee Eastman Co. Div.	SOH	Standard Oil Chemical Co.
EKK	Texas Eastman Co. Div.	SUN	Sun Company, Inc.
ELP	El Paso Products Co.	SWR	Southwestern Refining Co., Inc.
ENJ	Exxon Chemical Americas		
EPC	Enterprise Products Co. of Mississippi	TCR	Texas City Refining, Inc.
		TID	Texaco Refining & Marketing, Inc., Delaware Refinery
FER	Ferro Corp., Productol Chemical Div.	TNA	Ethyl Corp.
		TOC	Tenneco Oil Co.
GOC	Chevron Chemical Corp.	TPC	Texas Petrochemicals Corp.
GRS	Champlin Petroleum Co.	TU	Tenn-USS Chemicals Co.
		TUS	Texaco Butadiene Co.
HAP	Helmerich & Payne, Inc., National Gas Odorizing Div.	TX	Texaco, Inc., Texaco Chemical Co.
HEC	Hewchem		
HES	Amerada Hess Corp. (Hess Oil Virgin Islands Corp.)	UCC	Union Carbide Corp.
		UOC	Union Oil Co. of California
HMY	Humphrey Chemical Co.	USI	National Distillers & Chemicals Corp., U.S.
HST	American Hoehst Corp., Petrochemical/Plastics Group		Industrial Chemicals Co.
		USS	U.S. Steel Corp., USS Chemicals Div.
KHI	Koch Refining Co.	VEL	Velsicol Chemical Corp.
KLM	Kalama Chemical, Inc.	VST	Vista Chemical Co.
LYP	Lyondell Petrochemical Co.		

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

# SYNTHETIC ORGANIC CHEMICALS, 1985

## SECTION III -- CYCLIC INTERMEDIATES

### STATISTICAL HIGHLIGHTS

Ed Matusik

202-523-0492

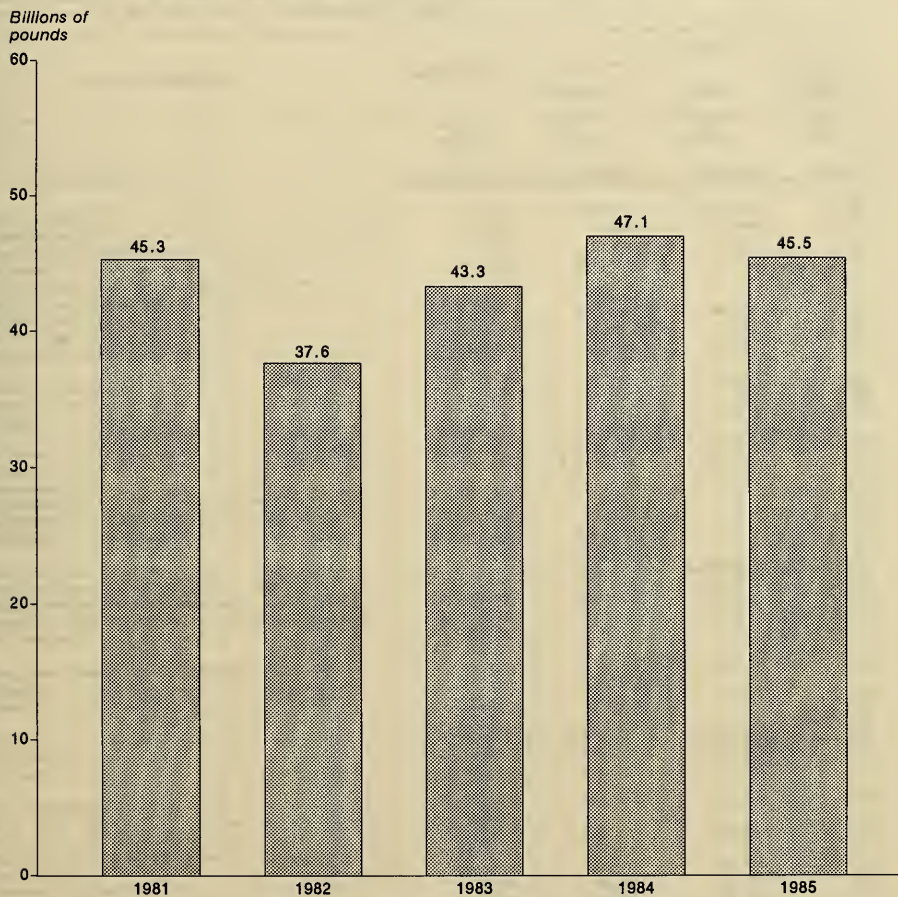
Cyclic intermediates are synthetic organic chemicals derived principally from petroleum and natural gas and from coal-tar crudes produced by destructive distillation (pyrolysis) of coal. Most cyclic intermediates are used in the manufacture of more advanced synthetic organic chemicals and finished products, 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, refined naphthalene may be used as a raw material in the manufacture of 2-naphthol or of other more advanced intermediates, or may be packaged and sold as a moth repellent or as a deodorant. In 1985, about 43 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 1981-85 is shown in figure 1. Total production of cyclic intermediates in 1985 amounted to 45,487 million pounds, a decrease of 3 percent compared with production in 1984. Sales of cyclic intermediates in 1985 were 19,585 million pounds, valued at \$6,337 million, compared with 19,957 million pounds, valued at \$6,930 million, in 1984.

Intermediates that were produced in excess of 1 billion pounds in 1985 were styrene (7,622 million pounds), ethylbenzene (7,386 million pounds), terephthalic acid, dimethyl ester (6,490 million pounds), p-xylene (4,779 million pounds), phenol (2,841 million pounds), cumene (2,627 million pounds), and cyclohexane (1,657 million pounds). These intermediate chemicals produced in excess of 1 billion pounds accounted for about 84 percent of the total output of cyclic intermediates production in 1985.



Figure 1.—Cyclic Intermediates.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



III -- CYCLIC INTERMEDIATES

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1985

[Listed below are all cyclic intermediates for which any reported data on production and sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published, or where no data were reported.) Table 2 lists all cyclic intermediates for which data on production and/or sales were reported and identifies the manufacturer of each].

CYCLIC INTERMEDIATES	PRODUCTION	SALES	
		QUANTITY	UNIT VALUE <sup>1</sup>
	1,000	1,000	1,000
	pounds	pounds	dollars
			Per pound
Grand total-----	45,487,054	19,585,150	6,336,524
Acetoacetanilide-----	14,279	10,677	11,211
o-Acetoacetanilide-----	518	487	1,089
o-Acetoacetotoluide-----	1,707	1,659	2,222
Alkylbenzenes <sup>2</sup> -----	546,711	516,417	218,862
4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5-Methyl-o-anisidinesulfonic acid)-----	1,411	...	...
Aniline (Aniline oil)-----	716,036	309,442	98,132
Biphenyl-----	33,018	6,953	3,283
Butylphenols, mixed-----	19,382	12,496	10,781
Cresols and cresylic acid, total <sup>3</sup> -----	60,413	52,775	34,153
o-Cresol-----	24,014	20,344	11,882
All other <sup>4</sup> -----	36,399	32,431	22,271
Cumene-----	2,626,549	1,228,012	253,970
Cyclohexane-----	1,657,169	1,264,449	317,681
Cyclohexanone-----	790,825	...	...
Dicyclopentadiene (including cyclopentadiene)-----	63,607	...	...
p-Dodecylphenol-----	13,660	8,712	4,022
Ethylbenzene-----	7,386,037	185,809	32,962
Isocyanic acid derivatives, total-----	1,353,754	1,226,660	948,572
Diphenylmethane-4,4'-diisocyanate (MDI)-----	179,070	151,178	138,438
Polymethylene polyphenylisocyanate-----	544,997	489,475	333,228
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)-----	615,931	575,190	461,812
Other isocyanic acid derivatives-----	13,756	10,817	15,094
4,4'-Isopropylidenediphenol (Bisphenol A)-----	949,253	329,739	158,439
Nitrobenzene-----	913,450	...	...
Nonylphenol-----	185,027	64,154	23,782
Phenol, total <sup>3</sup> -----	2,840,712	1,431,310	403,389
From cumene-----	2,673,387	1,269,785	356,150
All other-----	167,325	161,525	47,239
Phthalic anhydride-----	820,222	523,569	134,447
Salicylic acid, tech-----	29,075	...	...
Styrene-----	7,622,245	3,842,582	930,288
Terephthalic acid, dimethyl ester <sup>5</sup> -----	6,490,144	...	...
Tetrahydrofuran-----	120,209	46,251	43,279
p-Toluenesulfonic acid-----	11,056	10,800	3,608
o-Xylene-----	674,994	472,702	78,543
p-Xylene-----	4,778,757	2,905,061	642,290
All other cyclic intermediates-----	4,766,834	5,134,434	1,981,519

<sup>1</sup>Calculated from unrounded figures.

<sup>2</sup>Includes straight-chain dodecylbenzene, tridecylbenzene, and other straight-chain alkylbenzenes. Branched-chain alkylbenzenes are included in "All other cyclic intermediates."

<sup>3</sup>Does not include data for coke oven and gas-retort ovens, reported to the Office of Energy Data and Interpretation, Energy Information Administration, Department of Energy.

<sup>4</sup>Figures include (o,m,p)-cresol from coal tar, m-cresol, p-cresol, cresylic acid refined from petroleum and coal tar, and (m,p)-cresol from petroleum.

<sup>5</sup>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.





TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN 'X' SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT.]

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3-Acetamido-N-(2-succinimidoethyl)-N-ethylaniline	EKT.
Acetanilide, tech.	SAL.
Acetic acid, phenyl ester	BKH.
*Acetoacetanilide	BRD, EKT, HST.
*o-Acetoacetanilide	BRD, EKT, HST.
*o-Acetoacetoluidide	BRD, EKT, HST.
p-Acetoacetoluidide	HST.
2,4,4'-Acetoacetoxylidide	EKT, HST.
Acetoacet-m-xylidide	BRD.
1-Acetonaphthone	GVY.
Acetophenone, tech.	CLK.
p-Acetotoluidide	EK.
2-Acetylpyridine	RL.
5-Acetylsalicylamide	X.
*ALKYLBENZENES:	
Alkylbenzene straight-chain (Except dodecyl and tridecyl)	MON, WTC.
DODECYLBENZENE (INCLUDING TRIDECYLBENZENE):	
Dodecylbenzene, straight-chain	MON, VST, WTC.
Dodecylbenzene, other	SOC, WTC.
Alkylbenzene all other (except dodecyl, tridecyl and straight-chain)	PLC.
Alkylphenols, mixed	FER.
Alkylpyridines, mixed	RL, X.
3-Aminoacetanilide	CGI.
4-Aminoacetanilide (Acetyl-p-phenylenediamine)	HST.
3'-Amino-p-acetanilide	HST, SDC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid	CGY.
3-Amino-p-amsanilide	PGW.
1-Aminoanthraquinone and salt	SDC.
6-Amino-3,4'-azodibenzesulfonic acid (C.I. Acid Yellow 9)	CGY.
p-Aminobenzamide	NSC.
3'-Aminobenzanilide	HST.
o-Aminobenzanilide	FMT.
p-Aminobenzoic acid, tech.	NSC, WVK.
2-Amino-6-benzothiazolesulfonic acid	VFC.
1-Amino-4-bromo-10-dihydro-9,10-dioxo-2-anthracenesulfonic acid and sodium salt	VFC.

TABLE 2.---CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-Amino-2-bromo-4-hydroxyanthraquinone	VFC.
7-Aminocephalosporanic acid	BRS.
2-Amino-5-chlorobenzophenone	GNW.
2-Amino-5-chloro-p-toluenesulfonic acid [SO <sub>2</sub> H=1]	BAS.
6-Amino-5-chloro-m-toluenesulfonic acid [SO <sub>2</sub> H=1] (2B Acid)	
4-Amino-N,N-di(8-hydroxyethyl)aniline sulfate	CYH, DUP.
2-Amino-4,5-dimethoxybenzoic acid, methyl ester	MAY.
5-Amino-2,3-dimethylbenzenesulfethanamide	PFZ.
3-Amino-9-ethylcarbazole	CGY.
N-Aminohexamethylamine	SDC.
4-Amino-3-hydroxy-1-naphthalenesulfonic acid	X.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid	CGY.
3-Amino-4-methoxyacetanilide	CGY.
*4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5-methyl-0-anisidinesulfonic acid)	PSG, VFC, X.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid	CGY, VFC.
2-Amino-2-methylpropyl 8-bromothioethylamine	CHT.
2-Amino-3-methylpyridine	RIL.
2-Amino-4-methylpyridine	RIL.
2-Amino-5-methylpyridine	RIL.
2-Amino-6-methylpyridine	RIL.
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)	CGY.
6-Amino-2-naphthalenesulfonic acid (Broemmer's acid)	CGY.
5-(and 8)-Amino-2-naphthol	BUC.
8-Amino-2-naphthol	BUC.
2-(4-Amino-2-nitroamino)ethanol	SOL.
2-Amino-6-nitrobenzothiazole	VFC.
2-Amino-4-nitrophenol	SOL.
2-[(2-Amino-4-nitrophenyl)amino]-2-hydroxymethyl-1,3-propanediol	SOL.
4-Amino-4-nitro-2,2'-stilbenedisulfonic acid	CGY.
2-Amino-5-nitrothiazole	FCM.
2-Amino-4-nitrotoluene hydrochloride	PCM.
3-Amino-2-oxazolidinone	PFZ.
6-Aminopenicillanic acid	BRS.
p-(p-Aminophenyl)azobenzenesulfonic acid	MAL, SCN.
2-(4-Aminophenylazo)-4-methylpheno	CGY, VFC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid	VFC.
2,2'-(m-Aminophenylimino)diethanol, diacetate ester	CGY, ACY.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt	CGY.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Aminopyridine	RIL
4-Aminopyridine	RLL
2-Aminothiazole nitrate	FCW
4-Amino-m-toluenesulfonic acid (SO <sub>3</sub> H-1)	DUP
6-Amino-m-toluenesulfonic acid (SO <sub>3</sub> H-1)	CVH, DUP
m-[(4-Amino-3-tolyl)azo]benzenesulfonic acid	CGY
5-Amino-2,4-xylenesulfonic acid	USS
*Aniline (Aniline oil)	DUP, FST, ICI, MAL, RUC, USR, USS
2-Anilinoethanol	TCH
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid	CGY
Anilinomethanesulfonic acid and salt	ACY, CGY, VFC
o-Anisidinomethanesulfonic acid	CGY, VPC
Anisole, tech	CHF
Anisoyl chloride	SD
M.W.-(1,5-Anthracinonylene)dianthranilic acid	CGY
Benzaldehyde, tech	KLM
Benzamide hydrochloride	EX
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid	CGY
Benzamide	EX
7H-Benz[de]anthracen-7-one (Benzanthrone)	SDC
Benzenamine, 4,4'-[(2-chlorophenyl)-methylene]bis[M,N-dimethyl]	X
Benzenesulfonic acid	UPF
Benzenesulfonic acid, 2-formyl-, sodium salt	X
Benzenesulfonyl chloride	SFS, UPF, USR
1,2,4-Benzenetricarboxylic acid, 1,2-dianhydride (Trimellitic anhydride)	AMO
Benzhydrol (Diphenylmethanol)	PD
Benzil	LEM
Benzimidazole	EX
1,3-Benzodioxole	AMB
Benzoic acid, 2-[(4-dimethylamino)-benzoyl]-	X
Benzoic acid, methyl ester	HCF
Benzoic acid, tech	KLM, PFZ, VEL
Benzoin	SFS
Benzoin isobutyl ether	SFS
Benzonitrile	SFS
2-Benzothiazolethiol, sodium salt	BEG, BKM, GYR, USR
1H-Benzotriazole	SM
2-Benzoxazolethiol	EX
Benzoyl chloride	HK, KLM, VEL
Benzylamine	HKL, KLM
2-(Benzylamino)ethanol	HKL

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-Benzyl-3,4-dimethyl-2-(p-methoxybenzyl)-1,2,5,6-tetrahydropyridine oxalate	SD.
3-(Benzylisethylamino)acetamide	EKT.
2-Benzyl-2'-hydroxy-5,9-dimethyl-6,7-benzomorphanhydrobromide	SD.
p-(Benzyloxy)phenol	FKE.
1-Benzyl-4-phenylisonipetonitrile	SDM.
Benzyltriethylammonium chloride	HXL.
Benzyltrimethylammonium hydroxide	HXL.
Benzyltrimethylammonium methoxide	HXL.
*Biphenyl	DOM, KHI, MON, TCC.
4,4'-Biphenyldisulfonylazide	PAH.
Bis(p-aminocyclohexyl)methane	ABB, AIP, DUP.
2,6-(p-azidobenzylidene)-4-methylcyclohexanone	X.
4,4'-Bis(dimethylamino)benzhydrol (Michler's hydrol)	X.
Bis(4-dimethylaminoethyl)phenylacetamide	WYT.
1,5-Bis(2,4-dinitrophenoxyl)-4,8-dinitrothraquinone	VPC.
Bis(diphenylsulfonophenyl) sulfide	SOL.
N,N-Bis(4-methylphenyl)sulfonylamine, potassium salt	EK.
1,2-Bis(4-bromophenoxy)ethane	GTL.
p-Bromoaniline	EK.
Bromobenzaldehyde	TMA.
Bromobenzene, mono	DAZ, GTL.
o-Bromobenzoic acid	FD.
4-Bromo-3,5-dihydroxybenzamide	FCM.
4-Bromo-3,5-dihydroxybenzoic acid	FCM.
2-Bromo-4,6-dinitroaniline	CGY, HST, SDC.
2-(2-Bromo-4,6-dinitrophenylazo)-5-diethylaminosulfanilide	CGY.
1-Bromo-4-ethoxy-2-methylbenzene	TMA, X.
1-Bromonaphthalene	RSA.
4-Bromo-p-nitrotoluene (p-Nitrobenzyl bromide)	SDM.
Bromopheniramine base	HEX.
2-Bromopyridine	DAZ.
5-Bromopyrimidine	LIL.
p-Butoxyphenol	ABB.
p-Butylaniline	TMA.
n-Butylaniline	TMA.
p-Tert-Butylbenzaldehyde	GIV.
2-tert-Butyl-p-cresol	FER, PSG.
6-tert-Butyl-m-cresol	FER, KPT.
2-[(1-Butyl-2-methylindol-3-yl)carbonyl]benzoic acid	X.
o-sec-Butylphenol	SCN, TMA.



TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
o-tert-Butylphenol	TNA.
p-sec-Butylphenol	SCN.
p-tert-Butylphenol	FER, SCN.
xylylenols, mixed	FER, SCN, TNA, X.
p-tert-Butyltoluene	GIV.
5-tert-Butyl-1,2,3-trimethylbenzene	GIV.
5-tert-Butyl-m-xylene	GIV.
6-tert-Butyl-2,4-xylene	FER.
1-(Carboethoxy)ethyl-3-(2-chloro-4-(trifluoromethyl)-phenoxy)benzoate	DAZ.
N-Carboxy-N-methylanthranilic anhydride	X.
Cephalosporin D	BRS.
4'-Chloroacetophenone	LLL.
o-Chloroaniline	GMN, DUP.
m-Chloroaniline	FST.
p-Chloroaniline	DUP, HON.
2-Chloroanthraquinone	ACY.
p-Chlorobenzaldehyde	PD.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)	SGC.
Chlorobenzene, mono	DOM, PPG, SCC.
p-Chlorobenzenesulfonic acid	UPF.
4-Chloro-2-benzothiazoleamine	SDC.
2-Chloro-N,N-disopropylethylamine hydrochloride	SOL.
1-Chloro-1,4-dibutoxybenzene	ALL.
1-Chloro-2,5-dibutoxy-4-nitrobenzene	ALL.
2-Chloro-1,4-dieethoxybenzene	ALL.
1-Chloro-2,5-dieethoxy-4-nitrobenzene	ALL.
4'-Chloro-2',5'-dimethoxyacetanilide	HST.
5-Chloro-2,4-dimethoxyaniline	ALL.
2-[p-Chloro- $\alpha$ -(2-dimethylaminoethyl)benzyl]pyridine	SK.
2-Chloro-10-[3-(dimethylamino)propyl]phenothiazine	SK.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	SDC.
3-Chlorodiphenylamine	SK.
p-[(2-Chloroethyl)methylamino]benzaldehyde	VFC.
2-Chloroethylphenyl sulfone	PAH.
5-Chloromethyl-1,3-benzodioxole	X.
4-Chloro-N-methyl-5-nitrobenzenesulfonamide	CGY, LAK.
2-Chloro-10-[3(4-methyl-1-piperazinyl)propyl]-phenothiazine	
2-[(Chloromethyl)thio]benzothiazole	SK.
1-Chloro-2-nitrobenzene (Chloro-p-nitrobenzene)	BKM.
1-Chloro-4-nitrobenzene (Chloro-o-nitrobenzene)	DUP, HON.
4-Chloro-3-nitrobenzenesulfonamide	DUP, HON.
	CGY.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Chloro-3-nitrobenzenesulfonamide	CGY.
2-Chloro-4-nitrobenzoic acid	SAL.
2-Chloro-5-nitrobenzoic acid	CGY.
2-Chloro-4-nitrobenzoic acid, potassium salt	SAL.
4-Chloro-3-nitrobenzotrifluoride	DAZ.
2-Chloro-4-nitrotoluene	DUP, PCW.
2-Chlorophenothiazine	SK.
o-Chlorophenylcyclopentyl ketone	PD.
4-Chloro-o-phenylenediamine	FMT.
4-Chlorophthalic acid	PSG.
2-Chloropyridine	NES, OMC.
4-Chlororesorcinol	PCW.
7-Chloro-1,2,13,4-tetrahydro-2-methyl-3-(2-methylphenyl)- 4-oxo-6-quinolinesulfonamide	X.
o-Chlorotoluene	HK.
m-Chlorotoluene	HK.
p-Chlorotoluene	HK.
o-Chlorotoluene (Benzyl chloride)	MON, SFS, VEL.
3-Chloro-p-toluidine [NH <sub>2</sub> =1]	DUP.
3-(2-Chloro-4-trifluoromethylphenoxy)toluene	DAZ.
4-Chloro- <i>o,o</i> , <i>o</i> -trifluoro-3-nitrotoluene	PCW.
p-Chloro- <i>o,o</i> , <i>o</i> -trifluorotoluene	HK.
6-Chloro- <i>o,o</i> , <i>o</i> -trifluoro- <i>m</i> -toluidine	PCW.
4-Chloro-3,5-xyleneol	FER.
Copper [2,2',2'',2''',-[29H,31H- phthalacycnamine]pentakis(methylene)]pentakis[[H- isocindole-1,3(2H)-dionato]]	X.
*CRESOLS:	
m-Cresol	KFT, MER.
*o-CRESOL:	
o-Cresol, from petroleum	FER, GE, KFT, MER, PSG.
p-Cresol	MER, PSG.
CRESOLS, MIXED:	
( <i>m,p</i> )-CRESOL:	
( <i>m,p</i> )-Cresol, from petroleum	FER, MER, NPC.
( <i>o,m,p</i> )-CRESOL:	
( <i>o,m,p</i> )-Cresol, from coal tar	KFT.
CRESYLIC ACID, REFINED:	
m-Cresylglycidyl ether	X.
Cresylic acid, refined, from petroleum	FER, MER.
*Cumene (Isopropyl benzene)	ASH, BTL, CLK, GGC, GRS, KHI, SHC, TK.
2-[ <i>o</i> -(Cyanacetamido)phenyl]-6-methyl-7- benzothiazolesulfonic acid	VPC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-(Gyanoacetyl)morpholine	DUP.
Cyanoethyl cellulose	FKE.
N-Cyano-s-methyl-N-2(4-methyl-5-imidazolyl)- methylthioethylisothioureac	SK.
*Cyclohexene	DUP, GRS, PLC, PPR, SUN, TX, UOC.
1,2-cyclohexanedicarboxylic acid anhydride	BGC.
Cyclohexanol	PD.
1,3-cyclohexanedione	AGS, DBC, DUP, MON.
*Cyclohexanone	AGS, CMP, DBC, DUF, MON.
Cyclohexanone oxime	CNP.
Cyclohexene	USR.
3-Cyclohexene-1-carboxaldehyde	UGC.
4-Cyclohexene-1,2-dicarboxylic anhydride	DKA.
Cyclohexene oxide	USR.
8-(1-Cyclohexenyl)ethylamine	HKL, X.
Cyclohexylamine	VGC.
Cyclooctadiene	DUP.
Cyclopentene	ALD.
p-Cymene	HFC.
Diacephtho[1,2-j:1',2'-1]fluoranthene (Decacycene)	SDC.
3-Diacetoxystyrylamino benzamide	STC.
Dialkylbenzene	VST.
1,5-Diaminonaphthoquinone	SDG.
2,4-Diaminobenzenesulfonic acid SO <sub>3</sub> H=1	CGY.
1,3-Diaminocyclohexane	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone	VFC.
2,6-Diaminopyridine	RIL.
3,4-Diaminopyridine	RIL.
4,4'-Diamino-2',2'-stilbenedisulfonic acid	CGY.
2,5-Dianilino-2,2'-stilbenedisulfonic acid	SDC.
4-Diazo-2,5-dimethoxyphenolmorpholine	HST.
2-Diazo-1-naphthol-5-sulfonic acid, sodium salt	HST.
N-(4-Diazo phenyl) aniline 1/2 sulfate	HST.
Dibenzylazodicarboxylate	X.
1,3-Dibenzylglycerol	X.
m-Dibromobenzene	DAZ.
p-Dibromobenzene	DAZ.
(1,2-Dibromoethyl)benzene	DAZ.
2,6-Dibromo-4-nitroaniline	HST, SDC.
2,6-Dibromophenol	EK.
3,5-Dibromo-3'-trifluoromethylsalicylamide (fluorophene)	PCM.
p-Dibutoxybenzene (DBB)	ALL.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2,5-dibutoxy-4-morpholinobenzenediazonium sulfate salt (DBB sulfate)	ALL.
2,5-dibutoxy-4-morpholinonitrobenzene	ALL.
2,6-di-tert-butyl-4-nonylphenol	GAF.
2,4-di-tert-butylphenol	FER.
2,6-di-sec-butylphenol	TMA.
2,6-di-tert-butylphenol	TMA.
2,6-di-tert-4-sec-butylphenol	VTC.
3,4-dichloroaniline	DUP, MON.
o-Dichlorobenzene	MON, PPG, SCC, SOL.
m-Dichlorobenzene	MON.
p-Dichlorobenzene	MON, PPG, SCC, SOL.
3,3'-Dichlorobenzidine base and salts	MON, PPG, SCC, SOL.
2,4-dichlorobenzotrifluoride	CWN, LAK.
3,4-dichlorobenzotrifluoride	DAZ.
3,5-dichlorobenzoyl chloride	DAZ, HK.
Dichlorobenzyl chloride	HK.
Dichlorodiphenylsilane	SFS.
4,4'-Dichlorodiphenyl sulfone	DCC.
3,3'-Dichloro-4,4'-(2-hydroxy-3-smilido-1-naphthylazo)- biphenyl	UCG.
2,6-Dichloro-3-methylaniline	LAK.
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)- benzenesulfonic acid	SDC.
Dichloromethylphenylsilane	CGY.
Dichloromethylphenylsilane	DCC.
2,6-Dichloro-4-nitroaniline	CWN.
1,2-Dichloro-4-nitrobenzene	DUP, MON.
2,4-Dichloro-5-nitrotrifluoromethylbenzene	DAZ.
2,4-Dichlorophenol	VTC.
2,5-Dichlorosulfanilic acid [SO <sub>2</sub> H=1]	VPC.
p-α-Dichlorotoluene	HK.
Dicyclohexylamine	ABB, VGC.
Dicyclohexylamine, nitrate salt	QMC.
Dicyclopentadiene (includes Cyclopentadiene)	DOM, ENJ, SHC.
α,α-Diethoxyacetophenone	CHN.
p-Diethoxybenzene	ALL.
p-(Diethylamino)benzaldehyde	HCK, VPC.
2[4-diethylamino-2-hydroxybenzyl]benzoic acid	X.
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)	ACY.
N,N-Diethylamine	ECC, DUP.
2,6-Diethylamine	TMA.
Diethylbenzene	DOM, UPM.
N,N-Diethylcyclohexylamine	ABB.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1965--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
N,N-Diethyl-3-ethoxyaniline	X.
3,5-Diethyltoluene	TMA.
N,N-Diethyl-m-toluidine	DUF.
N,N-Diethyl-p-toluidine	RSA.
6,11-Dihydrodibenz(b,e)oxepin-11-one	PFZ, SK.
2,3-Dihydro-2,4-dimethyl-7-benzofuran-1	DAZ.
2,3-Dihydro-2,4-dimethyl-7-benzofuranol	FHM.
2-[2-(2,3-dihydro-1,3-dioxo-1H-inden-2-yl)-(quinolinyl)]-6-methylbenzothiazole-7-sulfonic acid	VPC.
2,3-Dihydro-2-[6-methyl-7-sulfo-2-benzochazolyl]-2-quinolinyl-1,3-dioxo-1H-indene-5-carboxylic acid	VPC.
Dihydrophenylglycine dene salt	SK.
Dihydrophenylglycine sodium methyl dene salt	KAN.
1,2-Dihydro 2,2',4',7'-tetramethylquinoline	EKT.
1,4-Dihydroxyanthraquinone	GGX, EKT.
2,4-Dihydroxybenzaldehyde	EK.
2,5-Dihydroxy-p-benzenedisulfonic acid, dipotassium salt	X.
3,4-Dihydroxybenzoic acid, methyl ester	PCW.
2,4-Dihydroxybenzophenone	ACX.
1,5-Dihydroxy-4,8-dinitroanthraquinone	VPC.
1,8-Dihydroxy-4,5-dinitroanthraquinone	EKT, VPC.
N,N-Di(8-hydroxyethyl)-m-chloroaniline	MIL.
Diisopropylamine	TNA.
Diisopropylbenzene	CLK, GCG.
m-Dimethoxybenzene	ACX.
3,4-Dimethoxytoluene	HEX, TMA.
p-(Dimethylamino)benzaldehyde	ATL, EK.
m-(Dimethylamino)benzoic acid	SDH.
2-[4-(Dimethylamino)benzoyl]benzoic acid	EK.
2-[[2-(Dimethylamino)ethyl](p-methoxybenzyl)amino]-pyridine	HEX.
m-Dimethylaminophenol	ACX.
1-[3-(Dimethylamino)propyl]-6H-hydroxydibenz(b,e)oxepin	PFZ, SK.
4-Dimethylaminopyridine	NEP.
N,N-Dimethylamine	BCC, DUP.
7,12-Dimethylbenz[e]anthracene	EK.
N,N-Dimethylbenzylamine	ARS, HML, PSG.
Dimethyl-1,4-cyclohexanedicarboxylate	EKT.
N,N-Dimethylcyclohexylamine	ABB.
5,5-Dimethylhydantoin	GHI.
2,5-Dimethyl-4(2)-morpholinylmethoxyphenol, hydrochloride	CGI.
2,6-Dimethylnaphthalene	UPH.
N,N-Dimethyl-p-nitrosaniline	ALD.



TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
N, N-Dimethyl-o-toluidine	RSA.
N,N-Dimethyl-p-toluidine	FST, RSA.
2,4-Dinitroaniline	HST, SDC.
1,5-(and 1,8)-Dinitroanthraquinone	SDC.
m-Dinitrobenzene	DUP.
3,5-Dinitrobenzoyl chloride	ALD.
2,6-Dinitro-4-isopropylphenol	SDC.
2,4-Dinitrophenol, tech.	HHL, SDC, VPC.
2,4-Dinitrophenoxyethanol	SDC.
Dinitrophenylacetic acid (mixture)	SOL.
3,5-Dinitrosalicylic acid	SAL.
p-Dinitrosalicylic acid, methyl ester	SAL.
p-Dinitrosobenzene	LC.
4,4'-Dinitrostilbene-2,2'-disulfonic acid	GGY.
2,4-Dinitrotoluene	DUP, RUC.
2,4-(and 2,6)-Dinitrotoluene	DUP, RUC, X.
3,5-Dinitro-o-toluic acid	DUP, RUC, X.
Dinonylhydroxybenzenesulfonic acid	SAL.
Dinonylphenol	X.
Di-para-benzoquinone dioxime	GAF, TX.
2,4-Di-tert-pentylphenol	LC.
1,5-Diphenoxyanthraquinone	FER, PAS.
1,4-Diphenoxybenzene	VPC.
1,4-Diphenylalkane (Mixture)	TMA.
Diphenylamine	VST.
Diphenyldisulfide	RUC, USR, USS.
Diphenylmethane	PAH.
Diphenylsulfide	CWN.
1,3-Di-4-piperidylpropane	PAH.
1,5-Diureidonaphthalene	RIL.
Divinylbenzene	SOI.
Dodecylaniline	DOM.
Dodecylmethylbenzyl chloride	MON.
*p-Dodecylphenol	RH.
Doxepin base	GAF, MCE, MON, SOC.
2-Ethanolpiperidine	SK.
5-Ethoxy-3-trichloromethyl-1,2,4-thiadiazole	RIL.
2,2'-(1,1,2-Ethenediyl)bis(5[[4-chloro-6-(phenylamino)-1,3,5-triazin-2-yl]amino]benzenesulfonic acid, disodium salt	OMC.
4(5)-Ethoxycarbonyl-5(4)-methylimidazole	X.
1-Ethoxy-3-methylbenzene	SK.
4-Ethoxy-2-methyl-N-phenylaniline	X.
	X.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Ethoxy-1-naphthoic acid-----	WYT.
2-Ethoxy-1-naphthoyl chloride-----	WYT.
3'-(Ethylamino)acetamide-----	EKT.
o-Ethylaniline-----	TMA.
N-Ethylaniline, refined-----	BCC, FST.
2-(N-Ethylamino)ethanol-----	MIL, TCH.
3-(N-Ethylamino)propionitrile-----	MIL, TCH.
α-(N-Ethylamino)-m-toluenesulfonic acid-----	SDH.
2-Ethylanthraquinone-----	ELP.
*Ethylbenzene-----	AMO, ATR, GSD, DOW, DUP, OOC, KMI, KPT, MCE, ROM.
Ethylbenzyl chloride-----	SFS.
2-(N-Ethyl-N,β-cyanoethyl)-4-acetaminoanisole-----	GGI, TCH.
N-Ethyl-N-(2,3-dihydropropyl)-m-toluidine-----	EKT.
N-Ethylmaleimide-----	REG.
1-Ethyl-3-methylpiperidine-----	GLY.
6-Ethyl-2-methylamine-----	TNA.
1-Ethyl-2-methylindole-----	X.
9-Ethyl-3-nitrocarbazole-----	SDC.
N-Ethyl-N-phenylbenzylamine-----	SDH.
N-Ethyl-N-(3'-sulfobenzyl)aniline-----	VPC.
N-Ethyl-m-toluidine-----	DUP, FST.
3-(N-Ethyl-m-toluidino)propionitrile-----	TCH.
4-Fluoro-3-nitroaniline-----	OMC.
4-Fluoro-3-nitrobenzotrifluoride-----	DAZ.
4-Fluorobiphenol, sodium salt-----	PAH.
1-Formylpiperidine-----	RIL.
Furan-----	KOQ.
Furfuryl alcohol-----	KOQ.
Hexachlorocyclopentadiene-----	VEL.
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic anhydride (Chlorendic anhydride)-----	VEL.
Hexamethyleneimine-----	VEL.
Hydroquinone, tech.-----	CXI, DUP.
p-Hydroxybenzenesulfonic acid-----	EKT, GYR.
4-Hydroxy-2H-1,2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide-----	FER, UPF.
4-Hydroxybenzylbenzene-----	PFZ.
2-Hydroxyacetone-----	TNA.
2'-Hydroxy-5,9-dimethyl-6,7-benzomorphan-----	X.
2,2'-[[4-(2-Hydroxyethylamino)-3-nitrophenyl]imino]diethanol-----	SD.
3-[N-(2-Hydroxyethyl)amino]propionitrile-----	SOL.
TCH.	TCH.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
N-9-Hydroxyethyl-2,4-dihydroxybenzamide	PCW.
N-9-Hydroxyethyl-N-ethyl-m-toluidine	HL.
4-Hydroxymetaniamide	CGY.
4-Hydroxy-2-methyl-2H-1,2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide	PFZ.
2-Hydroxymethylene-17 $\alpha$ -ethinylandroster-17 $\beta$ -ol-4-en-3-one	SD.
4-Hydroxy-N-methylmetaniamide	CGY.
4(5)-Hydroxymethyl-5(4)-methylimidazole hydrochloride	SK.
3-Hydroxy-N-(3-N-morpholino- $\gamma$ -propyl)-2-naphthamide	PCW.
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt	SDH.
3-Hydroxy-2-naphthoic acid (B.O.N.)	PCW.
3-Hydroxy-2-naphthoic acid, aminopropylmorpholide	HST.
3-Hydroxy-2-naphthoic acid, ethanolamide	PCW.
1-Hydroxynaphthoic acid, methyl ester	PCW.
3-Hydroxy-2-naphthoic acid, methyl ester	PCW.
3-Hydroxy-1,4-naphthoquinone	SAL.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-hydroxynaphthalene-4-sulfonic acid	CGY.
P-Hydroxyphenyl-3-methylbutyric acid	HEX.
Isatoic anhydride	FSG.
Isobutylbenzene	PLC, TMA.
*ISOCYANAMIC ACID DERIVATIVES:	
Bitylene diisocyanate (TODI)	GMN.
*Diphenylmethane-4,4'-diisocyanate (MDI)	BAS, DOM, MOB, RUC, UPJ.
Isocyanic acid,p-chlorophenyl ester	MOB.
Isocyanic acid, cyclohexyl ester	MOB.
Phenylisocyanate	MOB.
*Polymethylene polyphenylisocyanate	BAS, MOB, RUC, UPJ.
Toluene 2,4-diisocyanate	MOB.
*Toluene 2,4-and 2,6-diisocyanate (80/20 Mixture)	MOB, OHC, RUC.
Toluene 2,4-and 2,6-diisocyanate (65/35 Mixture)	BAS, DOM, MOB.
P-Toluensulfonyl isocyanate	GMN.
Isocyanic acid derivatives, all other	UCC.
Isonicotinamide	RIL.
Isonicotinic acid	RIL.
Isonicotinitrile	RIL.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	ARO.
Isophthalonitrile	FSG.
Isophthaloyl chloride	DUP, TLC.
Isopropylbiphenyl	TCC.
4,4'-Isopropylidenebis[2,6-dibromophenol] (Tetrabromo-bisphenol A)	DOM.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
5,5'-Isopropylidenebis(2-hydroxy-m-xylene- $\alpha,\alpha'$ -diol)	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)	DOM, GE, SHC, USS.
4,4'-Isopropylidenediphenol, ethoxylated	ICI.
4,4'-Isopropylidenediphenol, propoxylated	ICI.
o-Isopropylphenol	FER, FFC.
p-Isopropylphenol	FER.
p-Isopropylphenol, mixed	TNA.
Isocitric acid, phenyl ester	EK.
Isothiocyanic acid, phenyl ester	EK.
Leuco quinizarin (1,4,9,10-Anthratretrol)	CGV.
3,5-Lutidine	RIL.
Malonanilide	PCM.
d-Mandelic acid	HXL.
Meilamine	ACY, MLC.
d1-p-Mentha-1,8-diene (Limonene)	ARZ, NCI.
4-Methoxyacetanilide	CGV.
2-[(Methoxycarbonylamino)-(2-nitro-5-M-propylthio)-phenyl]limonemethylamino]ethanesulfonic acid	X.
2-Methoxyethylpiperidine	RIL.
N-Methoxymethylmorpholine	TK.
N-(4-Methoxy-3-nitrophenyl)acetamide	SDC.
(p-Methoxyphenyl)acetic acid	HEX.
N[4]1-[(2-Methoxyphenylamino)carbonyl]-2-oxopropylazophenyl]-4-[1][(2-methoxyphenylamino)carbonyl]-2-oxopropylazobenzamide	X.
2-Methyl-5-acetylpyridine	RIL.
2-(N-Methylamino)ethanol	TCH.
3-(N-Methylamino)propionitrile	TCH.
2-Methylantiracquinone	ACY.
3-Methylbenzo[f]quinoline	OMC.
2-Methylbenzothiazole	FMT.
N-Methylbenzylamine	RIL.
o-Methylbenzyl chloride	SFS.
p-Methylbenzyl chloride	SFS.
Methyl benzyl ether	GRS.
Methyl N-( $\alpha$ -carboxyhydrobenzyl)-8-aminocrotonate, sodium salt	TRD.
1-Methyl-4-(3-chloropropyl)piperazine	SK.
1-Methyl-4-(3-chloropropyl)piperazine hydrochloride	SK.
Methylcyclohexane	PLC.
N-Methylcyclohexylamine	ABB.
Methyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxate	FMN.
N-Methylidicyclohexylamine	ABB.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-o-cresol)	OPS.
4-Methyl-2,6-dinitrophenol	PSG.
4,4'-Methylenebis (2,6-di-tert-butylphenol)	TMA.
4,4'-Methylenebis(N,N-dimethylamine)	ACY.
4,4'-Methylenebis(N,N-dimethylamine) (Methane base)	ACY, SDH.
2,2'-Methylenebis(4-methyl-6-nonyl-p-cresol)	PSG.
4,4'-Methylene-bis-orthoethylamine	TNA.
4,4'-Methylenedianiline	CRT, OHC, RUC, USR.
5,5'-Methylenedisalicylic acid	KLM.
Methylhydroquinone	EKT.
(2,4-Methyl-5-imidazolyl)methylthioethylamine dihydrochloride	SK.
4-Methyl-2-imino-1,3-dithiolane hydrochloride	LAK.
4-Methyl-N-(4-methylphenyl)sulfonylbenzenesulfonamide	EX.
N-Methyl-p-nitroaniline	ACY.
4-Methyl-2-nitroanisole	PSG.
3-Methyl-2-nitrobenzoic acid	SAL.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride	BCC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl) benzenesulfonic acid	CGY.
2-Methyl-5-phenylbenzoxazole	EK.
1-Methyl-4-phenylisonipecotic acid	WYT.
1-Methyl-4-phenylisonipecotmitrile	WYT.
4-Methylphthalic acid	EK.
4-Methylphthalic anhydride	SFS.
α-Methylstyrene	GLK, GGC, USS.
α-Methylstyrene (Vinyltoluene)	BTL, DOM.
Methylthiobenzoic acid	X.
1-Naphthaldehyde	X.
1,5-Naphthalenedisulfonic acid, 2-amino-, monosodium salt	GMW.
2-Naphthalenesulfonic acid	X.
1-Naphthalenesulfonic acid, 8-(phenylamino)-monosodium salt	ACY, SDC.
1-Naphthalenesulfonic acid, sodium salt	SDC.
2-Naphthalenesulfonic acid, sodium salt	CGY.
Naphthalimide	GMW.
1-Naphthol (α-Naphthol)	SDC, VFC.
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	UCC.
1-Naphthylamine (α-Naphthylamine)	CGY.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine)	DUP.
Nicotinitrile (3-Cyanopyridine)	SDC.
3-Nitro-6-pyrrolodimyl toluene	NEP, RIL.
	ALI.



TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3'-Nitroacetamide	EXT.
o-Nitroaniline	BUC, DUP, MON.
p-Nitroaniline	DUP, MON.
5-Nitroanthranilic acid	CGI.
1-Nitroanthraquinone	SDC.
p-Nitrobenzamide	PD.
*Nitrobenzene	DUP, FST, ICI, MOB, RUC.
m-Nitrobenzenesulfonic acid, sodium salt	USH.
o-Nitrobenzoic acid	SAL.
m-Nitrobenzoic acid	SAL, SDH.
p-Nitrobenzoic acid	DUP.
n-Nitrobenzoic acid, sodium salt	SAL.
p-Nitro benzyl alcohol	SDM.
p-Nitrobenzylmalonate magnesium salt	X.
2-Nitro-p-cresol	PSC.
Nitrodiphenylamine	ACY, MON.
5-Nitrosophthalic acid	SAL.
4-Nitro-N-methylphthalimide	LJK.
1-Nitronaphthalene	DUP.
7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	CGY.
p-Nitrophenethyl alcohol	PCM.
o-Nitrophenol	MON.
p-Nitrophenol	DUP, MON.
p-Nitrophenol, sodium salt	DUP.
2-(o-Nitrophenylazo)-p-cresol (OH=1)	CGY.
2-(o-Nitrophenylazo)-4,6-di-tert-pentylphenol (OH=1)	CGY.
4-Nitro-o-phenylenediamine	FMT.
5-Nitrosalicylaldehyde	EK.
p-Nitrosophenol	LC, SDC, VPC.
4-Nitrosophenol, sodium salt	SDC.
o-Nitrotoluene	DUP, FST.
m-Nitrotoluene	DUP, FST.
p-Nitrotoluene	DUP, FST.
Nitrotoluene mixtures	FST.
p-Nitrotoluene-o-sulfonic acid	CGI.
Bonyl-dinonylphenol, mixture	USK.
*Nonylphenol	GAF, KLM, MCB, MON, RH, SCN, TX.
n-Octylglucamine	X.
Octylphenol	PSG, RH, SCN.
Octylphenoxydiethoxy chloride	RH.
3-Oxo-1,2-benzisothiazoline-2-acetic acid, methyl ester, 1,1-dioxide	PFZ.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Oxycaluminum benzoate	CHT.
4,4'-Oxydianiline	DUP.
Parahydroxyphenylglycine potassium methyl dene salt	KAN.
para-Pentylxyphenol	EK.
para-Phenoxy benzoyl chloride	OMC.
Pentabromochlorocyclohexane	DOW.
Pentamethoxybenzene	TNA.
Pentamethylamine	X.
1,1,3,3,5-Pentamethylindan	GIV.
o-Pentylphenol (o-Amylphenol)	PAS, X.
p-tert-Pentylphenol	PAS.
2(3-Pentyl)pyridine	RIL.
Permethrin acid chloride	VTC.
3,4,9,10-Perylene-tetracarboxylic-3,4:9,10-dianhydride	VPC.
3,4,9,10-Perylene-tetracarboxylic-3,4:9,10-diimide	SDC, VFC.
Perylo[3,4-cd:9,10-c'd']dipyrren-1,3,8,10-tetrone	SDC.
1,10-Phenanthroline	VNC.
α-Phenethylamine	HKL.
2-Phenethylamine	HKL.
p-Phenetidine	MON.
Phenetole	ESA.
*PHENOL:	
NATURAL:	
FROM PETROLEUM:	
Phenol, natural, from petroleum, U.S.P.	MER.
Phenol, natural, from petroleum, all other	FER.
SYNTHETIC:	
Phenol, benzylated	MIL.
Phenol, styrenated	MIL.
Phenol, synthetic, from chlorobenzene by vapor-phase hydrolysis, U.S.P.	BTL, TX.
Phenol, synthetic, from cumene by oxidation, U.S.P.	ACS, CLK, DOW, GCC, GE, SHC, USS.
Phenol, synthetic, from toluene by oxidation, U.S.P.	KLM.
Phenolsulfonaphthalein, sodium salt	EK.
Phenolsulfonic acid	SAL.
Phenolsulfonic acid, sodium salt	SAL.
Phenoxyacetic acid, sodium salt	NCC.
3-Phenoxybenzaldehyde	TNA.
3-Phenoxybenzaldehyde acetal	TNA.
3-Phenoxybenzaldehyde cyanohydrin	TNA.
3-Phenoxybenzenemethanol	TNA.
2-(Phenoxyethyl)benzoic acid	PFZ, SOL.
m-Phenoxytoluene	MEP.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Phenylacetic acid, potassium salt	SFS.
4-(Phenylazo)diphenylamine	EK.
4-Phenyl-1-butene	X.
o-Phenylenediamine	DOP, PSG.
m-Phenylenediamine	DOP, FST.
p-Phenylenediamine	DOP, NES, SDC.
d-Phenylephrine	SDW.
d1-Phenylephrine base	SDW.
Phenyl ether (Diphenyl oxide)	DOM, MON.
d(+)- $\alpha$ -Phenylethylamine	HL.
d1-2-Phenylethylamine (racemic)	KF.
d(-)-2-Phenylethylamine potassium ethyl dane salt	KAN.
Phenylethylamine, potassium salt	BCC.
Phenylethylamine, sodium salt	BCC.
Phenylproprionone	EKT.
2,2-[(Phenyl)amino]diethanol (N-Phenyldiethanolamine)	EKT, TCH.
2,2-[(Phenyl)amino]diethanol, diacetate ester	MIL, TCH.
Phenylmalonic acid	X.
Phenylmercuric carboxylate	COS.
3-Phenyl-5-methylisoxazole-4-carbonyl chloride	TCH.
Phenyl- $\alpha$ -naphthylamine	UGG.
o-Phenylphenol	DOM.
p-Phenylphenol	DOM.
o-Phenylphenol, sodium salt	DOM.
N-Phenyl-p-phenylenediamine	USR.
Phenylphosphinic acid	FER.
Phenylphosphorous dichloride	FER.
1-Phenyl-1,2-propanediolone, 2-oxime	ORT.
4-Phenylpropylpyridine	RIL.
1-Phenyl-2-tetrazoline-5-thione	EK.
4-Phenylthiomorpholine-1,1-dioxide	EKT.
Phthalic acid	EK.
*Phthalic anhydride	DBC, ENJ, KFT, MON, STP, TU.
Phthalimide	PSG.
Phthalocyaninato(2-)copper	PMC.
Phthalocyaninebisulfonfyl chloride, copper derivative	VFC.
[Phthalocyanine]tetramethanato]copper	X.
Phthalocyaninetetrafluoronyl chloride, copper derivative	VFC.
Phthaloyl chloride (Phthalyl chloride)	TLC.
PICOLINES:	
Picoline (3,4-mixture)	RIL.
2-Picoline ( $\alpha$ -Picoline)	RIL.
3-Picoline ( $\beta$ -Picoline)	MP, RIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Picoline (γ-Picoline)-----	RIL.
3-Picoline-N-oxide-----	RIL.
4-Picoline-N-oxide-----	RIL.
Picolinic acid-----	NEP.
Picolinonitrile (2-Cyanopyridine)-----	NEP.
2-Picolylamine-----	RIL.
3-Picolylamine-----	RIL, SDC.
Picric acid (Trinitrophenol)-----	SDC.
2-Pipecoline-----	RIL.
Piperazine mixture, crude-----	TX.
Piperidine-----	ABB, RIL.
Polyethylbenzene (80 percent diethylbenzene)-----	ELP.
4-Propionylpyridine-----	RIL.
Propiophenone-----	HEX, ORT.
8,16-Pyranthrene-dione-----	PCW.
1,3,6,8-Pyrenetetrasulfonic acid-----	X.
PYRIDINE, REFINED:	
2° Pyridine, refined-----	NEP, RIL.
Pyridine, refined all other grades-----	CGY, RIL.
Pyridine hydrochloride-----	RSA.
3-Pyridinemethanol-----	RIL.
2-Pyridinethiol-1-oxide, sodium salt-----	OMC.
2-Pyridinethiol-1-oxide, zinc salt-----	OMC.
4-Pyridylacetone-----	RIL.
N-(2-Furyl)-4-hydroxy-2-methyl-2H-1,2-benzothiazine-3- carboxamide, 1,1-dioxide-----	PFZ.
2-Pyrimidinol-----	CGY.
2-Pyrrolidinone (2-Pyrrolidone)-----	GAF.
Pyriminium pamoate-----	X.
Quinaldine-----	ACY.
QUINOLINE:	
Quinoline, 1° and 2°-----	KPT.
Quinoline-2,3-dicarboxylic acid-----	NES.
Quinoline, other grades-----	KPT.
8-Quinolinal-----	SOL.
8-Quinolinal zinc salt-----	SOL.
Quinone dioxime-----	LC.
Resorcinol, tech-----	KPT.
8-Resorcylic acid, lead salt-----	KPT.
Saltzylaldenhyde-----	EDA.
Saltzylaldenhyde oxime-----	EK.
Saltzylamide-----	PCW.
*saltylic acid, tech-----	DDW, KLM, MON, SDH.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Sodium p-sulfophenylmethyl ether	SAL.
Sodium trichlorobenzenesulfate	UPF.
*Styrene (Vinylbenzene)	AMO, ATR, GSD, DOM, ELP, GOC, HST, MCB, MON, PLG, SHG, USS.
Sulfaganidine	SAL.
5-Sulfisophthalic acid, 1,3-dimethyl ester	PCW.
5-Sulfisophthalic acid, 1,3-dimethyl ester, sodium salt	DUP.
5-Sulfisophthalic acid, lithium salt	PCW.
5-Sulfisophthalic acid, sodium salt	PCW.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenyl sulfone)	CRZ.
4-Sulfofthalic acid	CWN.
*Terephthalic acid, dimethyl ester	AMO, HCF.
Terephthaloyl chloride	DUP, EKT, HCF.
Terphenyl (Phenylbiphenyl) (m-, o-, and p-isomers)	PCW, TLC.
Terpiene-4-ol	MON.
Tetrabromophthalic anhydride	TMA.
2,4,4',5'-Tetrachlorophenylsulfone	SDH.
Tetrachlorophthalic anhydride	MON.
Tetrahydrobenzyl alcohol	UCC.
*Tetrahydrofuran	UCC.
1,2,3,4-Tetrahydronaphthalene	UCC.
1,2,3,4-Tetrahydro-2,2,4,7-Tetramethylquinoline	EKT.
1,2,4,5-Tetramethylbenzene (Durene)	KHI.
p-(1,1,3,3-Tetramethylbutyl)phenol	GAF.
1,3,6,8-Tetra-nitro-9H-carbazole	SDC.
Tetrahydrofurfurylamine	HLL.
Thiodiphenol	CRZ.
2-Thiophenacetic acid	SFS.
2-Thiophenacetamide	SFS.
2-Thiophenacetonyl chloride	SFS.
2-Thiophenecarboxaldehyde	TFA.
Thiophenol	SFA, SFS.
Toluene-2,3-(and 3,4)-diamine (35/65 Mixture)	OMC.
Toluene-2,4-diamine (4-m-Tolylenediamine)	ROC, UCC, X.
Toluene-2,4-(and 2,6)-diamine (80/20 Mixture)	OMC.
Toluene-3,4-diamine	X.
Toluenediamine-bis-maleimide	NES.
*p-Toluenesulfonic acid	NES, TEN, UPF.
p-Toluenesulfonic acid, aniline salt	NES.
p-Toluenesulfonic acid, copper salt	NES.
p-Toluenesulfonyl chloride	MON.
m-Toluic acid	WTC.
p-Toluic acid, methyl ester	HCF.



TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
o-Toluidine	DUP, FST.
m-Toluidine	DUP, FST.
p-Toluidine	DUP, FST.
2-o-Toluidinoethanol	TCH.
o-Toluidinomesulfonic acid	CGY.
2,2'-(m-Tolylimino)diethanol	MIL, TCH.
2,2'-(m-Tolylimino)diethanol, diacetate ester	SDC.
Tolytriazole	PGC.
Tolytriazole, sodium salt	DIX.
2,4,6-Triamino-5-nitrosopyrimidine	SK.
N,N,N-Tribenzylamine	HKL.
sr-Tribromoethyl benzene	DAZ.
2,4,6-Tribromophenol	GTL.
3,4',5'-Tribromosalicylamide	PCM.
1,2,3 (and 1,2,4)-Trichlorobenzene	PPG, SCC.
1,2,4-Trichlorobenzene	SCC.
3-Trichloromethyl-1,2,4-thiadiazole	OMC.
Trichlorophenylsilane	DGC.
$\alpha, \alpha$ -Trichlorotoluene (Benzotrifluoride)	HK, VEL.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	DGC.
Tri(dimethylaminoethyl)phenol	PEL.
Trimesic acid	TLC.
1,2,4-Trimethylbenzene (Pseudocumene)	ABH.
1,3,3-Trimethyl-2, $\alpha$ -indolineacetaldehyde	KHI.
Trimethylphenylammonium chloride	VPC.
Triphenylmethane	X.
Triphenylphosphine	EK.
Triphenylsulfonium chloride	X.
Triphenylsulfonium hexafluorophosphate	SOL.
$\alpha, \alpha', \alpha''$ -Tris(dimethylamino)mesitol	RH.
Tris(2-methyl-1-aziridinyl)phosphine oxide	ABS.
7,7'-ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J-Acid urea)	CGY.
Veratraldehyde (3,4-dimethoxybenzaldehyde)	GUV.
Vinylcyclohexane	DUP.
Vinylcyclohexene monoxide	UCC.
2-Vinylpyridine	RIL.
4-Vinylpyridine	RIL.
*o-Xylene (90-100% of o-xylene isomer)	ATL, DUP, ENJ, KHI, PPR, SHC, TCH, TOC.
m-Xylene (90-100% of m-xylene isomer)	AHO.
*p-Xylene (90-100% of p-xylene isomer)	AHO, ATR, ENJ, KHI, PPK, SOC, STX, TOC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1965--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2,4-Xylenesulfonic acid-----	UPF.
2,5-Xylenesulfonic acid-----	NES.
2,6-Xylenol-----	CF.
3,5-Xylenol-----	FER.
XYLENOLS:	
xylenol, low boiling point-----	MER.
XYLIDINES:	
Xylidine, original mixture-----	DUP.
Cyclic intermediates, all other-----	ACY, ANG, ARA, CGY, DUP, FER, HCF, HEX, HK, HSI, HXL, LG, HCK, MIL, MET, NES, NOD, OMC, PAH, PCW, PD, PFZ, PSG, RIL, SCH, SDC, SB, SDW, SFS, SOL, SRL, STC, TCH, TMA, UCC, UFI, VPC, WTC, X, X, X, X, X, X, X, X, X, X.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 3.—CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of cyclic intermediates to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
:	:	:	:
:	:	:	:
ABB :	Abbott Laboratories	GGC :	Georgia-Gulf Corp.:
ACY :	American Cyanamid Co.	:	Boundbrook Div.
ACS :	Allied Corp., Chemical Sector	:	Houston Div.
AIP :	Air Products & Chemicals, Inc.	:	Plaquemine Div.
ALD :	Aldrich Chemical Co., Inc.	GIV :	Givaudan Corp.
ALL :	Alliance Chemical, Inc.	GLY :	Glyco, Inc.
AMB :	American Bio-Synthetics Corp.	GNW :	Greenwood Chemical Co.
AMO :	Amoco Corp.	GOC :	Chevron Chemical Corp.
ANG :	Angus Chemical Co.	GP :	Georgia-Pacific Corp.:
ARA :	Syntex Chemicals, Inc.	:	Houston Div.
ARK :	Armstrong World Industries, Inc.	:	Plaquemine Div.
ARS :	Arsynco, Inc.	GRS :	Champlin Petroleum Co.
ARZ :	Arizona Chemical Co.	GTL :	Great Lakes Chemical Corp.
ASH :	Ashland Oil, Inc., Ashland Petroleum Co.	CYR :	Goodyear Tire & Rubber Co.
ATL :	Atlantic Industries, Inc.	:	:
ATR :	Atlantic Richfield Co., Arco Chemical Co.	:	:
:	:	HCF :	Cape Industries
BAS :	BASF Corp.	HEX :	Hexagon Laboratories, Inc.
BCC :	Buffalo Color Corp.	HK :	Occidental Chemical Corp., Industrial & Specialty
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical	:	Chemical Div.
:	Group	HML :	Hummel Chemical Co.
BKM :	Buckman Laboratories, Inc.	HPC :	Hercules, Inc.
BRD :	Lonza, Inc.	HST :	American Hoechst Corp.:
BRS :	Bristol-Myers Co.	:	Petrochemicals/Plastics Group
BTL :	BTL of Illinois, Inc.	:	Specialty Products Group, Rhode Island Works
:	:	HXL :	Hexcel Corp., Hexcel Chemical Products
:	:	:	:
CGY :	Ciba-Geigy Corp.	ICI :	ICI Americas, Inc., Chemicals Div.
CHF :	Kincaid Enterprises, Inc.	:	:
CHT :	Chattem, Inc.	KAN :	Kanasco, Ltd
CLK :	Clark Oil & Refining Corp.	KF :	Dynamit Nobel of America Dynamit Nobel
CNP :	Nipro, Inc.	:	Chemical Div.
COS :	Cosan Chemical Corp.	KHI :	Koch Refining Co.
CPS :	CPS Chemical Co., Inc.	KLM :	Kalama Chemical, Inc.
CRZ :	Crown Zellenback Corp., Chemical Products	KPT :	Koppers Co., Inc.
:	Div.	:	:
CSD :	Fina Oil & Chemicals Co., Cosden	LAK :	Bofors Nobel, Inc.
:	Chemical Div.	LC :	Lord Corp., Chemical Products Group
CWN :	Upjohn Co., Fine Chemical	LEM :	Napp Chemicals, Inc.
CXI :	Chemical Exchange Industries, Inc.	LIL :	Eli Lilly & Co.
CYH :	Cychem, Inc.	LYP :	Lyondell Petrochemical Co.
:	:	:	:
DAZ :	Diaz Chemical Corp.	MAL :	Mallinckrodt, Inc.
DBC :	Badische Corp.	MCB :	Borg-Warner Corp., Borg-Warner Chemicals
DCC :	Dow Corning Corp.	MCK :	MacKenzie Chemical Works, Inc.
DGC :	Degussa Corp.	MER :	Merichem Co.
DIX :	Dixie Chemical Co., Inc.	MET :	M & T Chemical, Inc.
DKA :	Denka Chemical Corp.	MIL :	Milliken & Co., Milliken Chemical Co.
DOW :	Dow Chemical Co.	MLC :	Melamine Chemicals, Inc.
DUP :	E. I. duPont de Nemours & Co., Inc.	MOB :	Mobay Chemical Corp., Pittsburgh Div.
:	:	MON :	Monsanto Co.
EK :	Eastman Kodak Co.:	MRT :	Morton-Thiokol, Inc., Morton Chemical
EKT :	Tennessee Eastman Co. Div.	:	Div.
ELP :	El Paso Products Co.	:	:
ENJ :	Exxon Chemical Americas	NCC :	Nisacet, Inc.
:	:	NCI :	Union Camp Corp., Terpene & Aromatics Div.
FER :	Ferro Corp.:	NEP :	Nepera, Inc.
:	Ferro Chemical Div.	NES :	Rutgers-Nease Chemical Co.
:	Grant Chemical Div.	NOD :	Nuodex, Inc.
:	Productol Chemical Div.	NPC :	Northwest Petrochemical Corp.
FKE :	Frank Enterprises, Inc.	NSC :	National Starch & Chemical Corp.
FMC :	FMC Corp.:	:	:
FMN :	Agricultural Chemical Group	OMC :	Olin Corp.
FMT :	Fairmount Chemical Co., Inc.	ORT :	Roehr Chemicals, Inc.
FST :	First Chemical Corp.	OSX :	Oxsynex, Inc.
:	:	:	:
GAF :	GAF Corp., Chemical Group	PAH :	Parish Chemical Co.
GE :	General Electric Co.	PAS :	Pennwalt Corp.
:	:	:	:
:	:	:	:

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1985--Continued

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
PCW :	Pfister Chemical, Inc.	SRL :	G. D. Searle & Co.
PD :	Parke-Davis Div. of Warner-Lambert Co.	STC :	American Hoechst Corp., Sou-Tex Works
PEL :	Pelron Corp.	STP :	Stepan Chemical Co.
PFZ :	Pfizer, Inc., & Pfizer Pharmaceuticals, Inc.	STX :	St. Croix Petrochemical Corp.
PHC :	Phthalchem, Inc.	SUN :	Sun Company, Inc.
PLC :	Phillips Petroleum Co.		
PLN :	Disogrin Industries Corp.	TCC :	Sybron Chemical, Inc.
PPG :	PPG Industries, Inc.	TGH :	Emery Industries, Inc., Tylon Div.
PPR :	Phillips Puerto Rico Core, Inc.	TEN :	Tennessee Chemical Co.
PPX :	Phillips Paraxylene, Inc.	TIL :	Tillett Chemical Co.
PERL :	Petrolite Corp.	TLC :	Twin Lake Chemical, Inc.
PSG :	PMC Specialities Group Inc.	TNA :	Ethyl Corp.
		TOC :	Tenneco Oil Co.
QKO :	QO Chemicals, Inc.	TRD :	Squibb Manufacturing, Inc.
		TU :	Tenn-USS Chemicals Co.
RDA :	Rhone-Poulenc, Inc.	TX :	Texaco, Inc., Texaco Chemical Co.
REG :	Regis Chemical Co.		
RH :	Rohm & Haas Co.	UCC :	Union Carbide Corp.
RIL :	Reilly Tar & Chemical Corp.	UOC :	Union Oil Co., of California
RSA :	R.S.A. Corp.	UPF :	Jim Walter Resources, Inc., CIC Div.
RUC :	Rubicon, Inc.	UPJ :	Upjohn Co. & Polymer Chemical Div.
		UPM :	UDP, Inc., UOP Process Div.
SAL :	Salsbury Laboratories, Inc.	USM :	Crown Metro, Inc.
SCC :	Standard Chlorine of Delaware, Inc.	USR :	Uniroyal, Inc., Uniroyal Chemical Div.
SCH :	Schering Corp.	USS :	U.S. Steel Corp., USS Chemicals Div.
SCN :	Schenectady Chemicals, Inc.		
SD :	Sterling Drug, Inc., Sterling Pharmaceuticals, Inc.	VEL :	Velsicol Chemical Corp.
SDC :	Sandoz Chemicals Corp.	VGC :	Virginia Chemicals, Inc.
	Sterling Drug, Inc.;	VNC :	Vanderbilt Chemical Corp.
SDH :	Hilton Davis Chemical Co.	VPC :	Mobay Chemical Corp., Dyes & Pigments Div.
SDW :	Sterling Organics Div.	VST :	Vista Chemical Co.
	Stauffer Chemical Co.;	VTC :	Vertac Chemical Corp.
SFA :	Agricultural Products Div.		
SFS :	Specialty & Intermediates Div.	WAY :	Philip A. Hunt Chemical Corp., Organic Chemical Div.
SHC :	Shell Oil Co., Shell Chemical Co. Div.	WTC :	Witco Chemical Corp.
SK :	SmithKline Beckman Corp., SmithKline Chemicals Div.	WYK :	Wyckoff Chemical Co., Inc.
SOC :	Chevron Corp., Chevron Chemical Co.	WYT :	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
SOI :	Specialty Organics, Inc.	ZOC :	Zoecon Corp. (Bosch)
SOL :	Southland Corp., Fine Chemical Div.		

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION IV -- DYES

## STATISTICAL HIGHLIGHTS

Stephen Wanser

202-523-0496

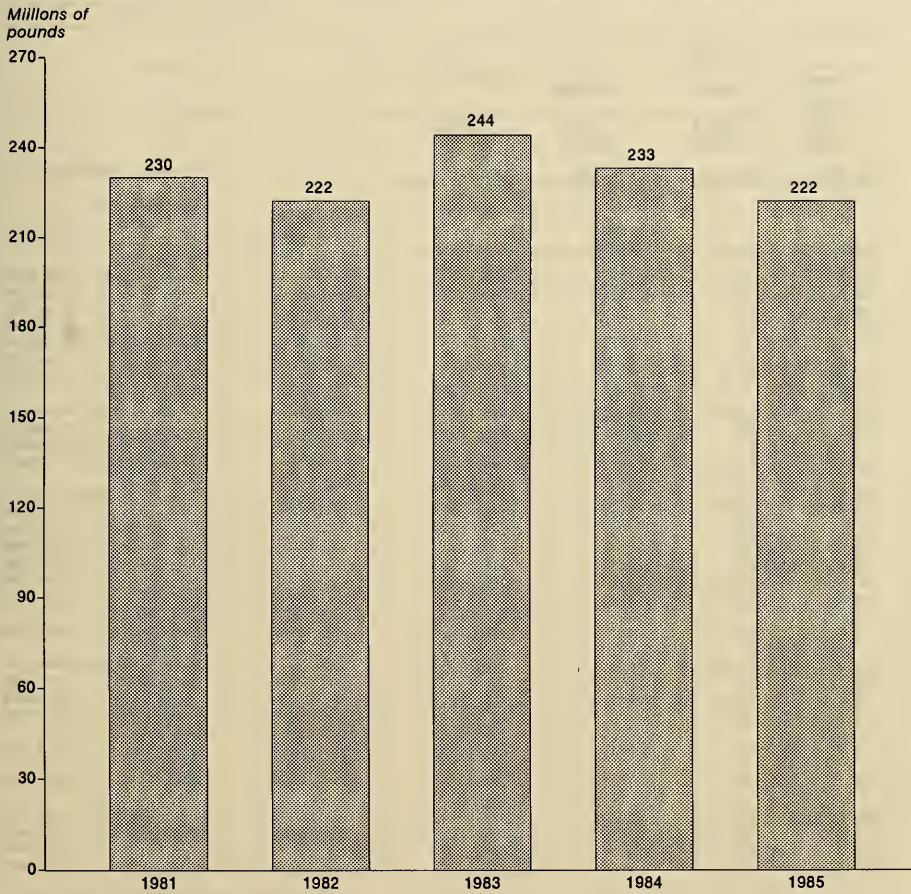
Synthetic dyes are derived in whole or in part from cyclic intermediates. Approximately two-thirds of the dyes consumed in the United States are used by the textile industry to dye natural and synthetic fibers or fabrics; about one-sixth is used for coloring paper; and the rest is used chiefly in the production of organic pigments and in dyeing leather and plastics. Of the several thousand different synthetic dyes that are known, more than one thousand 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 6 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 1985 amounted to 222 million pounds, or 4.6 percent less than the 233 million pounds produced in 1984 (table 1). Sales of dyes in 1985 amounted to 267 million pounds, valued at \$651 million, compared with 221 million pounds, valued at \$691 million, in 1984. In terms of quantity, sales of dyes in 1985 were 21 percent more than in 1984 and in terms of value, 5.9 percent less. The average unit value of sales of all dyes in 1985 was \$2.43 per pound, compared with \$3.13 per pound in 1984.

Production of two classes of dyes increased in 1985, while the remaining eight major classes registered slight to moderate decreases in their production. Mordant dyes increased by 39 percent from 288 thousand pounds in 1984 to 399 thousand pounds in 1985; acid dyes decreased by 24.0 percent to 19.1 million pounds in 1985 from 25.1 million pounds in 1984. Changes in U.S. production of synthetic dyes followed overall changes in U.S. economic activity during 1981-85 (see figure 1).



Figure 1.—Dyes.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1985

[Listed below are all dyes for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all dyes for which data on production and/or sales were reported and identifies the manufacturers of each]

DYES	PRODUCTION		SALES	
	1,000 pounds	1,000 pounds	VALUE	UNIT
			1,000 dollars	Per pound
Grand total-----	222,127	267,283	650,580	\$2.43
<b>ACID DYES</b>				
Total-----	19,116	32,916	83,438	2.53
Acid yellow dyes, total-----	3,114	7,775	10,424	1.34
Acid Yellow 17-----	97	105	609	5.81
Acid Yellow 23-----	46	79	338	4.26
Acid Yellow 36-----	...	40	232	5.72
Acid Yellow 49-----	...	190	517	2.72
Acid Yellow 151-----	902	...	...	...
All other-----	2,069	7,361	8,728	1.19
Acid orange dyes, total-----	4,322	6,899	8,855	1.28
Acid Orange 7-----	180	119	310	2.60
Acid Orange 156-----	2,252	...	...	...
All other-----	1,890	6,780	8,545	1.28
Acid red dyes, total-----	4,131	8,216	23,592	2.87
Acid Red 1-----	155	127	391	3.09
Acid Red 73-----	89	...	...	...
Acid Red 137-----	65	69	465	6.74
Acid Red 151-----	126	215	362	1.69
Acid Red 182-----	355	314	1,502	4.78
All other-----	3,341	7,491	20,872	2.79
Acid violet dyes-----	76	106	805	7.67
Acid blue dyes total-----	4,841	7,189	28,358	3.94
Acid Blue 145-----	...	25	299	11.96
Acid Blue 324-----	1,224	1,424	7,232	5.08
All other-----	3,617	5,740	20,827	3.63
Acid green dyes-----	107	153	1,355	8.83
Acid brown dyes-----	399	431	2,140	4.96
Acid black dyes, total-----	2,126	2,147	7,909	3.68
Acid Black 1-----	236	207	583	2.81
Acid Black 52-----	634	...	...	...
All other-----	1,256	1,940	7,326	3.78
<b>BASIC DYES (CLASSICAL AND MODIFIED)</b>				
Total-----	11,661	11,156	56,146	5.03
Basic yellow dyes-----	3,198	3,035	10,144	3.34
Basic orange dyes, total-----	628	622	2,822	4.54
Basic Orange 2-----	211	189	498	2.64
All other-----	417	433	2,324	5.35
Basic red dyes, total-----	1,550	1,520	6,466	\$4.26
Basic Red 12-----	242	245	1,302	5.31
Basic Red 15-----	444	421	1,122	2.67
All other-----	864	854	4,042	4.73

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1985--CONTINUED

DYES	PRODUCTION		SALES	
	QUANTITY	VALUE	UNIT	VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
<b>BASIC DYES (CLASSICAL AND MODIFIED)--Continued</b>				
Basic violet dyes, total-----	3,393	3,089	10,208	3.30
Basic Violet 1-----	1,773	1,621	3,610	2.23
Basic Violet 3-----	1,117	953	3,566	3.74
All other-----	503	515	3,032	5.88
Basic blue dyes, total-----	1,641	1,524	12,006	7.88
Basic Blue 1-----	56	51	365	7.20
All other-----	1,585	1,473	11,641	7.90
All other basic dyes-----	1,251	1,366	14,500	10.69
<b>DIRECT DYES</b>				
Total-----	29,661	56,415	79,394	1.41
Direct yellow dyes, total-----	11,335	11,683	23,273	1.99
Direct Yellow 4-----	558	501	1,528	3.05
Direct Yellow 127-----	700	932	1,641	1.76
All other-----	10,077	10,250	20,104	1.96
Direct orange dyes, total-----	1,560	2,561	4,376	1.71
Direct Orange 15-----	...	733	662	.90
Direct Orange 102-----	458	...	...	...
All other-----	1,102	1,828	3,714	2.03
Direct red dyes, total-----	5,084	7,320	17,219	2.35
Direct Red 72-----	491	528	2,054	3.89
Direct Red 81-----	396	441	1,537	3.49
Direct Red 83-----	90	146	344	2.36
Direct Red 236-----	978	1,167	2,350	2.01
Direct Red 254-----	1,140	...	...	...
All other-----	1,989	5,038	10,934	2.17
Direct violet and green dyes-----	252	730	1,110	1.52
Direct blue dyes, total-----	5,317	13,198	19,216	1.46
Direct Blue 80-----	228	221	821	3.71
Direct Blue 86-----	497	736	2,600	3.53
Direct Blue 199-----	398	420	1,657	3.94
Direct Blue 218-----	734	1,676	3,089	1.84
All other-----	3,460	10,145	11,049	1.09
Direct brown dyes-----	194	419	1,715	4.10
Direct black dyes, total-----	5,919	20,504	12,485	.61
Direct Black 22-----	1,216	...	...	...
Direct Black 80-----	1,190	1,162	2,511	2.16
All other-----	3,513	19,342	9,974	.52

See footnotes at end of table

IV -- DYES

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1985--CONTINUED

DYES	PRODUCTION		SALES	
	QUANTITY	VALUE	UNIT VALUE <sup>1</sup>	
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
<b>DISPERSE DYES</b>				
Total-----	25,091	25,735	94,318	\$3.66
Disperse yellow dyes-----	1,666	2,129	6,195	2.91
Disperse orange dyes, total-----	3,742	3,226	8,152	2.47
Disperse Orange 25 and 25:1-----	253	237	563	2.38
Disperse Orange 30-----	1,991	1,599	3,505	2.19
Disperse Orange 37-----	191	165	449	2.72
Disperse Orange 44 and 44:1-----	300	184	523	2.84
All other-----	1,007	1,041	3,112	2.99
Disperse red dyes, total-----	4,705	4,932	25,889	5.25
Disperse Red 1-----	...	141	411	2.91
Disperse Red 5-----	39	48	135	2.83
Disperse Red 73-----	422	305	1,158	3.80
Disperse Red 133-----	...	172	1,574	9.17
Disperse Red 177-----	297	481	1,872	3.89
Disperse Red 179-----	204	188	727	3.86
All other-----	3,743	3,597	20,012	5.56
Disperse violet dyes-----	294	354	2,133	6.05
Disperse blue dyes, total-----	12,647	12,236	42,762	3.49
Disperse Blue 3-----	...	436	1,976	4.54
Disperse Blue 64-----	...	118	639	5.43
Disperse Blue 79 <sup>2</sup> -----	6,316	6,008	7,757	1.29
All other-----	6,331	5,674	32,390	5.71
Disperse black, brown and green dyes, total-----	2,037	2,858	9,187	3.25
Disperse Brown 1-----	753	478	1,455	3.04
Disperse Black 9-----	542	...	...	...
All other-----	742	2,380	7,732	3.25
<b>FIBER-REACTIVE DYES</b>				
Total-----	6,839	7,166	51,357	7.17
<b>FLUORESCENT BRIGHTENING AGENTS</b>				
Total-----	58,028	61,370	73,884	1.20
<b>FOOD, DRUG, AND COSMETIC COLORS</b>				
Total-----	6,049	5,837	58,749	10.07
<b>Food, Drug and Cosmetic Dyes, Total</b> -----	<b>5,681</b>	<b>5,484</b>	<b>50,774</b>	<b>10.06</b>
FD&C Red No. 3-----	412	369	5,505	14.93
FD&C Yellow No. 5-----	1,308	1,294	6,639	5.13
FD&C Yellow No. 6-----	987	1,024	4,811	4.70
All other food, drug, and cosmetic, dyes-----	2,974	2,797	33,819	12.09

See footnotes at end of table.



## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1985--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
FOOD, DRUG, AND COSMETIC COLORS--Continued				
Drug and Cosmetic Dyes, Total-----	363	349	7,810	\$22.38
D&C Red No. 6-----	59	58	761	13.13
D&C Red No. 7-----	100	111	1,147	10.36
D&C Red No. 27-----	...	6	230	41.56
D&C Red No. 33-----	...	7	261	39.04
D&C Yellow No. 10-----	61	65	2,997	45.42
All other drug and cosmetic dyes-----	143	102	2,414	23.73
DRUG AND COSMETIC DYES EXTERNAL	5	4	165	37.79
MORDANT DYES				
Total-----	339	1,284	1,183	.92
SOLVENT DYES				
Total-----	10,740	7,505	32,019	4.27
Solvent yellow dyes-----	1,534	1,242	6,289	5.06
Solvent orange dyes-----	813	738	2,994	4.06
Solvent red dyes-----	2,768	2,391	11,293	4.72
Solvent blue dyes-----	2,901	625	4,160	6.65
All other solvent dyes-----	2,724	2,509	7,283	2.90
VAT DYES				
Total-----	36,330	39,091	84,095	2.15
Vat yellow dyes-----	48	182	1,357	7.46
Vat orange dyes-----	99	194	1,163	5.99
Vat red dyes-----	738	806	5,457	6.77
Vat blue dyes-----	33,554	34,070	58,329	1.71
Vat green dyes-----	504	832	3,401	4.09
Vat brown dyes-----	893	1,533	6,674	4.35
Vat black dyes-----	184	1,155	5,457	4.73
Vat violet dyes-----	310	319	2,257	7.06
All other dyes <sup>3</sup> -----	18,273	18,808	35,997	2.62

<sup>1</sup>Calculated from unrounded figures.

<sup>2</sup>Several close chemical analogs are marketed as Disperse Blue 79 or Disperse Blue 79 similar products. All of these analogs are aggregated in the statistics under the heading Disperse Blue 79.

<sup>3</sup>The data include azoic compositions, azoic coupling components, azoic diazo components (bases and salts), sulfur dyes, and miscellaneous dyes. Statistics for those groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT]

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACID DYES</b>	
*ACID YELLOW DYES:	
Acid Yellow 3	ACY.
*Acid Yellow 17	ATL, CGY, CK, SDH.
Acid Yellow 19	ATL, CK.
*Acid Yellow 23	BAS, CK, LVR, MRX, WJ.
Acid Yellow 34	ATL, FAB.
*Acid Yellow 36	ATL, CGY, VPC.
Acid Yellow 40	CGY.
*Acid Yellow 49	CK, FAB, S, VPC.
Acid Yellow 54	CGY.
Acid Yellow 59	BAS.
Acid Yellow 65	ATL.
Acid Yellow 73	SDH.
Acid Yellow 87	CK.
Acid Yellow 99	CGY.
Acid Yellow 119	BAS.
Acid Yellow 127	CK.
Acid Yellow 129	CGY, CK.
Acid Yellow 135	ICI.
Acid Yellow 151	CGY, CK, S, VPC.
Acid Yellow 159	CGY, CK.
Acid Yellow 174	FAB.
Acid Yellow 198	CK.
Acid Yellow 200	CK.
Acid Yellow 216	VPC.
Acid Yellow 219	CGY, CK, S.
Acid Yellow 226	BAS.
Acid Yellow 239	DGO.
Acid yellow dyes, all other	ATL, CK.
*ACID ORANGE DYES:	
*Acid Orange 7	ATL, BAS, CK, VPC.
Acid Orange 8	ATL, CK.
*Acid Orange 10	ATL, BAS, CGY, CK.
*Acid Orange 24	CGY, CK, S.
Acid Orange 47	CGY.
Acid Orange 51	CGY.
Acid Orange 60	CGY, CK.
Acid Orange 64	ATL.

TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACID DYES--CONTINUED</b>	
*ACID ORANGE DYES--CONTINUED	
Acid Orange 69	ATL, FAB.
Acid Orange 86	CGY.
Acid Orange 89	BAS.
Acid Orange 116	CGY, CK.
Acid Orange 128	CK.
Acid Orange 152	CK.
*Acid Orange 156	CGY, CK, S, VPC.
Acid Orange 161	ATL.
Acid orange dyes, all other	CK, VPC.
*ACID RED DYES:	
*Acid Red 1	ATL, BAS, CGY, CK, FAB.
Acid Red 4	ATL, CGY.
Acid Red 14	ATL, BAS, WJ.
Acid Red 18	ATL.
Acid Red 57	CGY, CK.
*Acid Red 73	ATL, CK, PSC.
Acid Red 85	FAB.
Acid Red 87	SDH.
Acid Red 88	ATL, BAS, CGY, FAB.
Acid Red 97	ATL.
Acid Red 114	CGY, CK, VPC.
Acid Red 119	CK.
*Acid Red 137	BAS, CGY, CK, VPC.
*Acid Red 151	ATL, CGY, CK.
Acid Red 167	ATL, CGY.
Acid Red 174	CGY.
*Acid Red 182	VPC.
Acid Red 186	CGY.
Acid Red 194	CGY.
Acid Red 213	CGY.
Acid Red 226	BAS.
Acid Red 257	CGY.
Acid Red 266	CGY.
Acid Red 296	CK, ICI, VPC.
Acid Red 299	BAS.
Acid Red 337	ATL, CK, VPC.
Acid Red 361	CK, S, VPC.
Acid Red 364	CK.
Acid Red 392	VPC.
Acid Red 396	ICI.
Acid Red 408	CGY.
*Acid red dyes, all other	ATL, CGY, CK, EXT.

TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACID DYES--CONTINUED</b>	
*ACID VIOLET DYES:	
Acid Violet 3	ATL, FAB.
Acid Violet 7	ATL, FAB.
Acid Violet 12	ATL, FAB.
Acid Violet 17	SDH.
Acid Violet 49	SDH.
*ACID BLUE DYES:	
Acid Blue 9	BAS, SDH, WJ.
Acid Blue 15	BAS.
Acid Blue 25	CGI, CK, VFC.
Acid Blue 27	ATL, FAB.
Acid Blue 29	CK, VFC.
Acid Blue 40	FAB.
Acid Blue 41	CK.
Acid Blue 45	BAS, CGY.
Acid Blue 80	ATL, BAS.
Acid Blue 104	CK.
Acid Blue 113	CGY.
Acid Blue 118	CGY.
*Acid Blue 145	ATL, CK, VFC.
Acid Blue 158, 158:1, and 158:2	CGY.
Acid Blue 231	CK.
Acid Blue 277	CGY.
Acid Blue 283	S.
Acid Blue 298	CK.
Acid Blue 321	ATL.
*Acid Blue 324	CK, S, VFC.
Acid Blue 330	ATL.
Acid Blue 336	ICI.
Acid Blue 595	VFC.
*Acid blue dyes, all other	BAS, CGY, CK, VFC, X.
*ACID GREEN DYES:	
Acid Green 1	LVR.
Acid Green 5	WJ.
Acid Green 20	ATL, FAB.
Acid Green 25	ATL, CGY, CK.
Acid green dyes, all other	CK.
*ACID BROWN DYES:	
*Acid Brown 14	ATL, CGY, CK, S.
Acid Brown 19	CK.
Acid Brown 45	CGY.
Acid Brown 50	BAS.

TABLE 2.—DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985—CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACID DYES—CONTINUED</b>	
<b>*ACID BROWN DYES—CONTINUED</b>	
Acid Brown 97	BAS, FAB.
Acid Brown 98	CGY.
Acid Brown 147	CK.
Acid Brown 160	BAS.
Acid Brown 161	BAS.
Acid Brown 165	BAS.
Acid Brown 227	BAS.
Acid Brown 239	CGY, CK.
Acid Brown 264	BAS.
Acid brown dyes, all other	BAS, CK, FAB.
<b>*ACID BLACK DYES:</b>	
*Acid Black 1	ATL, BAS, CGY, CK.
*Acid Black 52	CGY, CK, FAB, S.
Acid Black 58	CGY.
Acid Black 60	CGY, CK.
Acid Black 63	BAS.
Acid Black 92	FAB.
Acid Black 107	CGY, CK, VFC.
Acid Black 172	CGY, ICI, VFC.
Acid Black 194	BAS.
*Acid black dyes, all other	ATL, CGY, CK, VFC.
<b>AZOIC DYES AND COMPONENTS</b>	
<b>AZOIC COMPOSITIONS:</b>	
<b>AZOIC RED COMPOSITIONS:</b>	
Azoic Red 11	ALL.
<b>AZOIC DIAZO COMPONENTS, BASES:</b>	
Azoic Diazo Component 4, base	ALL.
Azoic Diazo Component 5, base	ALL.
Azoic Diazo Component 13, base	ALL.
Azoic Diazo Component 14, base	ALL.
Azoic Diazo Component 32, base	ALL.
<b>AZOIC DIAZO COMPONENTS, SALTS:</b>	
Azoic Diazo Component 1, salt	ALL.
Azoic Diazo Component 3, salt	ALL.
Azoic Diazo Component 5, salt	ALL.
Azoic Diazo Component 8, salt	ALL.
Azoic Diazo Component 9, salt	ALL.
Azoic Diazo Component 10, salt	ALL, ATL.
Azoic Diazo Component 11, salt	ALL.



TABLE 2.---DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1984---CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>AZOIC DYES AND COMPONENTS---CONTINUED</b>	
<b>AZOIC DIAZO COMPONENTS, SALTS---CONTINUED</b>	
Azoic Diazo Component 12, salt	ALL.
Azoic Diazo Component 13, salt	ALL.
Azoic Diazo Component 14, salt	ALL.
Azoic Diazo Component 20, salt	ATL.
Azoic Diazo Component 32, salt	ALL.
Azoic Diazo Component 34, salt	ALL.
Azoic Diazo Component 35, salt	ALL.
Azoic Diazo Component 42, salt	ATL.
Azoic Diazo Component 48, salt	ALL.
Azoic Diazo Component 49, salt	ALL.
Azoic diazo components, salt, all other	ALL.
<b>AZOIC COUPLING COMPONENTS:</b>	
Azoic Coupling Component 3	PCW.
Azoic Coupling Component 7	PCW.
Azoic Coupling Component 8	PCW.
Azoic Coupling Component 12	PCW.
Azoic Coupling Component 21	PCW.
Azoic Coupling Component 29	PCW.
Azoic Coupling Component 35	PCW.
Azoic Coupling Component 43	ALL.
<b>BASIC DYES (CLASSICAL AND MODIFIED)</b>	
<b>*BASIC YELLOW DYES:</b>	
Basic Yellow 2	ACY.
Basic Yellow 11	ATL, CK, VFC.
Basic Yellow 13	ATL, VFC.
Basic Yellow 15	CK.
Basic Yellow 21	VFC.
Basic Yellow 24	BAS.
Basic Yellow 25	BAS.
Basic Yellow 28	BAS.
Basic Yellow 29	BAS, CK, VFC.
Basic Yellow 37	ACY.
Basic Yellow 49	BAS.
Basic Yellow 53	CK.
Basic Yellow 58	VFC.
Basic Yellow 65	BAS.
Basic Yellow 78	ACY.
Basic Yellow 79	CK.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES--CONTINUED	
*BASIC YELLOW DYES--CONTINUED	
Basic Yellow 83	CK.
Basic Yellow 96	BAS.
Basic yellow dyes, all other	X.
Basic yellow dyes, all other, modified	CGY, CK.
*BASIC ORANGE DYES:	
Basic Orange 1	CK, PSC.
Basic Orange 2	ATL, GGY, CK, PSC.
Basic Orange 21	ATL, VFC.
Basic orange dyes, all other	X.
Basic orange dyes, all other, modified	VFC.
*BASIC RED DYES:	
Basic Red 12	ACY, ATL, VFC.
Basic Red 14	BAS, VFC.
Basic Red 15	ATL, BAS, CK.
Basic Red 17	CK.
Basic Red 18	VFC.
Basic Red 22	CGY.
Basic Red 23	VFC.
Basic Red 29	BAS.
Basic Red 46	CK.
Basic Red 49	BAS, CK.
Basic Red 51	BAS.
Basic Red 54	BAS.
Basic Red 73	CK.
Basic Red 104	CK.
Basic red dyes, all other	CGY, X.
Basic red dyes, all other, modified	VFC.
*BASIC VIOLET DYES:	
Basic Violet 1	ACY, BAS, BCG, DSC.
Basic Violet 3	ACT, BAS, CK, DSC.
Basic Violet 4	ACT, DSC.
Basic Violet 10	ACY, BAS.
Basic Violet 16	BAS, VFC.
*BASIC BLUE DYES:	
Basic Blue 1	ACY, SHG, VFC.
Basic Blue 2	DSC.
Basic Blue 3	BAS, CK, VFC.
Basic Blue 7	DSC.
Basic Blue 21	CK.
Basic Blue 26	DSC.
Basic Blue 41	BAS, VFC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)--CONTINUED	
*BASIC BLUE--CONTINUED	
Basic Blue 54	BAS.
Basic Blue 60	BAS.
Basic Blue 69	VFC.
Basic Blue 77	VFC.
Basic Blue 94 and 94:1	CK.
Basic Blue 140	VFC.
Basic blue dyes, all other	CGY, X.
Basic blue dyes, all other, modified	BAS, CK, VFC.
BASIC GREEN DYES:	
Basic green 1	DSC.
Basic green 4	ACT, BAS, DSC.
Basic green dyes, all other	X.
BASIC BROWN DYES:	
Basic Brown 1	CGY, FSC.
Basic Brown 4	ATL, CGY, FSC.
Basic brown dyes, all other	BAS.
BASIC BLACK DYES:	
Basic black dyes, all other	BAS, CGY, X.
Basic black dyes, all other, modified	CK, VFC.
DIRECT DYES	
*DIRECT YELLOW DYES:	
*Direct Yellow 4	ATL, BAS, CGY, CK, VFC.
Direct Yellow 5	CGY, BAS.
Direct Yellow 6	CGY, VFC.
Direct Yellow 11	BAS, VFC.
Direct Yellow 28	ATL, CK.
Direct Yellow 34	CGY, CK.
Direct Yellow 44	CGY, CK.
Direct Yellow 50	CGY.
Direct Yellow 84	CGY, S.
Direct Yellow 105	CGY.
Direct Yellow 106	CGY, CK.
Direct Yellow 107	CGY, CK.
Direct Yellow 118	CGY, CK.
Direct Yellow 119	CGY, CK.
*Direct Yellow 127	VFC.
Direct Yellow 132	S.
Direct Yellow 133	S.
Direct Yellow 137	VFC.

TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES--CONTINUED	
*DIRECT YELLOW--CONTINUED	
Direct Yellow 147	BAS, VPC.
Direct Yellow 148	S.
Direct Yellow 150	S.
Direct Yellow 152	S.
*Direct yellow dyes, all other	ATL, BAS, CGY, CK, SDC, VPC.
*DIRECT ORANGE DYES:	
Direct Orange 6	ATL.
*Direct Orange 15	BAS.
Direct Orange 26	CGY, FAB, VPC.
Direct Orange 29	CK.
Direct Orange 34	CGY.
Direct Orange 39	ATL, FAB.
Direct Orange 72	CGY, CK, FAB.
Direct Orange 80	ATL, CGY, CK.
*Direct Orange 102	ATL.
Direct Orange 105	ATL, BAS, CGY, VPC.
Direct Orange 118	CK.
*Direct orange dyes, all other	CGY, S.
*DIRECT RED DYES:	
Direct Red 4	ATL, BAS, CGY, CK.
Direct Red 9	CK.
Direct Red 16	CK.
Direct Red 23	ATL, CGY.
Direct Red 24	ATL.
Direct Red 26	FAB.
Direct Red 28	ATL, CGY.
Direct Red 39	FAB.
*Direct Red 72	ATL, CK.
Direct Red 73	ATL, BAS, CGY, CK.
Direct Red 79	ATL, CGY.
Direct Red 80	CK.
*Direct Red 81	ATL, CGY, CK, LVR, VPC.
*Direct Red 83	ATL, CGY, CK, FAB.
Direct Red 149	ATL.
*Direct Red 153	ATL.
Direct Red 236	BAS, CGY, CK, VPC.
Direct Red 238	VPC.
Direct Red 239	CGY, S.
Direct Red 253	S.
*Direct Red 254	BAS, CGY, VPC.
*Direct red dyes, all other	ACV, ATL, BAS, CK, VPC.

TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT VIOLET DYES:	
Direct Violet 9	ATL, CGY.
Direct Violet 14	ATL.
Direct Violet 66	ATL.
Direct Violet 99	VFC.
*DIRECT BLUE DYES:	
Direct Blue 1	ATL.
Direct Blue 2	FAB.
Direct Blue 8	ATL.
Direct Blue 14	ATL, CGY.
Direct Blue 15	ATL, S, VFC.
Direct Blue 22	VFC.
Direct Blue 25	CK.
Direct Blue 67	ATL.
Direct Blue 71	CK.
*Direct Blue 75	CGY, CK, S.
Direct Blue 76	BAS, CK.
Direct Blue 79	S.
*Direct Blue 80	ATL, BAS, CGY, CK, FAB.
*Direct Blue 86	ATL, CGY, CK, S, VFC.
Direct Blue 91	CGY.
Direct Blue 98	ATL, CK, FAB.
Direct Blue 108	ATL.
Direct Blue 120, 120:1, 120:2, and 120:3	FAB.
Direct Blue 160	CGY, CK.
Direct Blue 189	CGY, CK.
Direct Blue 191	CK.
*Direct Blue 199	BAS, CGY, VFC.
*Direct Blue 218	CGY, CK, FAB, VFC.
Direct Blue 261	S.
Direct Blue 267	S.
Direct Blue 269	VFC.
Direct Blue 279	VFC.
Direct Blue 281	CGY.
Direct Blue 283	ATL.
Direct Blue 286	ATL.
*Direct blue dyes, all other	ATL, BAS, CGY, CK, FAB, VFC.
DIRECT GREEN DYES:	
Direct Green 1	FAB.
Direct Green 92	ATL.
Direct green dyes, all other	FAB.



TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>DIRECT DYES--CONTINUED</b>	
*DIRECT BROWN DYES:	
Direct Brown 44	FAB.
Direct Brown 229	ATL.
Direct Brown 230	ATL.
Direct Brown 231	ATL.
Direct Brown 232	ATL.
Direct Brown 238	ATL.
Direct brown dyes, all other	BAS, CK, FAB.
*DIRECT BLACK DYES:	
Direct Black 4	FAB.
Direct Black 19	ATL, CGY.
*Direct Black 22	ATL, CGY, CK, FAB, VFC.
*Direct Black 60	ATL, CGY, CK, FAB.
Direct Black 165	ATL.
Direct Black 170	ATL.
*Direct black dyes, all other	ATL, CGY, CK, FAB, VFC.
<b>DISPERSE DYES</b>	
*DISPERSE YELLOW DYES:	
Disperse Yellow 3	CGY, CK.
Disperse Yellow 23	CGY, CK, S.
Disperse Yellow 34	EKT.
Disperse Yellow 42	CGY, SDC.
Disperse Yellow 54	BAS, CGY, VFC.
Disperse Yellow 58	BAS.
Disperse Yellow 64	CGY.
Disperse Yellow 67	CGY.
Disperse Yellow 77	VFC.
Disperse Yellow 86	EKT.
Disperse Yellow 88	EKT.
Disperse Yellow 99	EKT.
Disperse Yellow 108	EKT.
Disperse Yellow 125	SDC.
Disperse Yellow 126	ICI.
Disperse Yellow 198	BAS.
Disperse Yellow 200	EKT.
Disperse Yellow 210	S.
Disperse Yellow 219	S, SDC.
Disperse yellow dyes, all other	BAS, CK, ICI, VFC.

TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE ORANGE DYES:	
Disperse Orange 3	CK.
Disperse Orange 5	ATL.
Disperse Orange 17	ATL.
*Disperse Orange 25 and 25:1	ATL, GGY, CK, EKT, ICI, VFC.
Disperse Orange 29	ATL, CK, S, SDC.
*Disperse Orange 30	ATL, GGY, CK, S.
*Disperse Orange 37	ATL, GGY, CK, EKT.
Disperse Orange 41	GGY, S.
*Disperse Orange 44 and 44:1	GGY, CK, S, SDC.
Disperse Orange 73	BAS.
Disperse Orange 79	GGY.
Disperse Orange 88	SDC.
Disperse Orange 89	CK.
Disperse Orange 94	S, SDC.
Disperse Orange 129	SDC.
Disperse Orange 136	EKT.
Disperse Orange 138	EKT.
Disperse Orange 145	EKT.
Disperse orange dyes , all other	GGY, CK.
*DISPERSE RED DYES:	
*Disperse Red 1	ATL, GGY, CK, EKT.
*Disperse Red 5	ATL, GGY, CK.
Disperse Red 9	GGY.
Disperse Red 13	ATL.
Disperse Red 15	GGY.
Disperse Red 17	ATL, GGY, CK.
Disperse Red 22	HRT.
Disperse Red 30	GGY, EKT.
Disperse Red 35	EKT.
Disperse Red 50	GGY, CK.
Disperse Red 55	BAS, GGY, VFC.
Disperse Red 60	BAS, GGY, VFC.
Disperse Red 65	GGY, CK.
*Disperse Red 73	ATL, CK, ICI, S.
Disperse Red 82	GGY, VFC.
Disperse Red 86	GGY.
Disperse Red 88	EKT.
Disperse Red 90	VFC.
Disperse Red 91	BAS.
Disperse Red 117	EKT.
Disperse Red 128	GGY.

TABLE 2.---DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES---CONTINUED	
*DISPERSE RED DYES---CONTINUED	
*Disperse Red 133	CGY, EKT, VPC.
Disperse Red 135	CGY, CK.
Disperse Red 136	EKT.
Disperse Red 137	EKT.
Disperse Red 153	FAB, S, SDC.
Disperse Red 159	VPC.
Disperse Red 167 AND 167:1	BAS, CGY, CK, S.
*Disperse Red 177	CK, ICI, S, SDC, VPC.
*Disperse Red 179	BAS, CGY, CK, S.
Disperse Red 195	S, SDC.
Disperse Red 207	CGY.
Disperse Red 263	BAS.
Disperse Red 273	S, SDC.
Disperse Red 274	S, SDC.
Disperse Red 278	ICI.
Disperse Red 305	EKT.
Disperse Red 307	EKT.
Disperse Red 309	EKT.
Disperse Red 311	ICI.
Disperse Red 313	ICI.
Disperse Red 316	S, SDC.
Disperse Red 319	S.
Disperse Red 323	CK.
Disperse Red 333	CGY, CK.
Disperse Red 339	S, SDC.
Disperse Red 340	EKT.
Disperse Red 341	EKT.
Disperse Red 345	EKT.
Disperse red dyes, all other	CK.
*DISPERSE VIOLET DYES:	
Disperse Violet 1	BAS, CGY, CK, EKT, VPC.
Disperse Violet 1	CK.
Disperse Violet 27	CGY.
Disperse Violet 28	CK.
Disperse Violet 33	ICI, S.
Disperse Violet 36	S, SDC.
Disperse Violet 40	VPC.
Disperse Violet 60	S, SDC.
Disperse Violet 64	SDC.
Disperse Violet 91	CGY.
Disperse violet dyes, all other	CGY.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE BLUE DYES:	
Disperse Blue 3	CGY, CK, EKT.
Disperse Blue 7	CGY
Disperse Blue 26	VFC.
Disperse Blue 27	EKT.
Disperse Blue 56	S, VFC.
Disperse Blue 60	BAS, CGY, VFC.
Disperse Blue 62	EKT.
*Disperse Blue 64	CGY, EKT, S.
Disperse Blue 72	BAS.
Disperse Blue 73	S.
Disperse Blue 77	EKT.
*Disperse Blue 79	ATI, BAS, CGY, EKT, HST, ICI, S, SDC, STC, VFC.
Disperse Blue 81	VFC.
Disperse Blue 86	VFC.
Disperse Blue 95	HST.
Disperse Blue 102	CK, EKT.
Disperse Blue 118	EKT.
Disperse Blue 122	ICI.
Disperse Blue 146	BAS.
Disperse Blue 165	CGY, VFC.
Disperse Blue 183	S.
Disperse Blue 200	ICI.
Disperse Blue 281	CGY, S, SDC.
Disperse Blue 284	ICI.
Disperse Blue 291	S, SDC.
Disperse Blue 337	EKT.
*Disperse blue dyes, all other	BAS, CGY, CK, EKT, ICI, VFC.
DISPERSE GREEN DYES:	
Disperse Green 9	ICI.
Disperse green dyes, all other	CGY, CK.
DISPERSE BROWN DYES:	
*Disperse Brown 1	ATI, CK, ICI, S, SDC.
Disperse Brown 2	CK, SDC.
Disperse Brown 10	SDC.
Disperse Brown 18	S, SDC.
Disperse Brown 22	EKT.
Disperse brown dyes, all other	CK, EKT, ICI.
DISPERSE BLACK DYES	
Disperse Black 1	CGY.
*Disperse Black 9	ATI, CGY, EKT.

TABLE 2. --DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
DISPERSE BLACK DYES--CONTINUED	
Disperse Black 33	CGY.
*Disperse black dyes, all other	BAS, CGY, CK, VPC.
FIBER-REACTIVE DYES	
REACTIVE YELLOW DYES	
Reactive Yellow 6	CGY.
Reactive Yellow 7	ICI.
Reactive Yellow 15	HST.
Reactive Yellow 17	HST.
Reactive Yellow 18	ICI.
Reactive Yellow 22	ICI.
Reactive Yellow 37	HST.
Reactive Yellow 42	HST.
Reactive Yellow 57	HST.
Reactive Yellow 86	ICI.
Reactive Yellow 133	ICI.
Reactive Yellow 135	ICI.
Reactive yellow dyes, all other	HST, ICI, STC.
REACTIVE ORANGE DYES:	
Reactive Orange 1	ICI.
Reactive Orange 4	ICI.
Reactive Orange 11	S.
Reactive Orange 12	ICI.
Reactive Orange 13	ICI.
Reactive Orange 14	ICI.
Reactive Orange 16	ATL, CK, HST.
Reactive Orange 20	CK.
Reactive Orange 78	HST.
Reactive Orange 84	ICI.
Reactive Orange 86	ICI.
Reactive orange dyes, all other	ICI.
REACTIVE RED DYES:	
Reactive Red 2	CK, ICI.
Reactive Red 5	ICI.
Reactive Red 11	CK, ICI.
Reactive Red 21	HST, STC.
Reactive Red 29	ICI.
Reactive Red 31	ICI.
Reactive Red 33	ICI.
Reactive Red 35	HST, STC, ICI.



TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER REACTIVE DYES--CONTINUED	
REACTIVE RED DYES--CONTINUED	
Reactive Red 43	CK.
Reactive Red 49	HST, STC.
Reactive Red 94	HST.
Reactive Red 106	HST.
Reactive Red 120	CK, ICI.
Reactive Red 141	ICI.
Reactive Red 180	HST.
Reactive red dyes, all other	CGY, HST, ICI, STC.
REACTIVE VIOLET DYES:	
Reactive Violet 5	HST, STC.
Reactive violet dyes, all other	HST, ICI.
REACTIVE BLUE DYES:	
Reactive Blue 3	ICI.
Reactive Blue 4	CK, ICI.
Reactive Blue 5	ICI.
Reactive Blue 7	GGY.
Reactive Blue 13	ICI.
Reactive Blue 19	HST.
Reactive Blue 21	HST.
Reactive Blue 38	HST, STC.
Reactive Blue 71	ICI.
Reactive Blue 89	HST, ICI.
Reactive Blue 173	ICI.
Reactive Blue 174	ICI.
Reactive Blue 199	ICI.
Reactive blue dyes, all other	CGY, HST, ICI, STC.
REACTIVE GREEN DYES:	
Reactive Green 12	S.
Reactive Green 19	ICI.
Reactive green dyes, all other	HST.
REACTIVE BROWN DYES:	
Reactive Brown 1	ICI.
Reactive brown 17	ICI.
Reactive brown 18	HST.
REACTIVE BLACK DYES:	
Reactive Black 5	ATL, CK, HST, STC.
Reactive Black 9	ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>FLUORESCENT BRIGHTENERS</b>	
Fluorescent Brightener 22	CGY.
Fluorescent Brightener 24	CGY.
Fluorescent Brightener 28	CGY, SDH, VPC.
Fluorescent Brightener 46	CGY.
Fluorescent Brightener 49	S.
Fluorescent Brightener 52	S.
Fluorescent Brightener 61	ACY.
Fluorescent Brightener 71	CGY.
Fluorescent Brightener 102	CGY.
Fluorescent Brightener 128	SDH.
Fluorescent Brightener 134	CGY.
Fluorescent Brightener 191	VPC.
Fluorescent Brightener 200	VPC.
Fluorescent Brightener 290	S.
Fluorescent brighteners, all other	ACY, CGY, S, VPC, X.
<b>FOOD DRUG, AND COSMETIC COLORS</b>	
*FOOD, DRUG, AND COSMETIC DYES:	
Food, Drug, and Cosmetic Blue 1	KON, SDH, WJ.
Food, Drug, and Cosmetic Blue 2	KON, SDH, WJ.
Food, Drug, and Cosmetic Green 3	WJ.
Food, Drug, and Cosmetic Red 2	WJ.
*Food, Drug, and Cosmetic Red 3	KON, SDH, STG, WJ.
Food, Drug, and Cosmetic Red 4	CK, WJ.
Food, Drug, and Cosmetic Red 40	KON, SDH, STG, WJ.
*Food, Drug, and Cosmetic Yellow 5	KON, MEK, STG, WJ.
Food, Drug, and Cosmetic Yellow 6	CK, KON, SDH, STG, WJ.
*DRUG AND COSMETIC DYES	
Drug and Cosmetic Green 5	CK, KON.
Drug and Cosmetic Green 6	KON.
Drug and Cosmetic Green 8	SDH.
Drug and Cosmetic Orange 4	KON.
Drug and Cosmetic Orange 5	SDH, SNA, TMS.
Drug and Cosmetic Orange 17	SNA.
*Drug and Cosmetic Red 6	KON, MEK, SDH, SNA, TMS.
*Drug and Cosmetic Red 7	KON, MEK, SDH, SNA, TMS.
Drug and Cosmetic Red 9	SNA.
Drug and Cosmetic Red 17	KON.
Drug and Cosmetic Red 19	SNA.
Drug and Cosmetic Red 21	KON, SNA.
Drug and Cosmetic Red 22	SDH, WJ.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FOOD DRUG, AND COSMETIC COLORS--CONTINUED	
*DRUG AND COSMETIC DYES--CONTINUED	
*Drug and Cosmetic Red 27	HRK, SDH, SNA, TMS, SDH.
*Drug and Cosmetic Red 28	KON, HRK, SNA, WJ.
*Drug and Cosmetic Red 30	CK, KON, SNA, WJ.
*Drug and Cosmetic Red 33	KON, SNA.
*Drug and Cosmetic Red 34	SDH, SNA, TMS, WJ.
*Drug and Cosmetic Red 36	KON.
*Drug and Cosmetic Yellow 5	KON.
*Drug and Cosmetic Yellow 6	KON.
*Drug and Cosmetic Yellow 8	CK, KON, SDH, WJ.
*Drug and Cosmetic Yellow 10	KON.
*Drug and Cosmetic Yellow 11	CK, KON.
*DRUG AND COSMETIC DYES, EXTERNAL:	
External Drug and Cosmetic Orange 3	KON.
External Drug and Cosmetic Yellow 7	
MORDANT DYES	
MORDANT YELLOW DYES:	
Mordant Yellow 8	FAB.
Mordant Yellow 20	FAB.
MORDANT ORANGE DYES:	
Mordant Orange 1	FAB.
Mordant Orange 6	ATL.
MORDANT RED DYES:	
Mordant Red 7	ATL.
Mordant Red 9	HRK.
Mordant Red 11	VFC.
MORDANT BROWN DYES:	
Mordant Brown 1	ATL, FAB.
Mordant Brown 18	FAB.
Mordant Brown 33	ATL, FAB.
Mordant Brown 40	FAB.
Mordant Brown 70	FAB.
MORDANT BLACK DYES:	
Mordant Black 9	ATL.
Mordant Black 11	CGV.
SOLVENT DYES	
*SOLVENT YELLOW DYES:	
Solvent Yellow 3	PSC.
Solvent Yellow 13	FAB.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES--CONTINUED	
*SOLVENT YELLOW DYES--CONTINUED	
Solvent Yellow 14	ATL, PSC.
Solvent Yellow 16	PSC.
Solvent Yellow 33	ACY, CIC.
Solvent Yellow 40	CK.
Solvent Yellow 42	ATL, CK.
Solvent Yellow 43	DGO, MRT.
Solvent Yellow 44	DGO.
Solvent Yellow 56	PSC.
Solvent Yellow 72	PSC.
Solvent Yellow 94	SDH.
Solvent Yellow 107	MRT.
Solvent Yellow 109	MRT.
Solvent Yellow 131	DGO.
Solvent Yellow 135	X.
Solvent Yellow 143	MRT.
Solvent Yellow 160	X.
Solvent Yellow 161	MRT.
Solvent Yellow 163	MRT.
Solvent Yellow 166	CIC.
Solvent Yellow 167	CIC.
Solvent yellow dyes, all other	CK, HLL, MRT.
*SOLVENT ORANGE DYES:	
Solvent Orange 2	ATL, PSC.
Solvent Orange 3	ATL, PSC.
Solvent Orange 7	PSC.
Solvent Orange 20	ATL, FAB.
Solvent Orange 23	CK.
Solvent Orange 25	MRT.
Solvent Orange 31	PSC.
Solvent Orange 60	CIC.
Solvent Orange 73	MRT.
Solvent Orange 74	MRT.
Solvent Orange 76	MRT.
Solvent Orange 77	MRT.
Solvent Orange 97	MRT.
Solvent orange dyes, all other	HLL, MRT, PSC.
*SOLVENT RED DYES:	
Solvent Red 1	PSC.
Solvent Red 5	ATL.
Solvent Red 23	PSC.
Solvent Red 24	ATL, PSC.

TABLE 2. --DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT RED DYES--CONTINUED	
Solvent Red 26	PSC.
Solvent Red 27	PSC.
Solvent Red 49	ACY.
Solvent Red 68	ATL, CK, MFT.
Solvent Red 74	ATL.
Solvent Red 111	MFT.
Solvent Red 125	CK.
Solvent Red 164	MFT.
Solvent Red 165	MFT.
Solvent Red 166	MFT.
Solvent Red 168	MFT.
Solvent Red 169	MFT.
Solvent Red 172	MFT.
Solvent Red 173	MFT.
Solvent Red 175	MFT.
Solvent Red 207	MFT.
Solvent Red 208	MFT.
Solvent Red 209	MFT.
Solvent Red 210	MFT.
Solvent Red 222	CIC.
Solvent red dyes, all other	MIL, SDH.
SOLVENT VIOLET DYES:	
Solvent Violet 8	DSC.
Solvent Violet 9	DSC, MFT.
Solvent Violet 13	CK.
Solvent Violet 14	MFT.
Solvent violet dyes, all other	MIL.
*SOLVENT BLUE DYES:	
Solvent Blue 3	PSG.
Solvent Blue 4	DSC.
Solvent Blue 5	DSC.
Solvent Blue 23	BAS.
Solvent Blue 35	MFT.
Solvent Blue 36	MFT.
Solvent Blue 38	TWI.
Solvent Blue 43	ATL.
Solvent Blue 56	VPC.
Solvent Blue 59	VPC.
Solvent Blue 98	MFT.
Solvent Blue 100	MFT.



TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES--CONTINUED	
*SOLVENT BLUE DYES--CONTINUED	
Solvent Blue 102	MRT.
Solvent Blue 128	MRT.
Solvent Blue 129	MRT.
Solvent blue dyes, all other	CK, MIL.
SOLVENT GREEN DYES:	
Solvent Green 1	DSC.
SOLVENT BROWN DYES:	
Solvent Brown 12	PSC.
Solvent Brown 20	ATL.
Solvent Brown 22	PSC.
Solvent Brown 38	FAB.
Solvent Brown 51	MRT.
Solvent Brown 52	MRT.
SOLVENT BLACK DYES:	
Solvent Black 7	OCC, PSC.
Solvent Black 13	CK.
Solvent Black 26	ATL, FAB.
Solvent Black 47	MRT.
Solvent Black 48	MRT.
Solvent Black 49	MRT.
SULFUR DYES	
SULFUR YELLOW DYES:	
Leuco Sulfur Yellow 1	SDC.
Leuco Sulfur Yellow 17	SDC.
Leuco Sulfur Yellow 21	SDC.
Leuco Sulfur Yellow 22	SDC.
SULFUR ORANGE DYES:	
Sulfur Orange 1	SDC.
SULFUR RED DYES:	
Leuco Sulfur Red 14	SDC.
SULFUR BLUE DYES:	
Leuco Sulfur Blue 7	SDC.
Leuco Sulfur Blue 13	SDC.
Sulfur blue dyes, all other	VPC.
SULFUR GREEN DYES:	
Leuco Sulfur Green 2	SDC.
Leuco Sulfur Green 3	SDC.
Leuco Sulfur Green 16	SDC.
Leuco Sulfur Green 34	SDC.
Leuco Sulfur Green 35	SDC.
Leuco Sulfur Green 36	SDC.

TABLE 2.---DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SULFUR DYES---CONTINUED	
SULFUR BROWN DYES:	
Leuco Sulfur Brown 1, 1:1	SDC.
Leuco Sulfur Brown 3	SDC.
Leuco Sulfur Brown 10	SDC.
Leuco Sulfur Brown 31	SDC.
Leuco Sulfur Brown 37	SDC.
Leuco Sulfur Brown 52	SDC.
Leuco Sulfur Brown 95	SDC.
Leuco Sulfur Brown 96	SDC.
SULFUR BLACK DYES:	
Leuco Sulfur Black 1	SDC.
Leuco Sulfur Black 2	SDC.
Leuco Sulfur Black 18	SDC.
Solubilized Sulfur Black 2	SDC.
Sulfur Black 11, 11:1	SDC.
Sulfur black dyes, all other	VFC.
VAT DYES	
*VAT YELLOW DYES:	
Vat Yellow 2, 8-1/2%	SDC, VFC.
Vat Yellow 22, 10%	VFC.
Vat Yellow 33, 15%	CGY.
Vat Yellow 51	SDC.
*VAT ORANGE DYES:	
Vat Orange 1, 20%	CGY, SDC.
Vat Orange 2, 12%	BAS, CGY.
Vat Orange 7, 11%	CGY.
Vat Orange 15, 10%	VFC.
Vat orange dyes, all other	CGY.
*VAT RED DYES:	
Vat Red 10, 18%	BAS.
Vat Red 13, 11%	CGY, SDC.
Vat Red 15, 10%	HST.
Vat Red 29, 18%	SDC.
Vat Red 32, 20%	VFC.
Vat red dyes, all other	HST.
VAT VIOLET DYES:	
Vat Violet 1, 11%	CGY, VFC.
Vat Violet 13, 6-1/4%	BAS, CGY.
Vat Violet 21	VFC.

TABLE 2. --DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES--CONTINUED	
*VAT BLUE DYES:	
Vat Blue 1, 20%	BAS, BCC, PSC.
Vat Blue 6, 8-1/3%	BAS, CGY, SDC.
Vat Blue 16, 16%	BAS, CGY.
Vat Blue 18, 13%	CGY.
Vat Blue 19	BAS.
Vat Blue 20, 14%	CGY.
Vat Blue 29	BAS.
Vat Blue 43	SDC.
Vat Blue 66	BAS.
Vat blue dyes, all other	BAS, CGY
*VAT GREEN DYES:	
Vat Green 1, 6%	BAS, CGY, SDC.
Vat Green 3, 10%	BAS, CGY, SDC.
Vat Green 7	SDC.
Vat Green 9, 12-1/2%	CGY.
Vat Green 32	VFC.
Vat green dyes, all other	CGY.
*VAT BROWN DYES:	
Vat Brown 1, 11%	CGY, SDC, VFC.
Vat Brown 3, 11%	CGY, SDC, VFC.
Vat Brown 11, 12%	CGY.
Vat Brown 13, 17%	CGY.
Vat Brown 57, 12.8%	CGY, HST.
Vat brown dyes, all other	CGY, VFC.
*VAT BLACK DYES:	
Vat Black 16	CGY.
Vat Black 22, 19%	CGY.
Vat Black 25, 12-1/2%	BAS, CGY, SDC.
Vat Black 27, 12-1/2%	CGY.
Vat black dyes, all other	CGY.
MISCELLANEOUS DYES	
*All other dyes	CGY, DAN, MIL, HRT.

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of dyes to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
ACY	American Cyanamid Co.	LVR	C. Lever Co., Inc.
ALL	Alliance Chemical, Inc.	MRX	Johnson Mattney, Inc., Pigments Dept.
ATL	Atlantic Industries, Inc.	MIL	Milliken & Co., Milliken Chemical Co.
BAS	BASF Corp.	MRT	Morton-Thiokol, Inc., Morton Chemical Div.
BCC	Buffalo Color Corp.	OCC	Orient Chemical Corp.
CGY	Ciba-Geigy Corp.	PCW	Pfister Chemical, Inc.
CIC	Color Chem International Corp.	PSC	Passaic Color & Chemical Co.
CK	Crompton & Knowles Corp.	PSG	PMC Specialities Group, Inc.
DAN	Dan River, Inc., Chemical Products Div.	S	Sandoz, Inc., Colors & Chemicals Div.
DGO	Day-Glo Color Corp.	SDC	Sandoz Chemical Corp.
DSC	Dye Specialties, Inc.	SDH	Sterling Drug, Inc., Hilton Davis Chemical Co.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	SNA	Sun Chemical Corp., Pigments Div.
FAB	Fabricolor Manufacturing Corp.	STC	American Hoechst Corp., Sou-Tex Works
HST	American Hoechst Corp., Specialty Products Group, Rhode Island Works	STG	McCormick & Co., Inc., McCormick/Strange Flavor Div
ICI	ICI Americas, Inc., Chemical Div.	TMS	Sterling Drug, Inc., Hilton Davis Chemical Co.
KON	H. Kohnstamm & Co., Inc.	TNI	Gillette Co., Chemical Div.
		VPC	Mobay Chemical Corp., Dyes & Pigments Div.
		WJ	Warner-Jenkinson Co.

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION V -- ORGANIC PIGMENTS

## STATISTICAL HIGHLIGHTS

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202-523-0496

Organic pigments are toners and lakes<sup>1</sup> derived in whole or in part from benzenoid chemicals and colors.

Statistics on production and sales of all organic pigments in 1985 are given in table 1.<sup>2</sup> 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 1985 was 80.9 million pounds—5.6 percent less than the 85.7 million pounds produced in 1984. Total sales of organic pigments in 1985 amounted to 69.0 million pounds, valued at \$447.7 million, compared with 76.1 million pounds, valued at \$493.0 million, in 1984. In terms of quantity, sales of organic pigments in 1985 were 9.3 percent lower than in 1984; in terms of value, sales in 1985 were 9.2 percent lower than in 1984. Changes in U.S. production of pigment has followed overall changes in U.S. economic activity during 1981-85 (see figure 1).

Production of toners in 1985 amounted to 80.3 million pounds—5.5 percent less than the 84.9 million pounds reported in 1984. Sales in 1985 were 68.5 million pounds, valued at \$440.8 million, compared with 75.5 million pounds valued at \$488.6 million, in 1984. Sales in 1985 were 9.3 percent lower than those in 1984 in terms of quantity, and 9.8 percent lower in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1985 were Pigment Yellow 12, 13.9 million pounds; Pigment Blue 15.3, beta form, 9.5 million pounds; Pigment Red 49:1 barium toner, 6.0 million pounds; Pigment Red 57:1 calcium toner, 8.5 million pounds; Pigment Red 53:1, barium toner, 4.5 million pounds; and Pigment Yellow 14, 4.4 million pounds.

Production of lakes totaled 595,000 pounds in 1985, 24 percent lower than the 782,000 pounds reported for 1984. Sales of lakes in 1985 amounted to 495,000 pounds, valued at \$3.9 million. In terms of quantity, sales of lakes in 1985 were 19 percent lower than in 1984; in terms of value, sales in 1985 were 10 percent lower than in 1984.

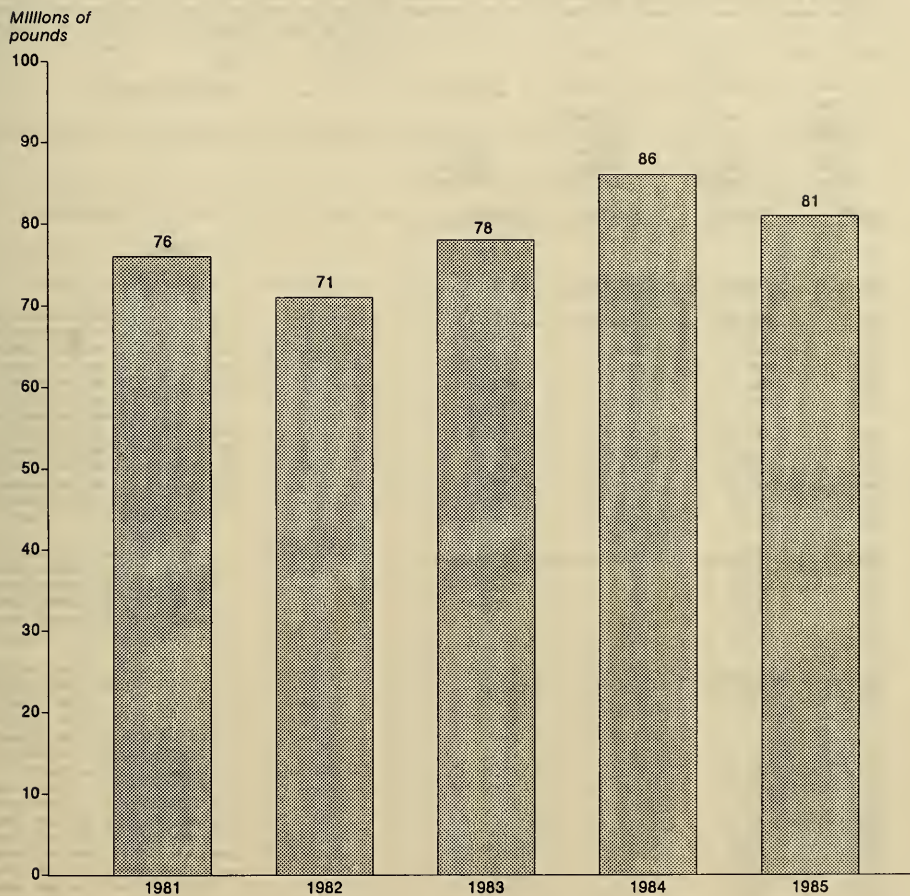
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<sup>1</sup> Toners and lakes are essentially the same in their final form; they differ in the method of preparation. A lake is an organic pigment produced by the interaction of a soluble dye, a precipitant, and an absorptive inorganic substrate. A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

<sup>2</sup> See also table 2 which lists these products and identifies the manufacturers by codes. The codes are listed in table 3.



Figure 1.—Organic pigments.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



V -- ORGANIC PIGMENTS

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1985

[Listed below are the organic pigments for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all organic pigments for which data on production and/or sales were reported and identifies the manufacturers of each]

ORGANIC PIGMENT	PRODUCTION		SALES	
	1,000 pounds dry basis <sup>3</sup>	1,000 pounds dry basis <sup>3</sup>	Value <sup>1</sup>	UNIT VALUE <sup>2</sup>
			1,000 dollars	Per pound
Grand Total-----	80,858	69,034	447,709	\$6.44
TONERS				
Total-----	80,263	68,539	440,849	6.43
Yellow toners, total-----	22,516	17,627	84,116	4.47
Acetoacetarylide yellows:				
Pigment Yellow 1, C.I. 11 680-----	99	115	663	5.76
Pigment Yellow 3, C.I. 11 710-----	177	175	992	5.65
Pigment Yellow 65, C.I. 11 740-----	106	116	942	8.11
Pigment Yellow 74, C.I. 11 741-----	938	986	6,639	6.73
Diarylide yellows:				
Pigment Yellow 12, C.I. 21 090-----	13,892	9,695	39,674	4.09
Pigment Yellow 13, C.I. 21 100-----	313	250	1,609	6.43
Pigment Yellow 14, C.I. 21 095-----	4,359	3,549	14,948	4.21
Pigment Yellow 17, C.I. 21 105-----	570	513	3,085	6.02
Pigment Yellow 83, C.I. 21 108-----	776	835	7,420	8.88
All other-----	1,287	1,393	8,144	5.85
Orange toners, total-----	2,407	2,296	15,014	6.54
Pigment Orange 5, C.I. 21 075-----	759	725	3,893	5.37
Pigment Orange 13, C.I. 21 110-----	128	118	1,113	9.42
Pigment Orange 16, C.I. 21 160-----	680	572	3,617	6.32
Pigment Orange 46, C.I. 15 602-----	615	680	3,298	4.85
All other-----	225	201	3,093	15.35
Red toners, total-----	29,171	24,358	164,623	6.76
Naphthol reds, total-----	1,756	1,828	12,932	7.07
Pigment Red 2, C.I. 12 120-----	47	48	505	10.59
Pigment Red 5, C.I. 12 490-----	22	...	...	...
Pigment Red 17, C.I. 12 390-----	45	...	...	...
Pigment Red 23, C.I. 12 355-----	87	81	970	12.04
All other naphthol reds-----	1,555	1,699	11,457	6.74
Pigment Red 3, C.I. 12 120-----	851	888	4,876	5.49
Pigment Red 4, C.I. 12 085-----	79	101	477	4.74
Pigment Red 38, C.I. 12 120-----	150	134	1,495	11.19
Pigment Red 48:1 barium toner, C.I. 15 865-----	721	661	4,141	6.27
Pigment Red 48:2, calcium toner, C.I. 15 865-----	1,441	1,385	8,854	6.40
Pigment Red 48:4, manganese toner C.I. 15 865-----	214	227	1,804	7.94
Pigment Red 49:1 barium toner, C.I. 15 630-----	5,987	4,529	16,507	3.64
Pigment Red 49:2, calcium toner, C.I. 15 630-----	832	760	3,543	4.66
Pigment Red 52:1, calcium toner, C.I. 15 860-----	703	731	4,584	6.27
Pigment Red 53:1, barium toner, C.I. 15 585-----	4,451	3,943	15,968	4.05
Pigment Red 57:1, calcium toner, C.I. 15 850-----	8,533	6,416	31,069	4.84
Pigment Red 81, PMA, C.I. 45 160-----	363	344	5,352	15.54
All other-----	3,090	2,411	53,021	21.99

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

ORGANIC PIGMENT	PRODUCTION	SALES		
		QUANTITY	VALUE <sup>1</sup>	UNIT VALUE <sup>2</sup>
	1,000 pounds dry basis <sup>3</sup>	1,000 pounds dry basis <sup>3</sup>	1,000 dollars	Per pound
<b>TONERS--Continued</b>				
Violet toners, total-----	3,084	2,907	57,030	\$17.90
Pigment Violet 1, PTA, C.I. 45 170-----	43	27	424	15.61
Pigment Violet 3, (PTA)-----	8	8	117	15.41
Pigment Violet 19, C.I. 46 500-----	...	1,758	35,052	19.94
Pigment Violet 23, C.I. 46 500-----	313	304	7,663	25.20
All other-----	2,720	810	8,774	10.83
Blue toners, total-----	20,671	18,856	106,200	5.63
Pigment Blue 1 (PMA)-----	65	51	813	15.85
Pigment Blue 15, alpha form, C.I. 74 160-----	805	733	6,213	8.47
Pigment Blue 15:1, alpha form, C.I. 74 160-----	1,028	977	10,172	10.41
Pigment Blue 15:2, alpha form, C.I. 74 160-----	587	561	5,862	10.44
Pigment Blue 15:3, beta form, C.I. 74 160-----	9,536	8,477	46,490	5.48
All other-----	8,650	8,057	36,650	4.55
Green toners, total-----	2,004	2,094	17,347	8.29
Pigment Green 7, C.I. 74 260-----	...	1,849	14,781	7.99
All other-----	2,004	245	2,566	10.22
Brown and Black toners, total-----	410	401	1,519	3.80
Pigment Brown 5-----	29	...	...	...
All other-----	381	401	1,519	3.80
<b>LAKES</b>				
Total-----	595	495	3,860	7.80
Pigment Red 83, C.I. 58 000-----	27	26	315	12.05
Pigment Violet 5:1, C.I. 58 055-----	72	59	520	8.81
All other lakes-----	496	410	3,025	7.38

<sup>1</sup>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.

<sup>2</sup>Calculated from unrounded figures.

<sup>3</sup>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 abbreviations PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN 'X' SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT]

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>TONERS</b>	
<b>YELLOW TONERS:</b>	
<b>ACETOACETARYLIDE YELLOWS:</b>	
*Pigment Yellow 1	AMS, BAS, CGY, DUP, GLX, HSH, HST, KCM, KON, MEX, ROM, SDH, SNA, VPC.
Pigment Yellow 2	KCM.
*Pigment Yellow 3	BMS, HEU, HSH, HST, KCM, SNA, VPC.
Pigment Yellow 42	VPC.
Pigment Yellow 49	ROM.
Pigment Yellow 60	HSH.
Pigment Yellow 65	HSH, SNA, VPC.
Pigment Yellow 73	HSH, HST, SNA, VPC.
*Pigment Yellow 74	BAS, HEU, HSH, HST, SDH, SNA, VPC.
Pigment Yellow 75	HST.
Pigment Yellow 97	HST, STC.
Pigment Yellow 98	HST.
Pigment Yellow 116	VPC.
Acetoacetarylide yellows, all others	HST, KCM, VPC.
<b>DIARYLIDE YELLOWS:</b>	
*Pigment Yellow 12	AMS, APO, BAS, GLX, HSH, HST, ICC, IDC, IND, POP, ROM, SDH, SNA.
*Pigment Yellow 13	AMS, APO, BAS, GLX, HST, IDC, IND, ROM, SDH, SNA, VPC.
*Pigment Yellow 14	AMS, BAS, BNS, CGY, GLX, HSH, HST, ICC, IDC, IND, ROM, SDH, SNA, VPC.
*Pigment Yellow 17	AMS, APO, BAS, CGY, GLX, HSH, HST, ICC, IDC, IND, ROM, SDH, SNA, VPC.
Pigment Yellow 55	GLX.
*Pigment Yellow 83	BAS, GLX, HST, ICC, IND, ROM, SNA, VPC.
Pigment Yellow 124	GLX.
Pigment Yellow 126	HST.
Pigment Yellow 152	HST.
Diarylides yellows, other	CGY, GLX, ROM, VPC.
<b>YELLOW PIGMENTS, OTHER:</b>	
(Basic Yellow 2), fugitive	MEX.
Pigment Yellow 62	CGY.



TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
YELLOW TONERS--CONTINUED	
YELLOW PIGMENTS, OTHER--CONTINUED	
Pigment Yellow 110	CCY.
Pigment Yellow 139	VPC.
Pigment Yellow 150	CCY.
ORANGE TONERS:	
Pigment Orange 1	KCM.
Pigment Orange 2	UHL.
*Pigment Orange 5	CGY, HSH, HST, SDH, SMA
*Pigment Orange 13	BAS, CGY, HSH, IND, ROM, SMA, VPC.
Pigment Orange 15	BNS, CGY.
*Pigment Orange 16	BNS, CGY, GLX, HSH, IND, ROM, VPC.
Pigment Orange 34	GLX, IND, ROM.
Pigment Orange 36	HST, SMA.
Pigment Orange 38	HST, IND.
Pigment Orange 43	HST.
Pigment Orange 46	BAS, SDH, SMA, VPC.
Pigment Orange 48	DUP.
Pigment Orange 49	DUP.
Pigment orange toners, all other	CCY, GLX, VPC.
RED TONERS:	
NAPHTHOL REDS:	
Pigment Red 2	GLX, HSH, HST, KCH.
*Pigment Red 5	CCY, GLX, HSH, ROM.
Pigment Red 7	GLX.
Pigment Red 9	HST.
Pigment Red 13	KCM.
*Pigment Red 17	BNS, IND, ROM, SMA, UHL.
Pigment Red 21	BNS.
*Pigment Red 22	CCY, SMA.
*Pigment Red 23	GLX, HSH, KCM, ROM, SMA, UHL.
Pigment Red 31	ROM, SDH.
Pigment Red 112	HST.
Pigment Red 147	HSH.
Pigment Red 170	GLX, HST.
Naphthol reds, all other	GLX, IND, KCM, ROM, SMA, VPC, X.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
RED TONERS--CONTINUED	
RED PIGMENTS, OTHER:	
Pigment Red 1, (dark)	GLX
*Pigment Red 1, (light)	HSB
*Pigment Red 3	BAS, CGY, HSH, KCM, MRX, SDH, SMA, UHL
*Pigment Red 4	ALE, BAS, CGY, HSH, KCM, MRX, SDH, UHL
*Pigment Red 38	GLX, HSH, HST, SMA, VPC
Pigment Red 41	VPC
Pigment Red 48	CGY, DUP
*Pigment Red 48:1, (barium)	AMS, BAS, CMG, HEU, HSH, MGR, MRX, SMA, UHL
*Pigment Red 48:2, (calcium)	AMS, BAS, CIK, HEU, HSH, MGR, MRX, SDH, SMA, UHL, VPC
Pigment Red 48:3, (strontium)	CGY, HSH
*Pigment Red 48:4, (manganese)	CGY, HEU, HSH, SMA, VPC
*Pigment Red 49, (sodium)	VPC
Pigment Red 49:1, (barium)	AMS, BAS, BNS, BOR, CIK, ICC, IDC, MGR, SDH, SMA, UHL
*Pigment Red 49:2, (calcium)	AMS, BNS, CMG, CIK, ICC, IDC, MGR, SDH, SMA, UHL
Pigment Red 52:1, (calcium)	BAS, MGR, SMA, UHL
Pigment Red 52:2, (manganese)	BAS, HSH, UHL
Pigment Red 53, (sodium)	ICC
*Pigment Red 53:1, (barium)	ALE, AMS, APO, BAS, BOR, CIK, HSH, ICC, IDC, MGR, MRX, SDH, SMA, UHL
Pigment Red 57	BNS
*Pigment Red 57:1, (calcium)	AMS, APO, BAS, BNS, BOR, CGY, CIK, HEU, HSH, ICC, IDC, KON, MGR, SDH, SMA, UHL
Pigment Red 63	HSB
*Pigment Red 81, (PMA)	MGR, MRX, SMA, UHL
Pigment Red 81, (PTA)	MGR, MRX, UHL
Pigment Red 88	VPC
Pigment Red 119	VPC
Pigment Red 122	SMA
Pigment Red 123	SMA, VPC
Pigment Red 168	VPC
Pigment Red 179	VPC
Pigment Red 181	HST

TABLE 2.—ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985.—CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS—CONTINUED	
RED TONERS—CONTINUED	
PIGMENT RED—CONTINUED	
Pigment Red 188	HST.
Pigment Red 190	VPC.
Pigment Red 200	BAS, SMA.
Pigment Red 202	CGY, SMA.
Pigment Red 206	CGY.
Pigment Red 207	CGY.
Pigment Red 211	VPC.
Pigment Red 224	VPC.
Pigment red toners, all other	CGY, HST, STC, VPC.
VIOLET TONERS:	
Pigment Violet 1, (fugitive)	KCM, UHL.
Pigment Violet 1, (PMA)	MGR, MRX, UHL.
*Pigment Violet 1, (PTA)	MGR, MRX, SMA, UHL.
Pigment Violet 3, (fugitive)	KCM, MGR, UHL.
Pigment Violet 3, (PMA)	BAS, KCM, MGR, MRX, SDH, UHL.
Pigment Violet 3, (PTA)	MGR, MRX, UHL.
Pigment Violet 3	VPC.
Pigment Violet 4, (fugitive)	KCM.
*Pigment Violet 19	SMA, VPC.
*Pigment Violet 23	HST, IPP, ROM, SDC, SMA, VPC.
Pigment Violet 29	VPC.
Pigment Violet 38	HST.
Pigment Violet 42	CGY.
Pigment violet toners, all other	VPC, X.
BLUE TONERS:	
(Basic Blue 7)	KCM.
*Pigment Blue 1, (PMA)	BNS, MGR, MRX, SDH, UHL.
Pigment Blue 1, (PTA)	MRX.
Pigment Blue 2, (PMA)	LVR, UHL.
Pigment Blue 9, (PMA)	LVR.
Pigment Blue 14, (PMA)	LVR, UHL, VPC.
*Pigment Blue 15, ( $\alpha$ form)	BAS, CGY, HSH, SDH, SMA, USM, VPC.
*Pigment Blue 15-1, ( $\alpha$ form)	BAS, CGY, SDH, SMA, VPC.
*Pigment Blue 15-2, ( $\alpha$ form)	BAS, CGY, SDH, SMA, VPC.
*Pigment Blue 15-3, ( $\beta$ form)	ALE, AMS, AFO, BAS, BHM, CGY, CIK, CUS, DUP,
Pigment Blue 15-4, ( $\beta$ form)	ADC, IPP, MGR, POP, ROH, SDH, SMA, VPC.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
BLUE TONERS--CONTINUED	
Pigment Blue 19-----	PSG.
Pigment Blue 25-----	GLX.
Pigment Blue 61-----	BAS.
Pigment blue toners, all other	VPC.
GREEN TONERS:	
Pigment Green 1, (PMA)-----	MRX, UHL.
Pigment Green 2, (PMA)-----	MRX.
Pigment Green 2, (PTA)-----	MRX.
Pigment Green 4, (PMA)-----	UHL.
*Pigment Green 7-----	ALC, CIK, HEU, POP, SDH, SMA.
Pigment Green 8-----	CGY, KGW.
Pigment Green 10-----	HEU.
Pigment Green 36-----	SMA, VPC.
Pigment green toners, all other	UHL, VPC, X.
BROWN TONERS:	
Pigment Brown 1-----	GLX, ROM, VPC.
*Pigment Brown 5-----	GLX, ICC, VPC.
Pigment brown toners, all other	SDH, UHL, VPC.
BLACK TONERS:	
Pigment Black 7-----	STC.
Pigment black toners, all other	UHL, VPC.
LAKES	
YELLOW LAKES:	
(Acid Yellow 1)-----	KGW.
(Acid Yellow 23)-----	KON, HFX.
ORANGE LAKES:	
Pigment Orange 17-----	KGW.
RED LAKES:	
(Basic Red 1)-----	BMS.
(Basic Red 81, PMA)-----	LVR.
Pigment Red 60:1-----	HSH, MRX, SMA.
*Pigment Red 83-----	CGY, HSH, MRX, UHL.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
LAKES--CONTINUED	
VIOLET LAKES:	
(Basic Violet 1)-----	BNS.
(Basic Violet 4)-----	BNS.
(Basic Violet 10)-----	BNS.
(Basic Violet 3, (PMA)-----	LVR.
*Pigment Violet 51-----	HSH, HRE, UHL, VFC.
BLUE LAKES:	
(Basic Blue 9)-----	LVR.
(Basic Blue 14, (PMA)-----	LVR.
(Basic Blue 1, (FTA)-----	LVR.
Pigment Blue 24-----	SDI.
GREEN LAKES:	
(Acid Green 3)-----	KCV.
(Basic Green 1, (PMA)-----	LVR.



TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of organic pigments to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
ALE :	Alex Chemical Co.	KCW :	Keystone Color Works, Inc.
ALG :	Allegheny Chemical Corp.	KON :	H. Kohnstamm & Co., Inc.
AMS :	Ridgway Color Co.		
APO :	Apollo Colors, Inc.	LVR :	C. Lever Co., Inc.
BAS :	BASF Corp.	MGR :	Magruder Color Co., Inc.
BMX :	Blu-Max Pigments, Inc.	MRX :	Johnson Mattney, Inc., Pigment Dept.
BNS :	Binney and Smith, Inc.		
		POP :	Pope Chemical Corp.
CGY :	Ciba-Geigy Corp.	PSG :	PMC Specialities Group, Inc.
CIK :	Flint Ink Corp., Gal/Ink Div.		
CHC :	Chromatic Color Corp.	ROM :	Roma Color, Inc.
CUS :	Customs Pigments Corp.		
		SDC :	Sandoz Chemicals Corp.
GLX :	Galaxie Chemical Corp.	SDH :	Sterling Drug, Inc., Hilton Davis Chemical Co.
HEU :	Heubach, Inc.	SNA :	Sun Chemical Corp., Pigment Div.
HSH :	Harshaw/Filtrol Partnership	STC :	American Hoechst Corp., Sou-Tex Works
HST :	American Hoechst Corp., Specialty Products Group, Rhode Island Works		
		TMS :	Sterling Drug, Inc., Hilton Davis Chemical Co.
IGC :	BASF Corp Inmont Div.	UHL :	Paul Uhlich & Co., Inc.
IDC :	Industrial Color, Inc.		
IND :	Indel Color Co., Inc.	VPC :	Mobay Chemical Corp., Dyes & Pigments Div.
IPP :	Spectrachem Corp.		

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION VI -- MEDICINAL CHEMICALS

## STATISTICAL HIGHLIGHTS

Elizabeth R. Nesbitt

202-523-1768

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 1981-85 are shown in figure 1.

The table 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.<sup>1</sup> The difference between production and sales reflects inventory changes, processing losses, and captive consumption of medicinal chemicals processed into ethical 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.

Total U.S. production of bulk medicinal chemicals in 1985 amounted to 224.7 million pounds. Total sales of bulk medicinal chemicals in 1985 amounted to 144.6 million pounds, valued at \$1,339.3 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.

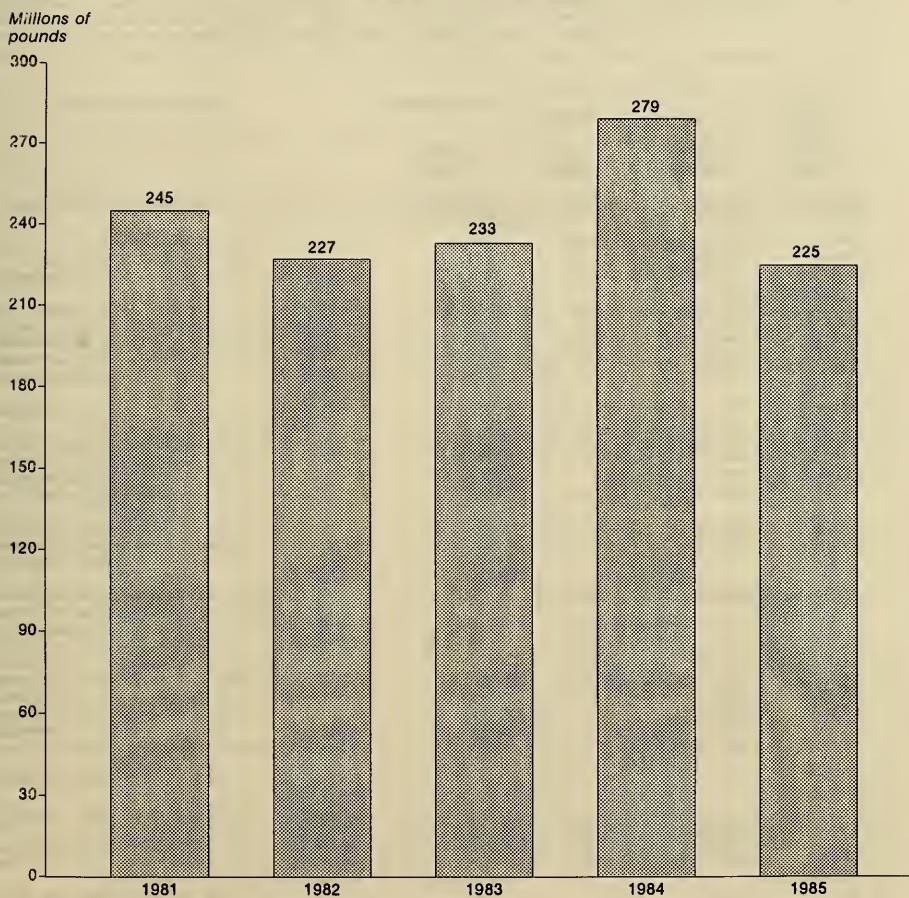
Production of the larger groups of medicinal chemicals in 1985 was as follows: Antibiotics, 31.9 million pounds, 5.0 percent higher than in 1984; anti-infective agents other than antibiotics, 25.1 million pounds, 8.0 percent less than in 1984; central nervous system depressants and stimulants, 63.2 million pounds, 9.0 percent less than in 1984; gastrointestinal agents and therapeutic nutrients, 48.5 million pounds, 11 percent less than in 1984; and vitamins, 37.6 million pounds, 25 percent less than in 1984.

Production of some of the more important individual products in the table was as follows: Choline chloride, 44.2 million pounds, 11 percent less than in 1984; aspirin, 28.2 million pounds, 17 percent less; and vitamin E, 13.7 million pounds, 18 percent more.

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<sup>1</sup> 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.

Figure 1.—Medicinal chemicals.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.





TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1985

[Listed below are all synthetic organic medicinal chemicals for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all medicinal chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

MEDICINAL CHEMICALS	PRODUCTION <sup>1</sup>		SALES		
			QUANTITY	VALUE	UNIT VALUE <sup>2</sup>
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	224,660	144,618	1,339,322	\$9.26	
Acyclic-----	48,729	43,695	140,018		3.20
Benzenoid <sup>3</sup> -----	125,591	75,672	648,419		8.57
Cyclic nonbenzenoid <sup>4</sup> -----	50,340	25,251	550,885		21.82
Antibiotics, total-----	31,922	11,636	429,786		36.94
Penicillins, total <sup>5</sup> -----	6,800	1,626	37,526		23.08
Other antibiotics, total-----	25,122	10,010	392,260		39.19
For medicinal use <sup>6</sup> -----	6,727	3,545	329,127		92.84
For nonmedicinal uses <sup>7</sup> -----	18,395	6,465	63,133		9.77
Antihistamines-----	211	103	5,491		53.31
Anti-infective agents (except antibiotics), total-----	25,088	7,833	34,114		4.36
Anthelmintics-----	9,013	3,497	4,926		1.41
Antiprotozoan agents-----	10,691	713	4,258		5.97
Other anti-infective agents <sup>8</sup> -----	5,384	3,623	24,930		6.88
Autonomic drugs, total-----	991	800	17,289		21.61
Sympathomimetic (adrenergic) agents-----	958	800	17,289		21.61
Other autonomic drugs-----	33	...	...		...
Central depressants and stimulants, total-----	63,234	43,451	298,625		6.87
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents, total-----	55,714	38,890	112,846		2.90
Aspirin-----	28,160	...	...		...
All other <sup>9</sup> -----	27,554	38,890	112,846		2.90
Anticonvulsants, hypnotics, and sedatives-----	1,636	286	6,307		22.08
Antidepressants-----	218	24	3,110		129.58
Antitussives-----	342	280	53,065		189.55
Tranquilizers-----	75	9	6,197		690.14
Other central depressants and stimulants <sup>10</sup> -----	5,249	3,962	117,100		29.56
Expectorants and mucolytic agents-----	1,162	980	7,756		7.91
Gastrointestinal agents and therapeutic nutrients, total <sup>11</sup> -----	48,457	42,381	25,603		.60
Choline chloride, all grades-----	44,238	39,752	16,469		.41
All other-----	4,219	2,629	9,134		.60
Renal-acting and edema-reducing agents-----	...	202	10,725		53.46
Smooth muscle relaxants <sup>12</sup> -----	40	...	...		...
Vitamins, total-----	37,631	32,650	172,920		5.30
Vitamin E-----	13,732	8,364	86,370		10.33
All other vitamins <sup>13</sup> -----	23,899	24,286	86,550		3.56
Miscellaneous medicinal chemicals <sup>14</sup> -----	15,924	4,582	337,013		30.71

See footnotes at end of table.



## FOOTNOTES

<sup>1</sup>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.

<sup>2</sup>Calculated from rounded figures.

<sup>3</sup>Benzenoid, as used in this report, describes any cyclic medicinal chemical whose molecule contains either a 6-membered carbocyclic ring with conjugated double bonds or a 6-membered heterocyclic ring with 1 or 2 hetero atoms and conjugated double bonds, except the pyrimidine ring.

<sup>4</sup>Includes antibiotics of unknown structure.

<sup>5</sup>Includes semisynthetic penicillins and all other penicillins.

<sup>6</sup>Includes production and sales of antifungal and antitubercular antibiotics, tetracyclines, and cephalosporins.

<sup>7</sup>Includes production and sales of tetracyclines.

<sup>8</sup>Includes production and sales of urinary antiseptics; does not include production of sulfaguanidine used as an intermediate in the production of anti-infective sulfonamides; also includes sulfonamides.

<sup>9</sup>Includes sales quantity and value of aspirin; also production and sales of acetaminophen.

<sup>10</sup>Includes production and sales of amphetamines, general anesthetics, respiratory and cerebral stimulants, and skeletal muscle relaxants.

<sup>11</sup>Methionine and its salts are now reported in the section in Miscellaneous End-Use Chemicals and Chemical Products under amino acids.

<sup>12</sup>Includes theophylline derivatives.

<sup>13</sup>Includes production and sales of vitamin A, vitamin B, vitamin C, vitamin D, and vitamin K.

<sup>14</sup>Includes production and sales of antineoplastic agents, cardiovascular agents, diagnostic agents, hematological agents, and unclassified medicinal chemicals. Also includes production and sales of local anesthetics, dermatological agents, hormones and synthetic substitutes, sales quantity and value of smooth muscle relaxants and production of renal-acting and edema-reducing agents.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT.]

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>*ANTIBIOTICS:</b>	
<b>*CEPHALOSPORINS:</b>	
Cefaclor-----	LIL.
Cefamandole-----	LIL.
Cefazolin, sodium-----	LIL.
Cefoxitin-----	MRK.
Cephalexin-----	LIL.
Cephaloridine-----	LIL.
Cephalothin, sodium-----	BRS, LIL.
Cephapirin-----	BRS.
Cephapirin, sodium-----	BRS.
Cephradine-----	SK, TRD.
<b>*PENICILLINS:</b>	
<b>PENICILLINS, SEMISYNTHETIC:</b>	
<b>AMOXICILLIN:</b>	
Amoxicillin (trihydrate)-----	BEE, BOC, BRS.
Amoxicillin (anhydrous)-----	BRS, WYT.
<b>AMPICILLIN:</b>	
Ampicillin (anhydrous)-----	BRS, WYT.
Ampicillin (trihydrate)-----	BEE, BOC, BRS.
<b>OTHER SEMISYNTHETIC PENICILLINS:</b>	
Ampicillin, sodium-----	BEE, BRS, WYT.
Carbenicillin, disodium-----	BEE, PFZ.
Carbenicillin indanyl, sodium-----	PFZ.
Carbenicillin, sodium-----	BEE.
Cloxacillin, benzathine-----	BEE, BRS.
Cloxacillin, sodium-----	BEE, BOC, BRS.
Cyclacillin-----	BRT, WYT.
Dicloxacillin, sodium-----	BEE, BOC, BRS, WYT.
Netacillin, potassium-----	BRS.
Methicillin, sodium-----	BRS.
Nafcillin, sodium-----	BEE, BRS, WYT.
Oxacillin, sodium-----	BEE, BOC, BRS.
Piperacillin-----	BRS.
Ticarcillin, disodium-----	BEE.
Ticarcillin, sodium-----	BEE.
<b>PENICILLINS (EXCEPT SEMISYNTHETIC):</b>	
<b>FOR MEDICINAL USE:</b>	
Penicillin V-----	PFZ, WYT.
Penicillin G, benzathine-----	WYT.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED	
PENICILLINS:	
PENICILLINS (EXCEPT SEMISYNTHETIC)--CONTINUED	
FOR MEDICINAL USE--CONTINUED	
Penicillin G, potassium----	PFZ, WYT.
Penicillin V, potassium----	BRS, LIL.
Penicillin G, procaine (medicinal grade)----	PFZ.
Penicillins, other than semisynthetic, all other--:	BRS.
FOR NONMEDICINAL USES:	
Penicillin G, procaine (animal feed grade)-----:	HRK, PFZ.
TETRACYCLINES:	
FOR MEDICINAL USE:	
Chlortetracycline (medicinal grade)-----:	ACY.
Doxycycline-----:	PFZ.
Minocycline-----:	ACY.
Oxytetracycline (medicinal grade)-----:	PFZ.
Tetracycline-----:	ACY.
FOR NONMEDICINAL USES:	
Chlortetracycline (animal feed grade)-----:	ACY.
Oxytetracycline (animal feed grade)-----:	PFZ.
*OTHER ANTIBIOTICS:	
*FOR MEDICINAL USE:	
ANTIFUNGAL ANTIBIOTICS:	
Amphotericin B-----:	PEN, TRD.
Nystatin (medicinal grade)-----:	ACY, TRD.
Ibuprofen-----:	LIL.
ANTITUBERCULAR ANTIBIOTICS:	
Dihydrostreptomycin-----:	PFZ.
Streptomycin (medicinal grade)-----:	PFZ.
OTHER ANTIBIOTICS FOR MEDICINAL USE:	
Amikacin sulfate-----:	BRS.
Aztreonam-----:	TRD.
Bacitracin (medicinal grade)-----:	IMC.
Cefonicid-----:	SK.
Chloramphenicol-----:	PD.
Clindamycin-----:	UPJ.
Erythromycin-----:	ABB, UPJ.
Erythromycin estolate-----:	LIL.
Erythromycin stearate-----:	UPJ.
Gentamycin-----:	SCH.
Imipenem-----:	HRK.
Kanamycin-----:	BRS.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED	
*OTHER ANTIBIOTICS--CONTINUED	
*FOR MEDICAL USE--CONTINUED	
OTHER ANTIBIOTICS FOR MEDICAL USE--CONTINUED	
Lincomycin (medicinal grade)-----	UPJ.
Moxalactam-----	LIL.
Neomycin (medicinal grade)-----	UPJ.
Metilimicin-----	SCH, UPJ.
Novobiocin, sodium-----	UPJ.
Polymyxin B-----	PFZ.
Sisomicin-----	SCH.
Spectinomycin (medicinal grade)-----	ABB, UPJ.
Thiostrepton-----	TED.
Vancomycin-----	LIL.
*FOR NONMEDICINAL USES:	
Bacitracin (animal feed grade)-----	IMC.
Cycloheximide-----	UPJ.
Hygromycin B-----	LIL.
Lasalocid-----	HOF, X.
Lincomycin (animal feed grade)-----	UPJ.
Lincomycin hydrochloride-----	UPJ.
Monesin-----	LIL.
Neomycin (animal feed grade)-----	PFZ, UPJ.
Spectinomycin (animal feed grade)-----	UPJ.
Streptomycin-----	LIL, PFZ.
Tylosin-----	LIL.
*ANTHISTAMINES:	
ANTINAUSEANTS:	
Cyclizine hydrochloride-----	BUR.
Dimenhydrinate-----	GAN.
Mecizine hydrochloride-----	PFZ.
Metoclopramide hydrochloride-----	LIL.
Trimethobenzamide hydrochloride-----	HOF.
OTHER ANTHISTAMINES:	
Brompheniramine maleate-----	HEX, LLI.
Chlorpheniramine maleate-----	HEX, SK.
Cyproheptadine hydrochloride-----	HEX.
Desobupheniramine maleate-----	HEX.
Dimethidene maleate-----	CGY.
Diphenhydramine citrate-----	WK.
Diphenhydramine hydrochloride-----	PD, WK.
Doxylamine succinate-----	BKG, HOF.
Pheniramine tartrate-----	HOF.

TABLE 2.—MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985—CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTHISTAMINES—CONTINUED	
OTHER ANTHISTAMINES—CONTINUED	
Phenyltoloxamine citrate	GAN.
Pyrilamine maleate	HEX.
Tripelemamine	CCY.
Tripelemamine citrate	CCY.
Tripelemamine hydrochloride	CCY.
Triprolidine hydrochloride	BUR.
*ANTI-INFECTION AGENTS (EXCEPT ANTIETIOTICS):	
*ANTHELMINTICS:	
Diechylcarbamazine citrate	SK.
Ivermectin	MRK.
Phenothiazine	WAG.
Piperazine	TX, UCC.
Piperazine dihydrochloride	FLM.
Piperazine hydrochloride	DAN, FLM, TX, WHL.
Piperazine phosphate	TX.
Pyrantel pamoate	PFZ.
Pyrantel tartrate	PFZ.
Thenium ciosylate	SFS.
Thiabendazole	MRK.
*ANTIPROTOZOAN AGENTS:	
AESNIC AND BISMUTH COMPOUNDS:	
Arsanilic acid	FLM, WHL.
Bismuth subsalicylate	NOR.
Carbarsone	WHL.
Glycoblarsol	RSA.
Nitarsonsone	SAL.
Rokarsone	SAL.
Rokarsone, sodium	SAL.
Sodium arsanilate	WHL.
Antiprotozoan agents, arsenic and bismuth compounds, all other	RSA.
OTHER ANTIPROTOZOAN AGENTS:	
Aklomide	SAL.
Amodiaquine hydrochloride	PO.
Amprolium	MRK.
Dinitolamide	SAL.
Ethopabate	HEX.
Hydroxychloroquine sulfate	SDW.
Iodochlorohydroxyquin	CCY.
Ipronidazole	HOF.
Metronidazole	SRL.
Nitromide	SAL.
Primaquine phosphate	SDW.



TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFECTION AGENTS (EXCEPT ANTIBIOTICS)--CONTINUED	
SULFONAMIDES	
Mafenide-----	SDW.
Mafenide acetate-----	SDW.
Sulfabenzamide-----	ACY.
Sulfacetamide-----	SCH.
Sulfadiazine-----	ACY.
Sulfadimethoxine-----	HOF.
Sulfamethazine-----	SAL.
Sulfamethazine, sodium-----	SAL.
Sulfamethizole-----	ACY.
Sulfamethoxazole-----	HOF.
Sulfamitran-----	SAL.
Sulfasalazine-----	SAL.
Sulfathiazole, sodium-----	SAL.
Sulfisoxazole-----	HOF.
Sulfisoxazole, acetyl-----	HOF.
*URINARY ANTISEPTICS:	
Methenamine hippurate-----	RIK.
Methenamine mandelate-----	ARN, PD.
*OTHER ANTI-INFECTION AGENTS:	
ANTIFUNGAL AGENTS:	
Benzoic acid-----	KLM.
Calcium undecylenate-----	WTL.
Sodium caprylate-----	LEM.
Zinc undecylenate-----	WTL.
Antifungal agents, all other-----	SCH.
ANTILEPROTIC AND ANTITUBERCULAR AGENTS:	
Aminosalicylic acid-----	HXL.
Sulfoxone, sodium-----	ABB.
GENERAL ANTISEPTICS AND ANTIBACTERIAL AGENTS:	
Bromchloronone-----	MHL.
Cepreomycin-----	LIL.
Ceftazidime-----	LIL.
Cetylpyridinium chloride-----	HEX, HXL.
Chlorhexidine gluconate-----	WHL.
Chlorobutanol-----	SFS.
m-Cresyl acetate-----	ADC.
8-Hydroxy-5-quinolinesulfonic acid-----	HEK, RSA.
Iodoform-----	DPW.
Ormetoprim-----	HOF.
Povidone - iodine-----	GAF.
Pyriithione, zinc-----	RES.
Resorcinol-----	KPT, LEM.
Trimethoprim-----	BUR.
Anti-infective agents, all other-----	LIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*AUTONOMIC DRUGS:	
*SYMPATHOMIMETIC AGENTS:	
Methoxyphenamine hydrochloride	HXL.
Nephazoline hydrochloride	CGY.
Phenylephrine	SDM.
Phenylephrine bitartrate	GAM.
Phenylephrine hydrochloride	GAM, LLI, SDM.
Phenylpropanolamine hydrochloride	ARS, GAM, NEP, ORT.
Propylhexedrine	PD, SK.
Pseudoephedrine hydrochloride	BUR, GAM.
Pseudoephedrine sulfate	GAM.
Tetrahydrozoline hydrochloride	CGY.
Sympathomimetic (adrenergic) agents, all other	PFZ.
Sympathomimetic (adrenergic) agents, all other	SCH, SD.
*OTHER AUTONOMIC DRUGS:	
PARASYMPATHOLYTIC QUATERNARY AMMONIUM COMPOUNDS (EXCEPT TROPANE DERIVATIVES):	
Glycopyrrolate	LLI.
Isopropramide iodide	SK.
Proprantheoline bromide	SRL.
Tridihexethyl chloride	ACY.
PARASYMPATHOLYTIC TERTIARY AMINES (EXCEPT TROPANE DERIVATIVES):	
Oxybutynin chloride	PD.
Oxyphenacylimine hydrochloride	PFZ.
Trihexphenidyl hydrochloride	ACY.
PARASYMPATHOLYTIC TROPANE DERIVATIVES:	
Anisotropine methylbromide	ARA.
Benztropine mesylate	ARA.
PARASYMPATHOMIMETIC AGENTS:	
Bethanechol chloride	GAM.
Neostigmine methylsulfate	HOF.
Pyridostigmine bromide	HOF.
SYMPATHOLYTIC AGENTS:	
Timolol maleate	MRK.
*CENTRAL DEPRESSANTS AND STIMULANTS:	
*ANALGESICS, ANTIPIRETTICS, AND NONHORMONAL ANTI- INFLAMMATORY AGENTS:	
Acetaminophen	MAL MON, PEN, SHD.
Aminobenzoic acid	WYK.
*Aspirin	DOW, MON, MOR, SD.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS:	
*ANALGESICS, ANTIPIRETTICS, AND NONHORMONAL ANTI-INFLAMMATORY AGENTS--CONTINUED	
Aurothioglucose	SCH.
Choline magnesium salicylate	LEM.
Diflunisal	MEK.
Fenoprofen	LIL.
Ibuprofen	TAA.
Indomethacin	HRK.
Isoxicam	PD.
Meclofenamate, sodium	PD.
Meclofenamic acid	PD.
Mefenamic acid	PD.
Meperidine hydrochloride	PEN, SDW, WYT.
Methadone hydrochloride	MAL.
Morphine sulfate	MAL, PEN.
Oxycodone hydrochloride	DUF, MAL, PEN.
Oxyphenbutazone	GCY.
Pentazocine	SD.
Pentazocine hydrochloride	SD.
Piroxicam	PFZ.
Potassium aminobenzoate	GAN.
Potassium salicylate	KLM.
Propoxyphene hydrochloride	GAN, LIL.
Propoxyphene napsylate	GAN, LIL.
Salasate	WTK.
Sodium aminobenzoate	GAN.
Sodium salicylate	KLM.
Sulindac	HRK.
Analgesics and antipiretics, other than salicylates, all other	SCH, X.
*ANTICONVULSANTS, HYPNOTICS, AND SEQUATIVES:	
ANTICONVULSANTS (EXCEPT BARBITURATES):	
Aminoglutethimide	GCY.
Ethosuximide	PD.
Ethotoin	ABB.
Phenytoin	PD.
Phenytoin, sodium	PD.
Valproic acid	ABB.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*ANTICONVULSANTS, HYPNOTICS, AND SEDATIVES:	
BARBITURATES:	
Amobarbital-----	GAN.
Amobarbital, sodium-----	GAN.
Butabarbital-----	GAN.
Butabarbital, sodium-----	ABB, GAN.
Butalbital-----	GAN.
Pentobarbital-----	GAN.
Pentobarbital, sodium-----	ABB, GAN.
Phenobarbital-----	GAN.
Phenobarbital, sodium-----	GAN.
Secobarbital, sodium-----	GAN.
Telbutal-----	GAN.
Thiamylal, sodium-----	ABB, PD.
Thiopental, sodium-----	ABB.
Alprazolam-----	UPJ.
Echthorvynol-----	ABB.
Glutethimide-----	CGY, GAN.
*ANTIDEPRESSANTS:	
Amiripryline-----	MEK.
Amiripryline hydrochloride-----	GAN, MEK.
Doxepin hydrochloride-----	PFZ, SK.
Fluoxetine hydrochloride-----	LIL.
Imipramine hydrochloride-----	CGY.
Maprotiline hydrochloride-----	CGY.
Nortriptyline hydrochloride-----	LIL.
*ANTIULSIVES:	
Benzonatate-----	CGY.
Carbamphen edisylate-----	SK.
Codeine-----	MAL, MEK, PEN.
Dextromethorphan hydrobromide-----	AND, HOF.
Hydrocodone bitartrate-----	MAL.
Noscopine-----	MAL, PEN.
Thebaine-----	MAL, PEN.
*TRANQUILLIZERS:	
PHENOTHIAZINE DERIVATIVES:	
Chlorpromazine hydrochloride-----	SK.
Fluphenazine hydrochloride-----	TRD.
Perphenazine-----	SCH.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*TRANQUILIZERS:	
PHENOTHAZINE DERIVATIVES--CONTINUED	
Prochlorperazine edisylate	SK.
Prochlorperazine maleate	SK.
Promazine hydrochloride	WTF.
Promethazine hydrochloride	WTF.
Trifluoperazine	SK.
Trifluoperazine hydrochloride	SK.
OTHER TRANQUILIZERS:	
Clorazepate dipotassium	ABB.
Hydroxyzine pamoate	LEM, PFZ.
Meprobramate	ABB.
Molindone hydrochloride	PD.
Oxazepam	WTF.
Prazepam	NEP.
Thiothixene hydrochloride	PFZ.
Triazolam	UPJ.
*OTHER CENTRAL DEPRESSANTS AND STIMULANTS:	
AMPHETAMINES:	
Amphetamine	ARN.
Amphetamine sulfate	ARN.
Dextroamphetamine	ARN.
Dextroamphetamine sulfate	ARN, SK.
Methamphetamine	ARN.
Methamphetamine hydrochloride	ARN.
GENERAL ANESTHETICS:	
Enflurane	OH.
Isoflurane	OH.
Ketamine hydrochloride	PD.
RESPIRATORY AND CEREBRAL STIMULANTS:	
CAFFEINE (NATURAL AND SYNTHETIC):	
Caffeine, natural	GFR, GMF.
Caffeine, synthetic	PFZ.
OTHER RESPIRATORY AND CEREBRAL STIMULANTS:	
Benzphetamine hydrochloride	UPJ.
Diethylpropion hydrochloride	BKC, GAN.
Doxapram hydrochloride	LLI.
Methylphenidate hydrochloride	CCY.
Nikethamide	CCY.
Phendimetrazine tartrate	GAN.
Pentetamine	GAN, HEX, SMD.
Pentetamine hydrochloride	GAN, HEX, SMD.



TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
SKELETAL MUSCLE RELAXANTS:	
Chlorphenesin carbamate	UPJ.
Cyclobenzaprine hydrochloride	MRK.
Methocarbamol	LLI.
Orphenadrine citrate	RIK.
Succinylcholine chloride	ABB, BUR.
DERMATOLOGICAL AGENTS:	
Aluminum phenolsulfonate	SAL.
Ammonium phenolsulfonate	SAL.
Salicylic acid	DOM, KLM, MON.
Zinc phenolsulfonate	MAL, SAL.
*EFFECTORANTS AND HICOLYTIC AGENTS:	
Ethylenediamine dithyroidide	AJY, DFW, MAG, WHL.
Guafenesin	LLI.
Iodinated glycerol	X.
*GASTROINTESTINAL AGENTS AND THERAPEUTIC NUTRIENTS:	
GASTROINTESTINAL AGENTS:	
CHOLINE CHLORIDE (ALL GRADES):	
*Choline chloride (animal feed grade)	CHO, HFT, IMC, NUT, THH.
Choline chloride (medicinal grade)	HFT.
OTHER GASTROINTESTINAL AGENTS:	
Betaine hydrochloride	HFT.
Calcium polycarbophil	LLI.
Choleretics and hydrocholeretics, all other	UPJ.
Choline bicarbonate	HFT, IMC.
Choline bitartrate	HFT.
Choline dihydrogen citrate	HFT.
Cimetidine	SK.
Cimetidine hydrochloride	SK.
Colestipol hydrochloride	UPJ.
Dextrothyroxine, sodium	BAX.
Dihydroxyaluminum aminoacetate	GHT.
Diphenoxylate	MAL.
Docusate, calcium	ACY.
Docusate, potassium	ACY.
Docusate, sodium	ACY, MAL.
Gemfibrozil	PD.
Phenolphthalein	SCH.
Sitosterols	UPJ.

TABLE 2. --MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*GASTROINTESTINAL AGENTS AND THERAPEUTIC NUTRIENTS:	
THERAPEUTIC NUTRIENTS:	
Calcium gluceptate-----	PFZ.
Copper gluconate-----	PFZ.
Magnesium gluconate-----	PFZ.
Manganese gluconate-----	PFZ.
Potassium gluconate-----	PFZ.
Zinc gluconate-----	PFZ.
Therapeutic nutrients, all other-----	LEM.
HORMONES AND SYNTHETIC SUBSTITUTES:	
ANABOLIC AGENTS AND ANDROGENS:	
Fluoxymesterone-----	UPJ.
Methyltestosterone-----	UPJ.
Stanozolol-----	SB.
Testosterone-----	UPJ.
Testosterone cypionate-----	UPJ.
Testosterone enanthate-----	UPJ.
Testosterone propionate-----	UPJ.
Zeranol-----	IMC.
Anabolic agents and androgens, all other-----	X.
CORTICOSTEROIDS:	
Acromethasone-----	SGH.
Betamethasone-----	SGH.
Betamethasone dipropionate-----	SGH.
Betamethasone sodium phosphate-----	SGH.
Betamethasone valerate-----	SGH.
Cortisone acetate-----	UPJ.
Dexamethasone-----	MRK, SGH, UPJ.
Dexamethasone acetate-----	MRK.
Dexamethasone sodium phosphate-----	MRK.
Diflorasone diacetate-----	UPJ.
Fludrocortisone acetate-----	UPJ.
Fluoromethalone-----	UPJ.
Halcinonide-----	TRD.
Hydrocortisone-----	UPJ.
Hydrocortisone acetate-----	UPJ.
Medrysone-----	UPJ.
Meprednisone-----	UPJ.
Meprednisone acetate-----	UPJ.
Methylprednisolone-----	ABB, UPJ.
Prednisolone-----	UPJ.
Prednisolone acetate-----	UPJ.
Prednisone-----	UPJ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
HORMONES AND SYNTHETIC SUBSTITUTES--CONTINUED	
CORTICOSTEROIDS--CONTINUED	
Triamcinolone	TRD, X.
Triamcinolone acetonide	TRD, UPJ.
Triamcinolone diacetate	TRD, UPJ.
Corticosteroids, all other	X.
ESTROGENS AND PROGESTOGENS:	
ESTROGENS:	
Dieneestrol	X.
Estradiol cypionate	UPJ.
Estrogens, conjugated	ORG.
Estrogens, esterified	ORG.
Estrone	SEL.
Estrogens, all other	ORG, X.
PROGESTOGENS:	
Alprostadiol	UPJ.
Carboprost tromethamine	UPJ.
Dinoprostone tromethamine	UPJ.
Hydroxyprogesterone caproate	UPJ.
Medroxyprogesterone acetate	SEL, UPJ.
Megestrol acetate	UPJ.
Melengestrol acetate	UPJ.
Progesterone	UPJ.
SYNTHETIC HYPOGLYCEMIC AGENTS:	
Acetohexamide	LIL.
Chlorpropamide	FFZ.
Tolazamide	UPJ.
Tolbutamide	UPJ.
Synthetic hypoglycemic agents, all other	X.
THYROID HORMONE AND ANTITHYROID AGENTS:	
Levothyroxine, sodium	BAX.
Methimazole	LIL.
Thyroglobulin	NEP.
Thyroid	ARP.
OTHER HORMONES AND SYNTHETIC SUBSTITUTES:	
Calcitonin	ARP.
Corticotropin	ARP, ORG.
Danazol	SD.
Dinoprost tromethamine	UPJ.
Glucagon	LIL.
Gonadorelin	BIB.
Insulin	LIL.

TABLE 2. --MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>*LOCAL ANESTHETICS:</b>	
Benzocaine-----	WYK.
Butamben-----	ABB.
Diibucaine-----	CGY.
Lidocaine hydrochloride-----	CGY.
Lidocaine-----	LEM, SDM, WYK.
Lidocaine hydrochloride-----	LEM, WYK.
Mepivacaine hydrochloride-----	LEM.
Pramoxine hydrochloride-----	LEM.
Prilocaine hydrochloride-----	ABB.
Prilocaine hydrochloride-----	WYK.
<b>*RENAL-ACTING AND EDEMA-REDUCING AGENTS:</b>	
<b>BENZOTHIADIAZINE DERIVATIVES:</b>	
Benzthiazide-----	PFZ.
Chlorothiazide-----	MRK.
Hydrochlorothiazide-----	MRK, CGY, MRK, SK.
Methylothiazide-----	ABB.
Trichlormethiazide-----	ABB.
<b>OTHER RENAL-ACTING AND EDEMA-REDUCING AGENTS:</b>	
Acetazolamide-----	ACV.
Amiloride hydrochloride-----	MRK.
Canrenoate, potassium-----	MRK.
Dichlorphenamide-----	MRK.
Ethacrynic acid-----	MRK.
Probrenacid-----	MRK, SAL.
Spironolactone-----	SEL.
Sulfapyrazone-----	CGY.
Triamterene-----	SK.
<b>*SMOOTH MUSCLE RELAXANTS:</b>	
Atracurium besylate-----	BUR.
Flavoxate hydrochloride-----	SK.
Oxtriphylline-----	MEP, PD.
Papaverine hydrochloride-----	FER.
meopphylline sodium glycinate-----	CHI.
<b>*VITAMINS:</b>	
<b>VITAMIN A:</b>	
Beta carotene (provitamin A)-----	HOF.
Tretinoin (vitamin A acid)-----	EK.
Vitamin A acetate (animal feed grade)-----	BAS, HOF.
Vitamin A acetate (medicinal grade)-----	HOF.
Vitamin A alcohol-----	HOF.
Vitamin A palmitate (medicinal grade)-----	HOF.
Vitamin A propionate-----	HOF.
Vitamin A, all other-----	EK.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*VITAMINS--CONTINUED	
VITAMIN B--COMPLEX:	
NIACIN AND DERIVATIVES:	
Niacin (animal feed grade)-----	NEP.
Niacin (medicinal grade)-----	NEP.
Niacinamide (medicinal grade)-----	NEP, RIL.
Niacinamide (animal feed grade)-----	RIL.
PANTOTHENIC ACID DERIVATIVES:	
Dexpantchenol-----	HOF.
Pantchenol-----	HOF.
OTHER B--COMPLEX VITAMINS:	
Biotin-----	HOF.
Cyanocobalamin (animal feed grade)-----	MRK.
Cyanocobalamin (U.S.P. crystalline)-----	MRK.
Pyridoxine-----	HOF.
Riboflavin (animal feed grade)-----	MRK.
Riboflavin (medicinal grade)-----	HOF, MRK.
Thiamine hydrochloride-----	HOF.
Thiamine mononitrate-----	HOF.
VITAMIN C:	
Ascorbic acid-----	HOF.
Calcium ascorbate-----	HOF.
Sodium ascorbate-----	HOF.
VITAMIN D:	
Cholecalciferol (vitamin D)-----	VTH.
Ergocalciferol (vitamin D)-----	VTH.
*VITAMIN E:	
DL-ALPHA TOCOPHERYL ACETATE (ALL GRADES):	
dl- $\alpha$ Tocopheryl acetate (animal feed grade)-----	BAS, HOF.
dl- $\alpha$ Tocopheryl acetate (medicinal grade)-----	BAS, HOF.
OTHER VITAMIN E:	
d- $\alpha$ Tocopherol-----	EKT, SCP.
dl- $\alpha$ Tocopherol-----	HOF.
d- $\alpha$ Tocopheryl acetate-----	EKT, SCP.
d- $\alpha$ Tocopheryl acid succinate-----	EKT, SCP.
VITAMIN K:	
MENADIOLONE SODIUM BISULFITE:	
Menadione sodium bisulfite (anhydrous)-----	ABB.
Menadione sodium bisulfite (trihydrate)-----	HET.
*MISCELLANEOUS MEDICINAL CHEMICALS:	
ANTINEOPLASTIC AGENTS:	
Azathioprine-----	BUR.
Cytarabine-----	UPJ.



TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*MISCELLANEOUS MEDICINAL CHEMICALS--CONTINUED	
AMTNEOPLASTIC AGENTS--CONTINUED	
Hercaptopurine-----	BUR.
Methotrexate-----	BRS.
Thioguanine (hemihydrate)-----	BUR, LIL.
Vinblastine sulfate-----	BUR.
Vincristine sulfate-----	LIL.
Vincineoplastic agents, all other-----	SCH.
CARDIOVASCULAR AGENTS:	
ANTIHYPERTENSIVE AGENTS:	
Captopril-----	TRD.
Diazoxide-----	SCH.
Guanabenz-----	SCH.
Guanethidine sulfate-----	CGY.
Hydralazine hydrochloride-----	CGY.
Methyldopa-----	HEK.
Metoprolol tartrate-----	CGY.
Minoxidil-----	UPJ.
Nadolol-----	TRD.
Enalapril maleate-----	HEK.
VASODILATORS:	
Amyl nitrite-----	BUR, FKE.
Plicamide acetate-----	RIK.
Nifedipine-----	PEZ.
Vasodilators, all other-----	LIL.
OTHER CARDIOVASCULAR AGENTS:	
Accasinide-----	PD.
Digoxin-----	BUR.
Disopyramide phosphate-----	SEL.
Procainamide hydrochloride-----	PD, WYK.
Tocainide-----	HEK.
DIAGNOSTIC AGENTS:	
ROENTGENOGRAPHIC CONTRAST MEDIA:	
Diatrizoate, meglumine-----	SDW.
Diatrizoate, sodium-----	SDW.
Iopanoic acid-----	SDW.
Iothalamate, meglumine-----	MAL.
Tyropionate, sodium-----	SDW.
Roentgenographic contrast media, all other-----	
OTHER DIAGNOSTIC AGENTS:	
Albumin-----	SPR.
Ammoniumpurpic acid-----	SPR.
Glutamy-p-nitroaniline (liver function test)-----	REC.
Indocyanine green-----	HYN.
Metyrapone-----	CGY.
Phenoisulfomphthalein-----	HYN.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*MISCELLANEOUS MEDICINAL CHEMICALS--CONTINUED	
HEMATOLOGICAL AGENTS:	
ANTICOAGULANTS:	
Ammonium heparin-----	RIK, SPR.
Anisidione-----	SCH.
Benzalkonium heparin-----	RIK.
Lithium heparin-----	RIK, SPR.
Potassium warfarin-----	X.
Sodium heparin-----	SPR.
Warfarin-----	SDM.
OTHER HEMATOLOGICAL AGENTS:	
Cellulose, oxidized-----	EKT.
Dextran-----	PHR.
UNCLASSIFIED MEDICINAL CHEMICALS:	
Allopurinol-----	BUR.
Carbidopa-----	HCK.
Etidronate, disodium-----	NOR.
Levodopa-----	HON.
Medicinal chemicals, all other-----	BIB.

TABLE 3.--MEDICINAL CHEMICALS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of medicinal chemicals to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
:	:	:	:
:	:	:	:
ABB :	Abbott Laboratories	MAL :	Mallinckrodt, Inc.
ACY :	American Cyanamid Co.	MHI :	Morton-Thickol, Inc., Ventron Div.
ADC :	Anderson Development Co.	MON :	Monsanto Co.
AJY :	Ajay Chemicals, Inc.	MRK :	Merck & Co., Inc.
AMD :	Cyclo Products, Inc.	:	:
ARA :	Syntex Chemicals, Inc.	NEP :	Nepera, Inc.
ARN :	Arenol Chemical Corp.	NES :	Ruetgers-Nease Chemical Co.
ARP :	Armour Pharmaceutical Co.	NOR :	Norwich Eaton Pharmaceutical, Inc.
ARS :	Arzynco, Inc.	NUT :	Nutrius, Inc.
:	:	:	:
:	:	:	:
BAS :	BASF Corp.	OH :	Anaquest
BAX :	Baxter Travenol Laboratories, Inc.	ORG :	Organics/LaGrange, Inc.
BEE :	Beecham, Inc.	ORT :	Roehr Chemicals, Inc., Div. of Aceto Corp.
:	Beecham Laboratories Div.	:	:
:	Beecham Western Hemisphere Inc.	PD :	Parke-Davis Div. of Warner-Lambert Co.
BIB :	Beckman Instruments, Inc., Spinco Div.	PEN :	CPC International, Inc., Penick Corp.
BKC :	J. T. Baker Chemical Co.	PFN :	Pfanstiehl Laboratories, Inc.
BOC :	Biocraft Laboratories, Inc.	PFZ :	Pfizer, Inc. & Pfizer Pharmaceuticals, Inc.
BRS :	Bristol-Myers Co.	PHR :	Pharmachem Corp.
BUR :	Burroughs Wellcome Co.	:	:
:	:	REG :	Regis Chemical Co.
:	:	RIK :	Riker Laboratories, Inc. Sub of 3M Co.
CGY :	Ciba-Geigy Corp.	RIL :	Reilly Tar & Chemical Corp.
CHT :	Chattem, Inc.	RSA :	R.S.A. Corp.
CPR :	Certified Processing Corp.	:	:
:	:	:	:
DAN :	Dan River, Inc., Chemical Products Div.	SAL :	Salsbury Laboratories, Inc.
DOW :	Dow Chemical Co.	SCH :	The Schering Corp.
DPW :	Deepwater, Inc.	SCP :	Henkel Corp.
DUP :	E. I. duPont de Nemours & Co., Inc.	SD :	Sterling Drug, Inc.:
:	:	SD :	Sterling Pharmaceuticals, Inc.
EX :	Eastman Kodak Co.:	SDW :	Sterling Organics Div.
EKT :	Tennessee Eastman Co. Div.	SFS :	Stauffer Chemical Co., Specialty Group
:	:	SK :	SmithKline Beckman Corp., SmithKline Chemicals Div.
FRE :	Frank Enterprises, Inc.	:	:
FLM :	Fleming Laboratories, Inc.	SPR :	Scientific Protein Laboratories
:	:	SRL :	G.D. Searle & Co.
:	:	:	:
GAF :	GAF Corp., Chemical Group	:	:
GAN :	Cane's Chemicals, Inc.	TMH :	Thompson-Hayward Chemical Co.
GMF :	General Foods Manufacturing Corp., Maxwell House Coffee Div.	TNA :	Ethyl Corp.
:	:	TRD :	Squibb Manufacturing, Inc.
:	:	TX :	Texaco, Inc., Texaco Chemical Co.
HET :	Heterochemical Corp.	:	:
HEX :	Hexagon Laboratories, Inc.	UCC :	Union Carbide Corp.
HFT :	Syntex Agribusiness, Inc., Nutrition & Chemical Div.	UPJ :	Upjohn Co.
:	:	:	:
HOF :	Hoffmann-LaRoche, Inc.	VTM :	Vitamins, Inc.
HXL :	Hexcel Corp., Hexcel Chemical Products	:	:
HYN :	Hynson, Westcott & Dunning, Inc.	WAC :	West Design-Chemical, Inc.
:	:	WHL :	Whitmoyer Laboratories, Inc.
IMC :	International Minerals & Chemical Corp.	WTK :	Whittaker Corp., Heico Chemicals Div.
:	:	WTL :	Pennwalt Corp., Lucidol Div.
:	:	WYK :	Wyckoff Chemical Co., Inc.
KAN :	Kanasco, LTD	WYT :	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
KLM :	Kalama Chemical, Inc.	:	:
KPT :	Koppers Co., Inc.	:	:
:	:	:	:
:	:	:	:
LEM :	Napp Chemicals, Inc.	:	:
LIL :	Eli Lilly & Co., U.S. and Puerto Rico	:	:
LLI :	Lee Laboratories, Inc.	:	:
:	:	:	:
:	:	:	:

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION VII -- FLAVOR AND PERFUME MATERIALS

**STATISTICAL HIGHLIGHTS**

**Eric Land**

202-523-0491

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.

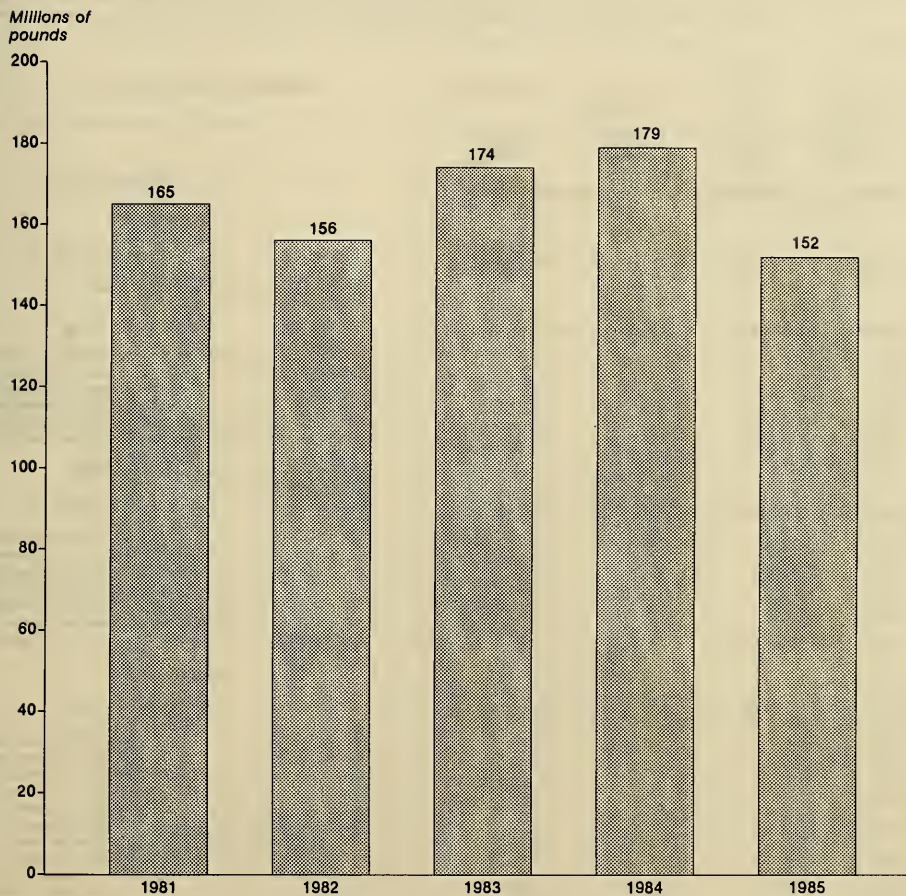
Total domestic production of flavor and perfume materials in 1985 amounted to 151.9 million pounds. Sales of these materials in 1985 amounted to 86.1 million pounds, valued at \$586.6 million, compared with 114.7 million pounds, valued at \$636.8 million, in 1984. U.S. production of flavor and perfume materials in 1985 decreased by 15.0 percent from the level in 1984 while the quantity of sales decreased by 25.0 percent, primarily owing to declines in production and sales of two major chemicals in this section, monosodium glutamate and saccharin.

Production of cyclic flavor and perfume materials in 1985 amounted to 101.2 million pounds; sales amounted to 70.5 million pounds, valued at \$546.9 million. Individual publishable chemicals in the cyclic group produced in the greatest volume in 1985 were anethole, q-methylionone, and eugenol.

U.S. output of acyclic flavor and perfume materials in 1985 amounted to 50.7 million pounds; sales of these materials amounted to 15.6 million pounds, valued at \$39.6 million. Monosodium glutamate, formerly the most important of the acyclic chemicals was no longer produced domestically.



Figure 1.—Flavor and perfume chemicals.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.





TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1985

[Listed below are all synthetic organic flavor and perfume materials for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.] Table 2 lists all flavor and perfume materials for which data on production and/or sales were reported and identifies the manufacturers of each]

FLAVOR AND PERFUME MATERIALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
		1,000 pounds	1,000 dollars	Per pound
Grand total-----	151,871	86,075	586,560	\$6.81
CYCLIC				
Total-----	101,217	70,464	546,937	7.76
Benzenoid and Naphthalenoid				
Total-----	86,835	60,151	502,466	8.35
4-Allyl-2-methoxyphenol (Eugenol)-----	292	231	775	3.35
Phenethyl isobutyrate-----	10	...	...	...
2-Phenethyl phenylacetate-----	32	20	117	5.87
Phenylacetaldehyde, dimethyl acetal-----	107	108	461	4.27
p-Propenylanisole (Anethole)-----	2,695	2,302	5,649	2.45
All other benzenoid and naphthalenoid materials-----	83,699	57,490	495,464	8.62
Terpenoid, Metaracyclic, and Acyclic				
Total-----	14,382	10,313	44,471	4.31
Cedryl acetate-----	197	125	668	5.34
Ionones-----	89	111	948	8.55
γ-Methylionone-----	651	468	3,020	6.45
α-Terpinyl acetate-----	1,231	...	...	...
Vetivenyl acetate-----	28	13	643	48.94
All other terpenoid, heterocyclic, and alicyclic materials-----	12,186	9,596	39,192	4.08
ACYCLIC				
Total-----	50,654	15,611	39,623	2.54
Allyl hexanoate-----	23	42	149	3.58
Citronellyl formate-----	21	16	138	8.78
3,7-Dimethyl-cis-2,6-octadien-1-ol acetate (Neryl acetate)-----	22	19	95	4.88
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate)-----	17	5	108	23.93
3,7-Dimethyloctanol-1 (Tetrahydrogeraniol)-----	368	...	...	...
3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	1,568	1,558	4,442	2.85
Ethyl hexanoate-----	...	8	38	4.65
Geranyl acetate-----	130	98	435	4.42
Geranyl formate-----	...	9	68	7.77
2-Hexenal-----	...	3	54	18.03
cis-3-Hexen-1-yl acetate-----	4	...	...	...
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)-----	249	...	...	...
Isopentyl butyrate-----	...	81	167	2.06
1,3-Nonanediol acetate-----	90	67	362	5.42
N-Octyl acetate-----	3	...	...	...
All other acyclic materials-----	48,159	13,705	33,567	2.45

<sup>1</sup>Calculated from unrounded figures.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT.]

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC	
BENZENOID AND NAPHTHALENOID:	
2'-Acetonaphthone (8-Methyl naphthyl ketone)-----	GIV.
1-Acetoxy-2-sec-butyl-1-ethylcyclohexane-----	GIV, IFF.
P-Allylanisole-----	SCM, X.
Allyl anthranilate-----	RT(E).
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)-----	CI, X.
*4-Allyl-2-methoxyphenol (Eugenol)-----	BDS, CI, ELM, GIV, IFF, UNG.
4-Allyl-2-methoxyphenol acetate (Eugenol acetate)-----	CI.
$\alpha$ -Amyl cinnamic aldehyde-----	IFF.
Amyl cinnamyl acetate-----	IFF.
p-Anisyl alcohol-----	IFF.
p-Anisaldehyde-----	GIV, FB.
Anisyl acetate-----	ELN, GIV.
Anisyl butyrate-----	RT(E).
Aurantol-----	BDS.
Benzal acetone-----	FB.
Benzaldehyde glyceryl acetal-----	GIV.
Benzophenone-----	CWM, PD.
Benzyl acetate-----	GIV, MON.
Benzyl benzoate-----	MON, MRF.
Benzyl butyrate-----	ELN, FB.
Benzyl cinnamate-----	FB.
Benzyl formate-----	ELN.
Benzyl isobutyrate-----	ELN.
Benzyl isopentyl ether-----	GIV.
Benzyl isovalerate-----	ELN.
Benzyl laurate-----	GIV.
1-(Benzylloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether)-----	GIV.
Benzyl phenylacetate-----	ELN, GIV.
Benzyl propionate-----	ELN, IFF, FB.
Benzyl salicylate-----	FB, GIV, MON.
4-tert-Butyl-2',6'-dimethyl-3',5'- dinitroacetophenone (Musk Ketone)-----	GIV.
p-tert-Butyl- $\alpha$ -methylhydrocinnamaldehyde-----	GIV, RDA.

TABLE 2.—FLAVOR AND PERFUME MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985.—CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC.—CONTINUED	
BENZENOID AND NAPHTHALENOID.—CONTINUED	
1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzene (Musk tibetene)	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)	GIV.
Carvacrol	GIV.
Cineole (Eucalyptol)	NCI.
Cinnamaldehyde	CI, FB.
Cinnamyl acetate	ELN, FB.
Cinnamyl alcohol	FB.
Cinnamyl butyrate	FB.
Cinnamyl cinnamate	FB.
Cinnamyl nitrate	IFF.
Cinnamyl propionate	ELN.
Coumarin	RD.
Cumyl acetate	IFF.
Cumyl alcohol	IFF.
Cumyl formate	IFF.
trans-Decahydro- $\beta$ -naphthol	IFF.
trans-Decahydro- $\beta$ -naphthyl acetate	IFF.
2-4-Dibromo-6-nitro-m-cresyl methyl ether	GIV.
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrol)	FB.
3,7-Dimethyl-2,6-octadienyl phenylacetate (Geranyl phenylacetate)	GIV.
$\alpha$ , $\alpha$ -Dimethylphenethyl acetate	IFF.
$\alpha$ , $\alpha$ -Dimethylphenethyl alcohol	IFF.
Dimethyl phenylacetyl carbinol	IFF.
p-Ethoxybenzaldehyde	GIV.
2-Ethoxynaphthalene	GIV.
Ethyl anthranilate	FB.
Ethyl benzoate	ELN.
Ethyl cinnamate	ELN.
Ethyl- $\alpha$ , $\beta$ -epoxy- $\beta$ -methylhydrocinnamate	ELN.
2-Ethyl hexyl salicylate	ELN, FEL, MON.
Ethyl phenylacetate	ELN, GIV.
Ethyl salicylate	FB.
Geranyl benzoate	GIV.
Heliotropyl acetate	IFF.
$\alpha$ -Hexylcinnamaldehyde	CI, IFF.
Hexyl salicylate	IFF.
Hydratropaldehyde	CI, GIV.
Hydratropaldehyde, dimethyl acetal	GIV, IFF.
Hydrocinnamic acid	ELN.
Hydrocoumarin	ELN, GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
Hydroxycitronellal methyl anthranilate	GIV, IFF.
4-Hydroxy-3-ethoxybenzaldehyde (Ethylvanillin)	RDA.
4-Hydroxy-3-methoxybenzaldehyde (Vanillin)	MON.
4-(4-Hydroxy-3-methoxyphenyl)-2-butanone (Vanillyacetone)	GIV.
Isoamyl phenylacetate	ELN.
Isoamyl salicylate	IFF.
Isobutyl benzoate	ELN.
Isobutyl phenylacetate	ELN, FB.
Isobutylquinoline	IFF.
Isobutyl salicylate	FB.
Isobexenyl tetrahydrobenzaldehyde (Myrac aldehyde)	IFF.
Isopentyl benzoate	GIV.
P-Isopropyl- $\alpha$ -methylhydrocinamaldehyde (Cyclamen- aldehyde)	FB, MON.
d-Limonene	RDA.
1-Limonene	RY(E).
Linalyl anthranilate-Limonene	SCM.
p-Mentha-1,8-diene (Limonene)	BDS, FMT.
p-Methoxybenzyl alcohol (Anisyl alcohol)	IFF.
$\alpha$ -Methoxycinnamic aldehyde crystals	ELN, GIV.
2-Methoxynaphthalene	CI.
1-p-Methoxyphenyl penten-1-one-3 ( $\alpha$ -Methyl- anisylacetone)	GIV.
2-Methoxy-4-propenylphenol (Isoeugenol)	CI.
2-Methoxy-4-propenylphenol, acetate	ELN.
4-Methylacetophenone	CMN.
p-Methylanisole	GIV, PSG.
Methyl anthranilate	FB, PSG, UNG.
Methyl benzoate	KLM, MRF.
$\alpha$ -Methylbenzyl acetate (Styralyl acetate)	CI, IFF.
$\alpha$ -Methylcinnamaldehyde	CI, FB.
Methyl cinnamate	FB.
6-Methylcoumarin	GIV.
1,2-Methylenedioxy-4-propylene benzene (isoSafrole)	AMB.
p-Methylhydratropaldehyde	GIV.
1-Methyl-iso-hexyl-hexahydrobenzaldehyde	GIV.
Methyl N-methylanthranilate	AMB.
Methyl phenylacetate	ELN.



TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985.--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
3-Methyl-5-phenyl-1-pentanol	IFF.
Methyl salicylate	KLM, NON.
Musk 89	IFF.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan (Muskene)	GIV.
$\alpha$ -Pentylcinnamaldehyde	CI, FB.
Phenethyl acetate	BDS, FB, IFF.
Phenethyl benzozate	IFF.
Phenethyl formate	ELM, IFF.
*Phenethyl isobutyrate	ELM, GIV, IFF.
Phenethyl isovalerate	ELM, FB.
*2-Phenethyl phenylacetate	BDS, ELM, FB, GIV, IFF.
Phenethyl propionate	ELM.
Phenethyl salicylate	GIV.
2-Phenoxyethyl isobutyrate	ELM, FB.
Phenylacetaldehyde	GIV.
*Phenylacetaldehyde, dimethyl acetal	GIV.
Phenylacetic acid	CI, ELM, GIV.
Phenylacetic acid, isopentyl ester	GIV.
$\alpha$ -Phenylanisole	GIV.
Phenylethyl anthranilate	RT(E).
Phenylethyl 2-methyl butyrate	SCH.
Phenylethyl tiglate	FB.
3-Phenylpropyl acetate	ELM, GIV.
3-Phenylpropyl cinnamate	FB.
Piperonal (Heliotropin)	AMB.
*p-Propenylanisole (Anethole)	ARZ, FB, HPC, MCI, SCH.
4-Propenyl-1,2-dimethoxybenzene (Methyl isoeugenol)	CI.
p-Propylanisol (Dihydroanethole)	FB, GIV.
PSEUDOTERPENS, SYNTHETIC:	
Aspartame	NSW.
Cyclohexanesulfamic acid, calcium salt (Calcium cyclamate)	ABB.
Cyclohexanesulfamic acid, sodium salt (Sodium cyclamate)	ABB.
Saccharin (1,2-Benzisothiazolin-3-one, 1,1-dioxide)	PSG.
Saccharin, sodium salt	IFF.
Tetramethyl octahydro acetophenone	IFF.
Tetramethyl octahydro acetyl naphthalene	IFF.
Synthetic sweetener material, all other	NSW.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CYCLIC--CONTINUED</b>	
BENZENOID AND NAPHTHALENOID--CONTINUED	
p-Tolualdehyde.....	GIV.
p-Tolylacetaldehyde.....	GIV.
p-Tolylacetate.....	ELN.
p-Tolylisobutyrate.....	GIV, IFF.
p-Tolyl octanoate.....	IFF.
p-Tolylphenylacetate.....	GIV.
α-(Trichloromethyl)benzyl acetate (Rosetone).....	ARS.
Trimethylcyclohexyl diacetate.....	IFF.
Trimethylcyclohexyl salicylate.....	ARS.
All other benzenoid or naphthalenoid chemicals.....	IFF.
TERPENOID, HETEROCYCLIC, AND ALICYCLIC:	
4-Acetoxyethyl-4-nonenone.....	FB.
Acetyl-n-butyl (2,3-Hexanedione).....	FB.
Acetyl cedrene (Vertoflex).....	BDS.
Acetyl isovaleryl (5-Methyl-2,3-hexanedione).....	FB.
N-Acetyl methyl anthranilate.....	AMB.
Acetyl propionyl (2,3-Pentanedione).....	FB.
Allo-ocimene.....	GIV, IFF, SCH, X.
Allyl cyclohexyl propionate.....	GIV.
Amyl cyclohexyl acetate.....	IFF.
Amyl acetate.....	GIV.
Beta methyl ionone coeur.....	IFF.
2-tert-Butylcyclohexanol.....	IFF.
2-tert-Butylcyclohexanone.....	IFF.
2-sec-Butylcyclohexanone.....	GIV.
p-tert-Butylcyclohexyl acetate (Verbenilax).....	CI, IFF.
Cadinene.....	FB.
α-Campholenic aldehyde.....	SCH.
Carrenoate, potassium.....	IFF.
l-Carvone.....	SCH.
β-Caryophyllene.....	BDS, GIV, SCH.
Caryophyllene oxide.....	GIV.
β-Cedrene epoxide (Andrane).....	BDS, IFF.
Cedrenol.....	ELN, IFF.
Cedrol.....	ELN.
*Cedryl acetate.....	BDS, ELN, IFF.
Cedryl formate.....	IFF.
Cyclohexadecan-7-olide.....	IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED	
2-Cyclohexylcyclohexanone	GIV, IFF.
Cyclohexyl ethyl acetate	IFF.
Cyclohexyl methanol dimethyl acetate	FB.
p-Cymene	SCM.
Dihydro-iso-jasnone	FB.
Dihydronordicylopentadienyl acetate (Cyclacet)	BDS, CI, IFF.
Dihydronordicylopentadienyl propionate	BDS, CI.
(Cyclaprop) (Verdyl propionats extra)	IFF, SCM.
Dihydro terpineol	SCM, X.
Dihydroterpinyl acetate	IFF.
Dimethyl cyclohexane methanol	FB.
Dimethyl pseudo ionone	
Galaxolide (1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-	IFF, FB, GIV.
Hexamethyl-cyclopenta-γ-2-benzopyran)	
Guaiene	FB.
Hexadecanolide	IFF.
Hexahydro dimethyl methano-indenol	IFF.
2-Hexyl-2-cyclopenten-1-one	FB.
3-Hydroxy-2-ethyl-4-pyrone (Ethylmaltol)	PFZ.
4-(4-Hydroxy-4-methyl pentyl)-3-cyclohexene-10-	
carboxaldehyde (Lyral)	IFF.
3-Hydroxy-2-methyl-4-pyrone (Maltol)	PFZ.
4-Hydroxymonamic acid, γ-lactone (γ-Nonalactone)	ELN.
4-Hydroxymundecanoic acid, γ-lactone (γ-Undecalactone)	ELN.
Ionone (α- and β-)	BDS, GIV, NCI.
α-Ionone	BDS, GIV, HOF, IFF.
β-Ionone	HOF.
Isobornyl acetate	NCI, RDA.
Isobornyl methyl ether	SCM.
Isobornyl propionate	ELN.
Isocamphyl cyclohexanol	GIV.
Isomenthone	GIV.
2-Isopropylcyclohexanol	GIV.
Isopulegyl acetate	GIV.
p-Mentha-1,3-diene (α-Terpinene)	SCM.
p-Mentha-1,4-diene (γ-Terpinene)	SCM.
p-Mentha-6,8-dien-z-ol (Carveol)	FB.
p-Mentha-6,8-dian-z-one (Carvone, Carvol)	FB.

TABLE 2.--FLAVORS AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CYCLIC--CONTINUED</b>	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED	
1-p-Mentha-6,8-dien-2-yl acetate (Carvyl acetate)	FB.
p-Menth-8-en-3-ol (Isopulegol)	GIV.
p-Menth-1-en-3-one (Piperitone)	GIV.
p-Menth-4-(8)-en-3-one (Pulegone)	GIV.
1-1-p-Menthen-6-yl-1-propanone	GIV.
d-Menthol	HAR, SCH.
dl-Menthol, synthetic	GIV, HAR, NCI, SCH.
Menthyl acetate	FB, GIV, SCH.
1-Menthyl acetate	SCH.
Methylionone( $\alpha$ - and $\beta$ -)	GIV, IFF, NCI.
* $\gamma$ -Methylionone	BDS, GIV, NCI.
6-Methyl- $\alpha$ -ionone	BDS.
6-Methyl- $\beta$ -ionone	NCI.
Nopol	NCI.
Nopyl acetate	NCI.
Rose oxide	FB.
$\alpha$ -Santalol	GIV.
Sassafras oil, hydrogenated	GIV.
Terpinene-ol	SCH.
Terpineol ( $\alpha$ - and $\beta$ -)	HGC, NCI.
* $\alpha$ -Terpineol acetate	GIV, IFF, NCI, SCH.
$\alpha$ -terpinyl propionate	ELM.
3,3,5-trimethyl cyclohexanol (n-Homomenthol)	ARS.
Trimethyl cyclohexene carboxaldehyde	IFF.
Trimethyl cyclohexenyl butenone	IFF.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl- $\alpha$ -ionone)	IFF.
Trimethyl norbornane methanol	GIV.
Vetiveneol	IFF.
*Vetiveneol acetate	BDS.
All other terpenoid, heterocyclic, or alicyclic flavor and perfume chemicals	ELM, FB, GIV, IFF.
<b>ACYCLIC</b>	
Allyl disulfide	IFF.
Allyl heptanoate	ELM, FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*Allyl hexanoate	ELN, FB, UNG.
Allyl isovalerate	RT(E)
Allyl mercaptan	RT(E)
Allyl octanoate (Allyl caprylate)	RT(E)
Allyl sulfide	RT(E)
Amyl vinyl carbinyl acetate	IFF.
Butter acids	RT(E)
Butter esters	RT(E)
3-Secmo-propyl-amine hydrobromide	HFC.
Butyl butyryl lactate	ELN, RT(E)
Butyl undecylenate	FB, GIV.
Citral dimethyl acetal	GI, IFF.
Citronellal acid	HFC.
Citronellyl acetate	BDS, ELN, GIV, IFF, NCI.
Citronellyl butyrate	GIV.
Citronellyl ethyl ether	IFF.
*Citronellyl formate	BDS
Citronellyl isobutyrate	BDS, ELN, GIV, IFF.
Citronellyl propionate	ELN, GIV, IFF.
Crude acetate mixture (Linalyl, neryl, geranyl acetates, main components)	IFF.
Crude caryophyllene mixture (α,β, and γ isomers)	X.
Decanal (Capraldehyde)	NCI.
9-Decenyl acetate	GI, GIV.
Decyl acetate	IFF.
Diethyl acetal	GIV.
Diethyl isobutyridine malonate	FB.
Diethyl sebacate	HFC.
Diethyl succinate	ELN.
Dihexyl fumarate	MRF.
d-Dihydrocarveol	FB.
Dihydrocarvone	SCH.
Dihydrodrolinalool	SCH.
Dihydro myrcenol	IFF, SCH.
Dihydro pentamethyl indanone	IFF.
Dihydroterpinyl acetate	IFF.
1,1-Dimethoxy octane	IFF.
2,6-Dimethyl-5-hepten-1-ol	GIV.
Dimethyl hexamediol	X.



TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
2,5-Dimethyl-3-hexyne-2,5-diol	X
3,7-Dimethyl-trans-2,6-octadienal (Citral A, Geraniol)	BDS, FB
3,7-Dimethyl-2,6-octadienal (Citral B)	NCI, SCH
3,7-Dimethyl-cis-2,6-octadien-1-ol (Wero)	ELM, FB, GIV, IFF, NCI, SCH
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)	ELM, FEL, GIV, IFF, NCI, SCH
3,7-Dimethyl-1,6-octadien-3-ol (Linalool) (Linalyl alcohol)	ELM, FB, FEL, GIV, IFF, NCI, SCH
*3,7-Dimethyl-cis-2,6-octadienol, acetate (Weryl acetate)	ELM, GIV, IFF
3,7-Dimethyl-1,6-octadien-3-ol, acetate (Linalyl acetate)	ELM, FB, GIV, NCI, SCH(E)
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate)	ELN
*3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate)	ELM, FB, GIV
Dimethyloctanal	GIV, SCH
*3,7-Dimethyloctanol-1 (Tetrahydrogeraniol)	GIV, IFF, NCI, SCH
3,7-Dimethyl-3-octanol	GIV, SCH
Dimethyloctanyl acetate	FB, IFF
3,7-Dimethyl-6-octen-1-ol (Citronellal)	GIV, SCH
*3,7-Dimethyl-6-octen-1-ol (Citronellol)	ELM, FB, GIV, IFF, NCI, SCH
3,7-Dimethyl-7-octenol 70%, 6-octenol isomer 30%	GIV
Dimethyl succinate	FB
Dimyrcetol	IFF
Dioxolane-2-acetate	IFF
Dodecane nitrile	IFF
Ethylacetate	FB
Ethyl butyrate	ELN, FB, WM
Ethyl caprate	ELM, FB
Ethyl crotonate	RT(E)
Ethyl formate	FB
Ethyl heptanoate	ELM, FB, FEL
*Ethyl hexanoate	ELM, FB, WM
Ethyl isovalerate	ELM, FB
Ethyl laurate	ELM, FB
Ethyl-2-methyl butyrate	HFC, SCH
Ethyl-2-methyl pentanoate	HFC
Ethyl myristate	ELM, HFC
Ethyl nonanoate	ELM, FB

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Ethyl octanoate	ELN, FB.
Ethyl propionate	FB, NW.
Ethyl trimethyl cyclopentenyl butero-	IFF.
Ethyl valerate	ELN
*Geranyl acetate	BDS, ELM, FEL, GIV, HPC, IFF, NCI, NW, SCH.
Geranyl butyrate	ELM, FB, GIV.
Geranyl crotonate	FB.
Geranyl ethyl ether	IFF.
*Geranyl formate	BDS, ELM, GIV.
Geranyl isobutyrate	IFF.
Geranyl isovalerate	FB.
Geranyl and methyl tiglate	FMT.
Geranyl nitrite (Citralva)	CI, IFF.
Geranyl propionate	ELM, FB.
Geranyl tiglate	FB.
Glyceryl tripropionate	HPC.
Heptanamide	FB.
Hexanoic acid (Caproic acid)	SCM.
*2-Hexenal	FB, GIV, SCH.
2-Hexenol	FB, SCH.
*cis-3-Hexen-1-yl acetate	BDS, GIV, IFF.
cis-3-Hexenyl benzoate	BDS.
cis-3-Hexenyl butyrate	IFF, SCH.
cis-3-Hexenyl methyl carbonate	IFF.
cis-3-Hexenyl salicylate	BDS, IFF.
cis-3-Hexenyl tiglate	BDS.
Hexoxyacetaldehyde dimethyl acetal	FB.
Hexyl caproate	FB.
Hexyl 2-methylbutyrate	SCM.
Hydroxycitronellol	SCM.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	FB, GIV, IFF, SCH.
7-Hydroxy-3,7-dimethyl octanal dimethyl acetal (Hydroxycitronellal, dimethyl acetal)	GIV
Isobutyl acetate	FB, NW.
Isobutyl butyrate	FB.
Isodecyl neopentanoate	SEC.
Isononyl acetate	IFF.
Isopentyl acetate (Isoamyl acetate)	ELM, FB, HPC.
*isopentyl butyrate	FB, GIV, HPC, NW.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Isopentyl caproate	FB.
Isopentyl caprylate	FB.
Isopentyl formate	ELM, FB.
Isopentyl isovalerate	ELM, FB, HPC.
Isopentyl propionate	FB.
Laurealdehyde	GIV, SCH.
3-Methyl-2-butenyl acetate	IFF.
2-Methylbutyl isovalerate	SCM.
Methyl butynol	X.
Methyl crotonate	RT(E).
2-Methyl decanal	IFF.
Methyl hexyl ether	SCM.
Methyl isobutyrate	HPC.
Methyl isovalerate	FB.
Methyl-2-methyl butyrate	SCM.
3-Methyl-2-(and)nonene nitrile	GIV.
Methyl nonen-3-olate	HPC.
Methyl-octyl aldehyde	CI.
Methylol methyl hexyl ketone	GIV.
Methyl pentynol	X.
8-Methyl thiopropionaldehyde	RT(E).
Methyl thiobutyrate	STG.
2-Methylundecanal	CI, GIV.
2-Methyl undecanal dimethylacetal	CI.
Myrcenyl acetate	IFF.
Myristaldehyde	GIV, CI.
Nonanal	CI, GIV.
*1,3-Nonanediol acetate	ELM, GIV, IFF.
1,3-Nonanediol diacetate	SBG.
4-Nonene-4-carboxaldehyde	FB.
Nonyl acetate	IFF.
Nonylenic acid	HPC.
Octimene	IFF.
Octanal	GIV, IFF.
Octanal dimethylacetal	CI.
3-Octanone (Ethyl amyl ketone)	GIV.
*8-Octyl acetate	ELM, FB, SCH.
Octyl formate	FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Octyl isobutyrate-----	FB.
Octyl isovalerate-----	GIV.
Pseudo linalyl acetate (Neobergumate)-----	IFF.
Rhodinol-----	FB, FEL, GIV, IFF.
Rhodinyl acetate-----	IFF.
Tepyl acetate-----	ELN.
Tetrahydromyrcenol-----	SCM.
Trimethyl-cyclododeca-trienyl ethanone-----	IFF.
3,5-Trimethyl hexanal-----	IFF.
Undecanal-----	GIV.
9-Undecenal-----	CI, GIV.
Undecenal-10-----	IFF.
All other acyclic flavor and perfume materials-----	IFF.





TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of flavor and perfume materials to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

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.	MON :	Monsanto Co.
ARZ :	Arizona Chemical Co.	MRF :	Morflex Chemical Co., Inc.
BDS :	Biddle Sawyer Corp.	NGI :	Union Camp Corp., Terpene and Aromatics Div.
CI :	Chem-Fluer, Inc.	NSW :	Nutresweet Co.
CWN :	Upjohn Co., Fine Chemical Div.	NW :	Northwestern Chemical Co.
ELM :	Elan Chemical Co.	PD :	Parke-Davis, Div. of Warner-Lambert Co.
FB :	Fritzache Dodge & Olcott, Inc.	PFZ :	Pfizer, Inc.
FEL :	Felton International, Inc.	PSG :	PMC Specialities Group, Inc.
FMT :	Fairmount Chemical Co., Inc.	RDA :	Rhone-Poulenc, Inc.
GIV :	Givaudan Corp.	SBC :	Scher Chemicals, Inc.
HAR :	Haarmann & Reimer Corp.	SCM :	SCM Corp., Organic Chemicals Div.
HOF :	Hoffmann-LaRoche, Inc.	STG :	McCormick & Co., Inc. McCormick-Strange Div.
HPC :	Hercules, Inc.	UNG :	Ungerer & Co.

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION VIII -- PLASTICS AND RESIN MATERIALS

## STATISTICAL HIGHLIGHTS

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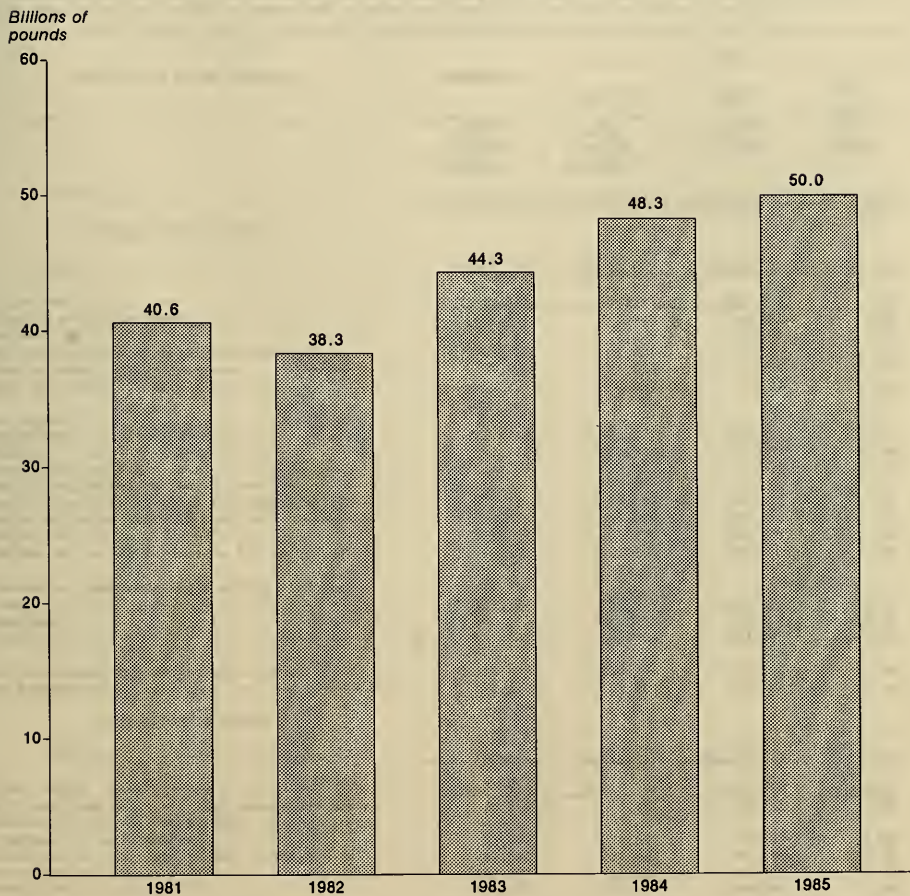
Plastics and resin materials are high molecular weight polymers which, at some stage in their manufacture, exist in such physical condition that they can be shaped or otherwise processed by the application of heat and pressure. The terms "plastics," "resin," and "polymers," can be (and often are) used 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 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 1985 are given in table 1. U.S. production of plastics and resin materials in 1985 totaled 49,998 million pounds, or 3.6 percent more than the 48,255 million pounds produced in 1984. From 1981-85, the production of plastics and resin materials increased irregularly from 40,601 million pounds in 1981 to 49,998 million pounds in 1985, or at an average, annual rate of growth of 5.3 percent (see figure 1). Sales in 1985 totaled 42,171 million pounds, valued at \$20,168 million, compared with 40,751 million pounds, valued at \$20,923 million, in 1984.

Thermosetting materials are those which harden with a change in composition in the final treatment so that in their final state as finished articles they are substantially infusible and insoluble; that is, they cannot again be softened by heat or solvents. U.S. production of thermosetting materials totaled 8,243 million pounds in 1985, compared with 7,997 million pounds in 1984. Production of the most important products in 1985 included phenolic (1,714 million pounds), amino (or urea and melamine) resins (1,624 million pounds), polyester resins, unsaturated (1,336 million pounds), and alkyd resins (830 million pounds).

Thermoplastic materials are those which in their final state as finished articles can be repeatedly softened by heat and hardened by a decrease in temperature. U.S. production of thermoplastic materials totaled 41,755 million pounds in 1985 (or 83.5 percent of the total plastics and resin materials output for 1985), compared with 40,257 million pounds in 1984. Production of the most important products in 1985 included polyethylene (15,799 million pounds), polypropylene (5,654 million pounds), vinyl resins (8,107 million pounds), and styrene type materials (7,229 million pounds).

Figure 1.—Plastics and resin materials.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.





TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1985

[Quantities and values are given in terms of the total weight of the materials (dry basis). Listed below are all plastics and resin materials, urethane type elastomers, and certain precursors for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all products for which data on production and/or sales were reported and identifies the manufacturers of each]

PLASTICS AND RESIN MATERIALS	PRODUCTION		SALES	
	QUANTITY	VALUE	UNIT	VALUE <sup>1</sup>
	1,000 pounds dry basis <sup>2</sup>	1,000 pounds dollars	1,000 Per pound	
Grand total-----	49,997,869	42,171,209	20,167,800	\$0.48
THERMOSETTING RESINS				
Total-----	8,242,728	6,448,642	3,889,722	.60
Alkyd resins, total-----	830,372	458,565	296,297	.65
Phthalic anhydride type-----	713,521	397,522	244,961	.62
Polybasic acid type-----	42,369	23,579	21,105	.90
Styrenated-alkyds or copolymer alkyds-----	15,617	6,495	5,380	.83
Vinyl toluene alkyds-----	25,661	25,492	17,549	.69
Other copolymer alkyds-----	33,204	5,477	7,302	1.33
Epoxy resins: <sup>3,4</sup>				
Unmodified-----	420,760	323,332	389,781	1.21
Advanced-----	(342,451)	(136,718)	(189,657)	(1.39)
Furfuryl type resins-----	23,307	23,116	17,997	.78
Glyoxal-formaldehyde resins-----	19,047	...	...	...
Melamine-formaldehyde resins (an amino resin)-----	208,316	177,354	154,623	.87
Phenolic and other tar acid resins-----	1,713,618	1,206,766	659,773	.55
Polyester resins, unsaturated <sup>5</sup> -----	1,336,107	1,261,775	797,107	.63
Polyether and polyester polyols for urethanes <sup>6</sup> -----	1,760,621	1,401,153	807,751	.58
Polyurethane elastomers and plastics products,				
total-----	339,718	230,954	373,572	1.62
Elastomers-----	180,863	148,550	269,107	1.81
Plastics-----	158,855	82,404	104,465	1.27
Urea-formaldehyde resins (an amino resin)-----	1,415,683	1,214,104	220,515	.18
Other thermosetting resins <sup>8</sup> -----	175,179	151,523	172,306	1.14
THERMOPLASTIC RESINS				
Total-----	41,755,141	35,722,567	16,278,078	.46
Acrylic resins, total <sup>9</sup> -----	1,427,113	1,015,106	1,061,514	1.05
Butyl acrylate-ethyl acrylate copolymers resins-----	78,862	63,851	52,769	.83
Homopolymer resins, except PMMA, of acrylic or methacrylic acid esters-----	97,045	24,572	30,743	1.25
Polymethyl methacrylate (PMMA) resins-----	482,612	336,887	358,136	1.05
Thermosetting acrylic resins-----	127,691	26,126	30,966	1.19
Other acrylic resins-----	640,903	563,670	588,900	1.04
Engineering plastics <sup>10</sup> -----	778,774	599,568	969,044	1.62
Petroleum hydrocarbons resins-----	254,437	223,143	109,130	.49
Polyamide resins, total-----	409,205	378,631	598,131	1.58
Nylon type <sup>10 11</sup> -----	346,475	316,884	527,292	1.66
Non-nylon type-----	62,730	61,747	70,839	1.15

See footnote at end of table.





## FOOTNOTES--CONTINUED

<sup>10</sup>Engineering plastics: Includes acetal, polycarbonate, polyimide and amide-imide polymers, 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.

<sup>11</sup>Statistics for nylon 6 and nylon 6/6 which are used in plastics applications (e.g., molding, etc.) are included here.

<sup>12</sup>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.

<sup>13</sup>Combines conventional low density polyethylene (LDPE) resins with linear low density polyethylene (LLDPE) resins, because several of the leading producers of LLDPE continue to aggregate these data with that of LDPE.

<sup>14</sup>Includes data for  $\alpha$ -methyl styrene polymers, p-methyl styrene polymers, styrene-allyl alcohol copolymer resins, styrene-divinylbenzene copolymer resins, styrene-maleic anhydride copolymers resins, styrene-methyl methacrylate copolymers resins, and other styrene type plastics material.

<sup>15</sup>Data are on the basis of dry resin content, excluding the weight of plasticizers, extenders, fillers coloring agents, stabilizers, or impact modifiers, unless otherwise noted.

<sup>16</sup>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.

<sup>17</sup>Production and sales do not include polyvinyl alcohol used as a reactive intermediates for polyvinyl butyral or other vinyl resins.

<sup>18</sup>Includes polyvinyl butyral, polyvinyl formal, polyvinylidene chloride (solid type), and other vinyl resins.

<sup>19</sup>Includes cellulose plastics, coumarone-indene resins, fluorocarbon resins (except PTFE), phenoxy resins, polybutylene type resins, polyphenyl aromatic ester resins, and 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.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS	
Acetone-formaldehyde resins	ACY, CEL, FLH, GP.
*ALKYD RESINS:	
Alkyd-acrylate copolymer resins	FRE, KMC, OBC, PFG, SCH.
Alkyd phenol	X.
*Phthalic anhydride type alkyd resins	ACO, ASH, AZS, BAL, ELC, BRU, CCC, CEI, CEL, CGI, CJO, CPV, DRC, DSO, DUP, EMP, EM, FJI, FMO, FOC, FRE, GAI, GEI, GRC, GRV, HAM, HJR, ICE, IOV, JOB, JSC, KMC, KMF, LIC, MCC, MID, MNP, NCP, NTL, OBC, PER, PPG, PRT, QCF, RCI, REL, SCH, SCN, SDH, SRY, SW, TMA, UNO, USS, VSP, X, X, X.
*Polybasic acid type alkyd resins	ACY, BEN, CJO, CPV, DSO, FOC, FRE, GAI, GEI, GRV, HAM, ICF, IOV, MCC, NTL, PFG, RCI, REL, SCH, SCN, SW.
*Styrenated-alkyds, or copolymer alkyds	ACY, BEN, CJO, CPV, DSO, EM, FRE, GEI, HAM, HJR, MNP, NRT, OBC, RUO, SCH, SW.
*Vinyl toluene alkyds	CGI, CPV, GSB, FJI, FRE, GEI, JOB, MCC, MNP, OBC, PFG, PRT, REL, SCH, SW.
Alkyd copolymers, all other	CGI, GEI, HJR, MCC, MNP, OBC, PFG, SW.
Dicyandiamida resins	APX, ECC, JSC, PFG, S, SNM, STC.
*AMINO RESINS:	
*Melamine-formaldehyde resins	ACY, ADC, AUC, BOR, CBD, CGL, CGL, CPV, DCO, DRC, GAI, GRS, JSC, LIC, MID, MNP, MOM, NCJ, NVH, PLS, PMC, PFG, PPL, PST, RCI, REL, SCH, SNM, STC, WFC, WRD, X.
Thiourea resins	OMP.
*Urea-formaldehyde resins	ACY, APX, AUX, BOR, CBD, CCC, CEL, CGL, CMP, CPV, DAN, DSO, GAF, GP, GRV, JSC, MMM, MNP, MOM, PKI, PFC, PFG, PPL, PST, REI, RCI, REL, SAC, SNM, SOR, VAL, VPC, X.
Amino resins, all other	X.
*EPOXY RESINS:	
*Epoxy, resins advanced	ASH, BEN, CEL, CGL, CJO, CMI, DSO, EMP, EM, FMO, GAI, GE, GRC, GRV, ICF, MCC, MID, MNP, MNP, OCF, PFG, RCI, SCH, SCM, SHO.

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT.]

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>THERMOSETTING RESINS--CONTINUED</b>	
EPOXY RESINS--Continued	
*Epoxy, resins unmodified-----	ADC, AZS, CEL, CGY, CLJ, CHF, DOW, DSO, JOB, PPG, PRT, RCI, SHC, UCC, WLN, X.
*Vinyl type resins-----	ACR, CEI, CLJ, DRB, HUG, NCP, UNO, WRD.
*Glyoxal-formaldehyde resins-----	AUK, RBT, RTC, SWW, WFG.
*Phenolic and other tar acid resins-----	ABS, ACR, ASH, BME, BOR, BSC, BTL, CBD, CEI, CLK, CPV, DRR, DSO, EM, GE, GEI, GP, GRG, HER, HGD, HFC, HVG, ICF, IML, IRL, KFT, LLI, MGA, MID, MMH, NCI, NCF, NTC, NYL, OBC, OCF, PAL, PKI, PLS, PFG, PFL, PSG, FSL, PYZ, RAB, RCI, RH, SPL, STC, SW, UCC, UNO, USR, VPC, VSV, WCA, WRD, X, X, X.
Polybutadiene resins-----	ATR, CCS, CMI, CRS, LG, SCH.
*POLYESTER RESINS, UNSATURATED, AND ALLYL RESINS:	
Allyl resins-----	DRC, FMC, GEI, MCG, PFG.
Diethyl isophthalate-----	FMC, GEI.
Polyester resins, unsaturated-----	ACS, ACY, ADC, APH, ASH, AZS, CGL, CJO, CPV, DRC, DSO, ENP, EM, FJI, FRE, GEI, GRG, ICF, ICI, IPC, KPT, MCG, MHT, OCF, PPG, RCI, SCH, SIC, SLG, SW, USS.
*Polyether and polyester polyols for urethanes-----	ARK, BAS, BMC, BPT, CEI, CHC, CJO, CPV, CXL, DOW, FRE, GRG, ICI, JOB, MCG, MMH, MOB, MHT, NCP, OCF, OMC, PLM, PFG, PPL, RCI, RUO, SHX, TX, UCC, UPJ, WH, WTC.
*POLYURETHANE ELASTOMER AND PLASTIC PRODUCTS:	
*Polyurethane elastomers-----	ACY, ADC, ARO, BFG, BFT, CAS, ONI, DCC, DOW, EEP, EPI, GRD, HXL, ICF, INF, MMH, MOB, MON, MRT, PPG, PKC, FYI, RUO, SBG, SLG, SHO, UPJ, USR.
*Polyurethane resins-----	AGO(E), ARO, CGL, DSO, DUF, ENP, EM, FRE, GEI, HYC, INF, LG, MCG, MID, MOB, OMC, PEL, PVI, QUN, RBT, RCI, SCH, SCM, SIF, SW, UPJ, USN, WTC.
Silicone resins-----	CJO, DCC, LIC, MCC, PEL, SCH, SPD,
Thioacetone-formaldehyde resins-----	ARK.
Thermosetting resins, benzenoid, all other-----	ACY, BAS, DSO, ENP, GRG, MCC, MID, REL, SCH, VAL, WLN, WFG, X.



TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>THERMOPLASTIC RESINS</b>	
<b>*ACRYLIC RESINS:</b>	
<b>COPOLYMER RESINS OF ACRYLIC AND/OR METHACRYLIC ACID</b>	
<b>RESINS:</b>	
*Butyl acrylate-ethyl acrylate copolymer resins-----	BFG, DSO, FLH, QBC, QUN, RH, SYT, UOC, VAL.
Butyl methacrylate-ethyl methacrylate copolymer resins-----	UOC, WTC.
Ethyl acrylate-----	DSO.
2-Ethylhexyl acrylate-methyl acrylate copolymer resins-----	DSO, SYT, UOC.
Lauryl methacrylate-stearyl methacrylate copolymer resins-----	HJR, TX.
Other copolymer resins of acrylic and/or methacrylic acid esters-----	ACO(E), AZS, BPT, DRB, DRC, DSO, GAF, ICF, JNS, JSC, MID, NSC, PPG, PET, FYI, RH, SCM, SCP, SYT, UCC, VAL, WTC.
<b>HOMOPOLYMER RESINS OF ACRYLIC AND/OR METHACRYLIC ACID RESINS:</b>	
*Homopolymer resins of acrylic or methacrylic acid esters, except PHMA-----	AZS, GPV, CYR, DA, DUP, GLC, GRV, ICF, FYI, PVI, RH, SAR, SA, UOC.
*Polymethyl methacrylate (PMMA)-----	CTP, CYR, DUP, ICF, IOC, JOB, MET, PKL, PPG, PTC, PVI, RH, SAR, SMW, SYT, USS, WTC.
Polyethyl methacrylate-----	TX.
*Thermosetting acrylate resins-----	ACY, CEL, CHP, GPV, DA, DSO, DUP, EPH, FMO, FRE, GAI, GRV, HAN, ICF, LIC, MCC, MID, PPG, SM.
<b>CELLULOSE PLASTICS AND RESINS:</b>	
Cellulose acetate-----	EKT.
Cellulose acetate butyrate-----	EKT.
Cellulose acetate propionate-----	EKT.
Ethyl cellulose-----	X.
Cellulose plastics, all other-----	DOM, DUP.
Coumarone-indene resins-----	HPC, NEV.
<b>*ENGINEERING PLASTICS:</b>	
Acetal resins-----	CEL, DRB, DUP, MCC, MNP, PPG, RAS, REL, WPG.
Polycarbonate resins-----	DOM, GE, GRG, HJR, MCC, MOB, PPG, SMW.
Polyamides and amide-imide polymers-----	AMO, DUP, EM, GE, GEL, GRG, PDI.
Polyphenylene oxide type resins-----	GE, REL.
Polypheylene sulfide resins-----	PLC.
Polysulfone resins-----	UCC.



TABLE 2. --PLASTICS AND RESIN MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1965--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>THERMOPLASTIC RESINS--CONTINUED</b>	
<b>FLUOROCARBON RESINS:</b>	
*Polytetrafluoroethylene (PTFE)	ACS, DUP, ICI.
*Polytetrafluoroethylene fluoride resin--PAS.	
*Fluorocarbon resins, all other--DUP.	
*Petroleum hydrocarbon resins--	CFX, CXI, EKK, ENJ, GYR, HPC, ICF, LLI, NEV, RCI, X.
Phenoxy (R) resin (other than for coating and adhesives)-----	UCC.
*POLYAMIDE RESINS:	
*Non-nylon type, polyamide resins-----	COO, EPH, EKR, ENJ, HYA, HYG, LLI, MON, NCI, PAC, S, SGP, SNW, USM.
*Nylon type, polyamide resins-----	ACS, AGI, BCM, CEL, CFR, DGO, DUP, GRG, MON, RSM, SGP, SKR, USM. : SHC.
Polybutylene type resins-----	
*POLYESTER RESINS, SATURATED:	
*Polybutylene terephthalate (PBT)-----	AGI, CEL, GAF, GE, USM.
*Polyethylene terephthalate (PET)-----	DUP, EK, EKT, GEI, GYR, HST, ICI, USH.
*Polyester resins, saturated, all other-----	AZS, BPT, COO, CFV, DUP, EKT, GAI, HYG, ICI, LLI, MNP, PPG, SCM, UCC.
*POLYETHYLENE AND COPOLYMERS RESINS:	
*Ethylene-acrylic acid resins (EAA)-----	DOM.
*Ethylene-vinyl acetate (EVA) copolymer resins-----	ENJ, NSC, USI.
*Other ethylene copolymer resins-----	EKT, EKK, PPG, SNW.
*Specific gravity 0.940 and below (Conventional low density)-----	
*Specific gravity 0.940 and below (Linear low density)---	ACS, DOM, DUP, EKK, ELP, ENJ, GOC, NWP, SM, SNW, UCC, USI, X.
*Specific gravity over 0.940-----	AZS, ENJ, MNP, PLC, SM, USI. ACS, AHO, DOM, DUP, ENJ, GOC, HST, NWP, PLC, SLT, USI.
Polyphenyl aromatic ester resins-----	HPC.
*Polypropylene polymer and copolymer resins-----	AMO, CSD, EKK, ELP, ENJ, GOC, HTM, MIL, MNP, PLC, SHC, SLT, USS.
*Polyterpene resins-----	ARZ, BLC, HPC, RCI, SCN.
*ROSIN MODIFICATIONS:	
*Modified rosin (Unesterified)-----	ARZ, GJO, HPC, MON, NCI, ORC, SYL.
*Modified rosin esters-----	AZS, EM, FJI, FEP, GRV, HPC, LLI, MCG, NCI, ORC, RCI, SCM, STC, SM, SYL, Y.
*Rosin esters, unmodified (Ester gums)-----	ARZ, ENP, FEP, HPC, LLI, NCI, PAT, RCI, SYL.
*STYRENE TYPE PLASTICS MATERIALS:	
*Acrylonitrile-butadiene-styrene (ABS) terpolymer resins-----	
p-Methyl styrene polymers-----	DOM, GRD, GYR, MCB, MON. : SH.

TABLE 2. --PLASTICS AND RESIN MATERIALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>THERMOPLASTIC RESINS--CONTINUED</b>	
<b>STYRENE TYPE PLASTICS MATERIALS--Continued</b>	
*Methyl styrene polymers	AMO.
*Styrene-acrylonitrile copolymer resins (SAN)	BFG, DOM, MCB, MON, RCI, SH.
<b>POLYSTYRENE:</b>	
*Expandable polystyrene beads	ATR, BAS, CSD, HST, TXS, VIT.
*Rubber modified polystyrene	API, CSD, DOM, DPI, HST, MON, PLR, SM.
*Straight polystyrene	AFP, AMO, API, ATR, CSD, DA, DOM, DPI, GAF. GOC, HGC, HST, KTP, MMM, MON, PLR, SM, TXS.
<b>STYRENE LATEXES:</b>	
*Styrene-butadiene latexes	DOM, GNT, GRD, GYR, PLR, PVI, UOC.
*Styrene latexes, all other	ADC, BFG, GNT, GRD, MCC, MON, PVI, UOC, UCC.
<b>*OTHER STYRENE COPOLYMERS:</b>	
*Methyl methacrylate-butadiene-styrene (MBS) resins	CFR, MRT, RH.
Styrene-allyl alcohol copolymer resins	RPC.
Styrene-divinylbenzene copolymer resins	RH.
Styrene-maleic anhydride copolymer resins	ATR, MON, PPG.
Styrene-methyl methacrylate copolymer resins	FLH, MCC, RGD.
Styrene copolymers, all other	ARZ, DOM, DSO, DUP, EMP, GYR, IOC, JNS, MON, PLC, PPG, RGD, X.
<b>*Styrene type plastics materials, all other</b>	
*VINYL RESINS:	JNS.
*Polyvinyl acetate resins	AIP, AZS, BOR, DAN, DSO, FJI, FLH, FLM, GLC, GRD, JOB, JSC, KHF, MNP, MON, NSC, PVI, RGI, SCH, SCO, SNW, UCC, UOC, X, X.
*Polyvinyl alcohol resins	AIP, AZS, DUP, MON.
Polyvinyl butyral resins	DUP, MON, UCC.
Polyvinyl formal resin	EA, GSG, MOK.
*Vinyl acetate-acrylate copolymers	AGO, AZS, DA, DSO, ELH, FLH, HJR, MCC, NCJ, NTC, OBC, PVI, SCH, SNW, SFC, UCC, UOC.
<b>*POLYVINYL CHLORIDE AND COPOLYMER RESINS:</b>	
Polyvinyl chloride copolymer resins, all other	BFG, CNL, HRP, HN.
Polyvinyl chloride homopolymer resins	AIP, BFG, BOR, CNT, FOR, GGC, HRP, HN, KYS, MIL, PNT, SHT, UCC, VST.
<b>Vinyl Chloride-acetate copolymer resins</b>	
<b>POLYVINYLIDENE CHLORIDE RESINS:</b>	
*Latex type polyvinylidene chloride resins	BFG, DOM, GRD, UOC.
Solid type polyvinylidene chloride resins	DOM.
*Vinyl resins, all other	DUP, NTC, RH, UCC.
*Thermoplastic resins, all other	DUP, LIL, MCC, MON, OBC, SW, UOC.

## VIII -- PLASTICS AND RESIN MATERIALS

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TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

(Names of manufacturers that reported production and/or sales of plastics and resin materials to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2)

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
ABS	Abex Corp., Friction Products Div.- U.S.	CSD	Fina Oil & Chemical Co., Cosden Chemical Div.
ACR	CPG International, Inc., Acme Resin Corp.	CTP	Continental Polymers, Inc.
ACO	Adco Chemical Co.	CTR	Custom Resins Div. of Bemis Co., Inc.
ACY	American Cynamid Co.	CYR	CYRO Industries
ADC	Anderson Development Co.	CXI	Chemical Exchange Industries, Inc.
AEP	A & E Plastics Corp.		
ACS	Allied Corp., Chemicals Sector	DA	Diamond Shamrock Corp., Chemicals Div.
AGI	EMS-American Grilon, Inc.	DAN	Dan River, Inc., Chemical Products Div.
AIP	Air Products & Chemicals, Inc.	DCC	Dow Corning Corp.
AMO	Amoco Corp.	DGO	Day-Glo Color Corp.
APH	Alpha Corporation of Tennessee	DNS	Dennis Chemical Co.
API	Asoma Polymers, Inc.	DOW	Dow Chemical Co.
APX	Apex Chemical Co., Inc.	DPI	Dart Polymers, Inc. Sub of Dart Container Corp.
ARK	Armstrong World Industries, Inc.		
ARO	Arnco	DRB	The Derby Co., Inc.
ARZ	Arizona Chemical Co.	DRC	Dock Resins Corp.
ASH	Ashland Oil, Inc.	DRR	Delta Resins & Refractories
ATR	Atlantic Richfield Co., Arco Chemical Co.	DSO	DeSoto, Inc.
AUX	Auralux Corp.	DUP	E. I. duPont de Nemours & Co., Inc.
AZS	AZS Corp., AZS Chemical Corp.		
		ECC	Eastern Color & Chemical Co.
BAL	Sherwin-Williams Co., Consumers Div.	EEP	Eaton Corp., Industrial Polymer Product Div.
BAS	BASF Corp.	EPH	E. F. Houghton & Co.
BCM	Belding Chemical Industries	EK	Eastman Kodak Co.:
BEN	Bennett's Paint Corp.	EKT	Tennessee Eastman Co. Div.
BFG	B. F. Goodrich Co.,:	EKK	Texas Eastman Co. Div.
	Ameripol SBR Div.	ELP	El Paso Products Co.
	B. F. Goodrich Chemical Group	EMR	Emery Chemicals Div. of National Distillers & Chemical Corp.
BLC	Ranbar Technology, Inc. Ball Chemical Co.	ENJ	Exxon Chemical Americas
BMC	Brin-Mont Chemicals, Inc.	ENP	Insilco Corp., Enterprise Companies Div.
BME	Allied Bendix Corp., Friction Materials Div.	EPI	Eagle Pitcher Industries, Ohio Rubber Co. Div.
BOR	Borden, Inc., Borden Chemical Div.	EW	Westinghouse Electric Corp., Insulating Materials Div.
BPT	Permethane Inc.		
BRU	M. A. Bruder & Sons, Inc.	FJI	Foy-Johnston, Inc.
BSC	Cascade Resins, Inc.	FLH	H. B. Fuller Co.
BTL	BTL OF Illinois, Inc.	FLN	Franklin International
		FMO	Ford Motor Co., Paint Plant
CAS	Caschem, Inc.	FMC	FMC Corp.
CBD	Chembond Corp.	FOG	Handschy Industries, Inc., Farac Varnishes & Chemicals
CCC	C.M.C. Chemical Corp.	FOR	Formosa Plastics Corp. - U.S.A.
CCS	Colorado Chemical Specialties, Inc.	FRE	Freeman Chemical Corp.
CEI	Combustion Engineering, Inc., C-E Cast Products	FRP	FRP Co.
CEL	Celanese Corp.:		
	Celanese Specialties	GAF	GAF Corp., Chemical Group
	Celanese Specialties Resins	GAI	Clasurit America, Inc.
CFX	Chemfax, Inc.	GE	General Electric Co.:
CGL	Cargill, Inc.	GEI	Insulating Materials
CGY	Ciba-Geigy Corp.	GGC	Georgia-Gulf Corp.,:
CHC	Carpenter Chemical Co.		PVC Compound Div.
CHP	C. H. Patrick & Co., Inc.		Plaquemine Div.
CJO	C. J. Osborn Chemicals, Inc.	GLC	General Latex & Chemical Corp.
CLK	Clark Oil & Refining Corp.	GNT	Diversitech General (Gencorp Co.)
CLU	CL Industries, Inc.	GOC	Chevron Chemical Corp.
CMP	Commercial Products Co., Inc.	GP	Georgia-Pacific Corp.:
CNI	Conap, Inc.		Resins Operations
CNT	Certainteed Corp.	GRD	W. R. Grace & Co., Polymers & Chemical Div.
COO	Terrell Corp.	GRG	P. D. George Co.
CPV	Cook Paint & Varnish Co.		
CRS	Colorado Resins, Inc.		

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1985--Continued

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
GRV :	Guardsman Chemicals, Inc.	NSC :	National Starch & Chemical Corp.
GYR :	Goodyear Tire & Rubber Co.	NTC :	National Casein Co.
HAN :	Hanna Chemical Coatings Corp.	NTL :	NL Industries, Inc., NL Chemicals Div
HER :	Heresite-Saekaphen, Inc.	NVM :	Nevamar Corp.
HGC :	Goodson Chemical Corp.	NWP :	Norchem, Inc.
HIM :	Himont U.S.A., Inc.	OBC :	O'Brien Corp.
OC :	Occidental Chemical Corp.:	OCF :	Owens-Corning Fiberglas Corp.
HJR :	Hugh J.--Resins Co., Inc.	OMC :	Olin Corp.
HKD :	Durez Div.	PAC :	Pacific Anchor Chemical Corp.
HKP :	PVC Div.	PAI :	Polymer Applications, Inc.
HN :	Tenneco Polymer, Inc.	PAS :	Pennwalt Corp.
HPC :	Hercules, Inc.	PDI :	Phelps Dodge Industries, Inc., Phelps Dodge
HST :	American Hoechst Corp.:	:	Magnet Wire Co. Div.
:	Hoechst Fiber Industries Div.	PEL :	Pelron Corp.
:	Petrochemicals/Plastics Group	PER :	Perry & Derrick Co., Inc.
HVG :	Ametek, Inc., Haveg Div.	PKI :	Perkins Industries, Inc.
HXL :	Hexcel Corp., Hexcel Chemical Products	PKL :	Plaskolite, Inc.
HYA :	Dexter Corp., Hysol Aerospace & Industrial	PLC :	Phillips Petroleum Co.
:	Products Div., Dexter Specialty Chemicals	PLN :	Disogrin Industries Corp.
:	Group	PLR :	Polysar, Inc.:
HYC :	Dexter Corp., Hysol Electronic Chemicals	:	Latex Div.
:	Div., Dexter Specialty Chemicals Group	:	Plastic Div.
ICF :	BASF Corp., Inmont Div.	PLS :	Plastics Engineering Co.
ICI :	ICI Americas, Inc. & Chemicals Div.	PMC :	Plastics Manufacturing Co.
INL :	Van Lear Containers, Inc.	PNT :	Pentasote, Inc., Film/Compound
INP :	Synair Corp.	PPG :	PPG Industries, Inc.
IOC :	Sybron Chemicals, Inc.	PPL :	Pioneer Plastics Div. of LOF Plastics, Inc.
IOV :	Iovite, Inc.	PRC :	Products Research & Chemical Corp.
IPC :	Interplastic Corp.	PRT :	Pratt & Lambert, Inc., Paint Div.
IRI :	Ironsides Co.	PSG :	PMC Specialities Group Inc.
JNS :	S. C. Johnson & Son, Inc.	PSL :	Plaslok Corp.
JOB :	Jones-Blair Co.	PST :	Perstorp Compounds, Inc.
JSC :	Sybron Chemicals, Inc.	PTC :	Polycast Technology Corp.
KMC :	Komac Paint, Inc.	PVI :	Polyvinyl Chemical Industries
KMP :	Kelly-Moore Paint Co., Inc.	PYI :	Polymer Industries
KPT :	Koppers Co., Inc.	PYZ :	Polyrez Co., Inc.
KTP :	Kent Polymers, Inc.	QCP :	Quaker Chemical Corp.
KYS :	Keysor Corp.	QUN :	K. J. Quinn & Co., Inc.
LC :	Lord Corp., Chemical Products Group	RAB :	Raymark Corp.
LIC :	Lilly Industrial Coatings, Inc.	RAS :	Raffi and Swanson, Inc.
LIJ :	Lawter International, Inc.	RBI :	Reeves Brothers, Inc.
MCA :	Masonite Corp., Alpine Resin Div.	RCD :	Richardson Polymer Corp.
MCB :	Borg-Warner Corp., Borg Warner Chemicals	RCI :	Reichhold Chemicals, Inc.
MCC :	McCloskey Corp.:	REL :	Reliance Universal, Inc., Louisville Resins
:	McCloskey Varnish Co.:	:	Operations
:	McCloskey Varnish Co. of California	RH :	Rohm & Haas Co.
:	McCloskey Varnish Co. of Oregon	RSN :	Rilsen Corp.
MID :	Dexter Corp., Midland Div.	RTC :	Riegel Textile Corp., Riechem Div.
MIL :	Milliken & Co., Milliken Chemical Co.	RUO :	Ruco Polymer Corp.
MMM :	Minnesota Mining & Manufacturing Co.	S :	Sandoz, Inc., Colors & Chemicals Div.
MNP :	McWhorter, Inc.	SAC :	Southeastern Adhesives Co.
MOB :	Mobay Chemical Corp., Pittsburgh Div.	SAR :	Leksi, Inc.
MON :	Monsanto Co.	SBG :	Samuel Bingham Co.
MRT :	Morton-Thickol, Inc., Morton	SCM :	SCM Corp., Coatings & Resins Div.
:	Chemical Co. Div.	SCN :	Schenectady Chemicals, Inc.
NCI :	Union Camp Corp., Chemical Products Div.	SCO :	Scholler, Inc.
NCJ :	National Casein of New Jersey	SCP :	Hankel Corp.
NCP :	Niles Chemical Paint Co. and Kordell	SDH :	Sterling Drug, Inc., Hilton Davis Chemical Co.
:	Industries Div.	:	Div.
NEV :	Neville Chemical Co.	SHC :	Shell Oil Co., Shell Chemical Co. Div.
:	:	SHT :	Shintech, Inc.
:	:	SHX :	Sherex Chemical Co., Inc.



## VIII -- PLASTICS AND RESIN MATERIALS

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TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1985--CONTINUED

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
SIC :	Standard Oil Co., Silmar Div., Engineered Material Co.	TXS :	Textstyrene Plastics, Inc.
SIF :	Standard Oil Co., Filon Div., Engineered Material Co.	UCC :	Union Carbide Corp.
SKP :	Shakespeare Co., Monofilament Div.	UNO :	United-Erie, Inc.
SLC :	Soluol Chem Co., Inc.	UOC :	Union Oil Co. of California
SLT :	Soltex Polymer Corp.	UPJ :	Upjohn Co. Polymer Chemical Div.
SM :	Mobil Oil Corp.:	USI :	National Distillers & Chemical Corp.:
	Mobil Chemical Co.:		U.S. Industrial Chemicals Co.:
	Chemical	USM :	Emhart Corp., Bostik U.S. Div.
	Petrochemicals Div.	USR :	Uniroyal, Inc., Uniroyal Chemical Div.
	Products Div.	USS :	U.S. Steel Corp., USS Chemicals Div.
SMO :	Smooth-On, Inc.	VAL :	United Merchants & Manufacturers, Inc.,
SNW :	Sun Chemical Corp., Chemicals Div.		Valchem Div.
SOR :	MW Manufacturers, Inc., Southern Resin Div.	VIT :	Vititek Corp.
SPC :	Insilco Corp., Sinclair Paint Co. Div.	VPC :	Mobay Chemical Corp., Dye & Pigment Div.
SPD :	General Electric Co., Silicone Products Dept.	VST :	Vista Polymers, Inc.
SPL :	Spaulding Fibre Co., Inc., Industrial Plastics Div.	VSV :	Valentine Sugars, Inc., Valite Div.
SRY :	Synray Corp.	WCA :	West Coast Adhesives Co.
STC :	American Hoechst Corp., Sou-Tex Works	WLN :	Wilmington Chemical Corp.
SW :	Sherwin-Williams Co., Chemical Div.	WM :	Inolex Chemical Co.
SYL :	Sylvachem Corp.	WPG :	West Point-Pepperell, Inc., Griffitex Chemical Co. Sub.
SYT :	Synthron, Inc.	WRD :	Weyerhaeuser Co.
TNA :	Ethyl Corp.	WTC :	Witco Chemical Corp.

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



SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION IX -- RUBBER PROCESSING CHEMICALS

## STATISTICAL HIGHLIGHTS

Cynthia Trainor

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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 1985 are given in table 1.<sup>1</sup> Data on production of rubber-processing chemicals during 1981-85 is given in figure 1.

Production of rubber-processing chemicals as a group in 1985 amounted to 260 million pounds, or 10 percent less than the 288 million pounds produced in 1984. Sales of rubber-processing chemicals in 1985 amounted to 174 million pounds, valued at \$281 million, compared with 176 million pounds, valued at \$287 million, in 1984.

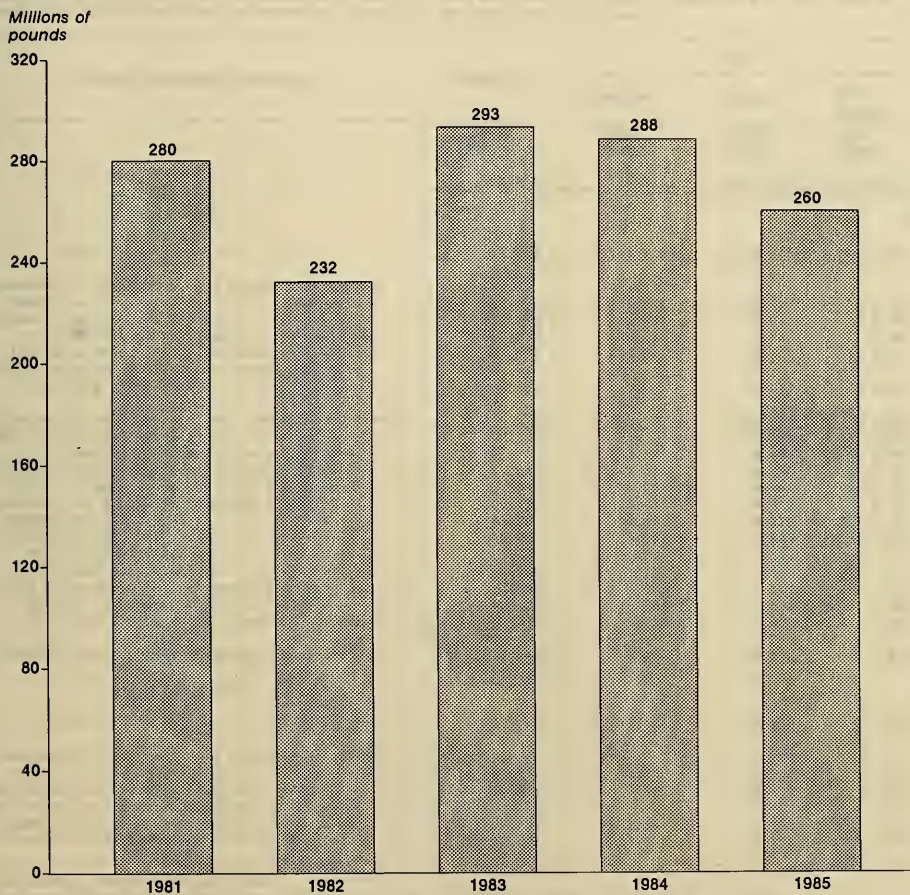
The production of cyclic rubber-processing chemicals in 1985 amounted to 237 million pounds, or 9 percent less than the 260 million pounds produced in 1984. Sales of cyclic rubber-processing chemicals in 1985 totaled 155 million pounds, valued at \$258 million, compared with 154 million pounds, valued at \$261 million, in 1984. Of the total production of cyclic rubber-processing chemicals in 1985, antioxidants, antiozonants, and stabilizers accounted for 67 percent, and accelerators, activators, and vulcanizing agents for 29 percent. Production of antioxidants, antiozonants, and stabilizers, which amounted to 160 million pounds in 1985, included 100 million pounds of amino compounds and 59 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants, antiozonants, and stabilizers in 1985 amounted to 71 million pounds, valued at \$108 million; sales of phenolic and phosphite antioxidants, antiozonants, and stabilizers were 34 million pounds, valued at \$59 million.

Production of acyclic rubber-processing chemicals in 1985 amounted to 23 million pounds, or 18 percent less than the 28 million pounds produced in 1984. Sales in 1985 totaled 20 million pounds, valued at \$22 million, compared with 22 million pounds, valued at \$26 million, in 1984. Dithiocarbamic acid derivatives accounted for 30 percent of the production of acyclic rubber-processing chemicals in 1985.

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<sup>1</sup> See table 2, which lists these products and identifies the manufacturers by codes. These codes are given in table 3.

Figure 1.—Rubber-processing chemicals.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



TABLE 1.--RUBBER PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1985

[Listed below are all rubber-processing chemicals for which any reported data on production or sales may be published. (Leaders (...) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all rubber-processing chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

RUBBER-PROCESSING CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
		1,000 pounds	1,000 dollars	Per pound
Grand Total-----	260,164	174,273	280,680	\$1.61
CYCLIC				
Total-----	237,224	154,709	258,438	1.67
Accelerators, activators, and vulcanizing agents total-----	69,151	41,441	68,027	1.64
Thiazole derivatives, total-----	63,918	36,156	52,012	1.44
2,2'-Dithiobis(benzothiazole)-----	7,219	6,285	7,545	1.20
All other thiazole derivatives-----	56,699	29,871	44,467	1.49
All other accelerators, activators, and vulcanizing agents <sup>2 3</sup> -----	5,233	5,285	16,015	3.03
Antioxidants, antiozonants, and stabilizers, total-----	159,528	105,181	167,080	1.59
Amino compounds, total-----	100,211	70,704	107,872	1.53
1,2-Dihydro-2,2,4-trimethylquinoline-----	...	12,085	13,046	1.08
Substituted p-phenylenediamines-----	64,619	43,556	69,930	1.61
All other amino compounds <sup>4</sup> -----	35,592	15,063	24,896	1.65
Phenolic and phosphite compounds, total <sup>5</sup> -----	59,317	34,477	59,208	1.72
Phosphites-----	45,264	24,171	29,210	1.21
Polyphenolics, total-----	6,059	6,267	21,889	3.49
Bisphenol, hindered-----	1,305	...	...	...
All other polyphenolics-----	4,754	...	...	...
All other phenolic and phosphite compounds, total-----	7,994	4,039	8,109	2.01
Phenol, styrenated mixtures-----	622	584	629	1.08
All other phenolic and phosphite compounds-----	7,372	3,455	7,480	2.16
All other cyclic rubber-processing chemicals <sup>6</sup> -----	8,545	8,087	23,331	2.89
ACYCLIC				
Total-----	22,940	19,564	22,242	1.14
Accelerators, activators, and vulcanizing agents, total-----	6,873	5,446	12,050	2.21
Dithiocarbamic acid derivatives <sup>3</sup> -----	4,474	3,482	8,292	2.38
All other accelerators, activators, and agents <sup>7</sup> -----	2,399	1,964	3,758	1.92
All other acyclic rubber-processing chemicals <sup>8</sup> -----	16,067	14,118	10,192	.72

<sup>1</sup>Calculated from unrounded figures.

<sup>2</sup>Includes aldehyde-amine reaction products, guanidines, dithiocarbamates, and other accelerators, activators, and vulcanizing agents.

<sup>3</sup>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."

<sup>4</sup>Includes aldehyde- and acetone-amine reaction products.

<sup>5</sup>Also includes other antioxidants, antiozonants, and stabilizers.

<sup>6</sup>Includes blowing agents, peptizers, and other cyclic rubber-processing chemicals.

<sup>7</sup>Includes thurams, xanthates, sulfides, and other accelerators, activators, and vulcanizing agents.

<sup>8</sup>Includes blowing agents, polymerization regulators, shortstops, and other acyclic rubber processing chemicals.







TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS-- CONTINUED	
*ALL OTHER CYCLIC ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS--CONTINUED	
2-Mercaptotoluimidazole, zinc salt-----	VGC.
m-Phenylenebismaleimide-----	DUP.
Tetramethylthiuran tetrasulfide-----	GYR.
Accelerators, activators, and vulcanizing agents, cyclic, other-----	DUP, USR.
*ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS:	
*AMINO ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS:	
ALDEHYDE- AND ACETONE-AMINE REACTION PRODUCTS:	
Butyraldehyde-eniline condensate-----	DUP.
Diphenylamine-acetone aldehyde-----	USR.
Diphenylamine-acetone condensate-----	BFG, USR.
*SUBSTITUTED P-PHENYLENEDIAMINES:	
Alkylaryl-p-phenylenediamines-----	MON.
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	MON, UPM.
N,N'-Bis(1-ethyl-3-methylpentyl)-p- phenylenediamine-----	UPM.
N,N'-Bis(1-methylheptyl)-p-phenylenediamine-----	UPM.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine-----	USR.
Diarylenediamines, mixed-----	GYR.
N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine-----	UPM, USR.
N,N'-Di-2-naphthyl-p-phenylenediamine-----	BFG.
N,N'-Diphenyl-p-phenylenediamine-----	BFG.
N-Isopropyl-N'-phenyl-p-phenylenediamine-----	UPM.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine-----	USR.
N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine-----	USR.
p-Phenylenediamines, substituted, other-----	KPI.
*OTHER AMINES:	
p-Anilinophenol-----	BFG.
1,2-Dihydro-6-ethoxy-2,2,4-Trimethylquinoline (Ethoxyquin)-----	MON.
*1,2-Dihydro-2,2,4-trimethylquinoline-----	BFG, MON, USR.
Diphenylamine-styrenated-----	GYR.
Nonyldiphenylamine mixture (Mono-, di-, end tri)-----	USR.
Octyldiphenylamine-----	BFG, USR.
p-(p-Toluenesulfonamido)diphenylamine-----	BFG.
	USR.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*ANTIOXIDANTS, ANTIOZOMANTS, AND STABILIZERS--CONTINUED	
*PHENOLIC AND PHOSPHITE ANTIOXIDANTS AND STABILIZERS	
*PHOSPHITES:	
Alkylaryl phosphites mixed	FER, MCB.
Nonylphenyl phosphites, mixed	MCB, OMC, USR.
Polymeric phosphites	MCB, OMC.
Polyphenolic phosphites, polyalkylated	BFG, MCB.
Triaryl phosphites	MCB.
*POLYPHENOLICS (INCLUDING BISPHENOLS):	
*Bisphenol, hindered	DUP, GYR, USR.
4,4'-Butylidenebis(6-tert-butyl-m-cresol)	MON.
2,5-Di-sec-butylidethylhydroquinone	USR.
2,5-Di-(1,1-dimethylpropyl)hydroquinone	MON.
2,2'-Methylenebis(6-tert-butyl-p-cresol)	ACX, FER.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)	ACX.
1,1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl)butane	ICI.
ALL OTHER PHENOLIC ANTIOXIDANTS AND STABILIZERS:	
Phenol, alkylated	BFG, GYR, NEV, RCI.
Phenol, hindered	FER, OMC, USR.
*Phenol, styrenated, mixtures	GYR, NEV, USR.
N-Stearoyl-p-aminophenol	HXL.
BLOWING AGENTS:	
Dinitrosocentamethylenetetramine	OMC.
P'-Oxybis(benzenesulfonhydrazide)	OMC, USR.
3-Phenyltetrazole	OMC.
P-Toluenesulfonhydrazide	USR.
P-Toluenesulfonylemidecarbazide	USR.
PEFTIZERS:	
2',2''',-Dithiobis(benzanilide)	ACX.
ALL OTHER CYCLIC RUBBER-PROCESSING CHEMICALS:	
p-tert-Amylphenol sulfide (Tackifier)	PAS.
4-Chloro-2,6-bis(2,4-dihydroxybenzyl)phenol	ICI.
N-(Cyclohexylthio)phthalimide	MON.
Diphenyl-4,4'-diphenylmethylenediacetate	USR.
Rubber-processing chemicals, cyclic, all other	ACX, FER.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC</b>	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
*DITHIOCARBAMIC ACID DERIVATIVES:	
Diethylthiocarbamic acid derivative	VNC.
Dibutylthiocarbamic acid, nickel salt	DUP, USR, VNC.
Dibutylthiocarbamic acid, sodium salt	DUP, USR, VNC.
Diethylthiocarbamic acid, zinc salt	VNC.
Diethylthiocarbamic acid, cadmium salt and polysulfide	VNC.
Diethylthiocarbamic acid, selenium salt	VNC.
Diethylthiocarbamic acid, sodium salt	VNC.
Diethylthiocarbamic acid, tellurium salt	VNC.
Dimethylthiocarbamic acid, zinc salt	GYR, VNC.
Dimethylthiocarbamic acid, bismuth salt	VNC.
Dimethylthiocarbamic acid, copper salt	VNC.
Dimethylthiocarbamic acid, lead salt	VNC.
Dimethylthiocarbamic acid, selenium salt	VNC.
Dimethylthiocarbamic acid, sodium salt and sodium polysulfide	BFG.
Dimethylthiocarbamic acid, zinc salt	GYR, VNC.
Dithiocarbamic acid derivatives, acyclic, other	DUP, X.
THIURAMS:	
Bis(dibutylthiocarbamoyl) disulfide	VNC.
Bis(dimethylthiocarbamoyl) disulfide	GYR.
Bis(dimethylthiocarbamoyl) disulfide	GYR, VNC.
Bis(dimethylthiocarbamoyl) sulfide	GYR.
N,N'-Dioctadecyl-N,N'-diisopropyl thiuram disulfide	USR.
XANTHATES AND SULFIDES:	
Di-n-butylxantho disulfide	USR.
Zinc isopropyl xanthate	VNC.
*ALL OTHER ACYCLIC ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
p-Aminocyclohexylmethane carbonate	DUP.
n-Butylaldehyde-butylamine condensate	DUP.
BLOWING AGENTS:	
1,2-Hydratedicarboxylic acid, bis(1-methylethyl) acet	USR.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
POLYMERIZATION REGULATORS:	
n-Decyl mercaptan-----	PLC.
n-Dodecyl mercaptan-----	PAS, PLC.
tert-Hexadecyl mercaptan-----	PLC.
n-Hexyl mercaptan-----	PAS, PLC.
tert-Nonyl mercaptan-----	PLC.
n-Octyl mercaptan-----	PLC.
Tetradecyl mercaptan-----	PLC.
Polymerization regulators, acyclic, other-----	PLC.
SHORTSTOPS:	
Dimethyldithiocarbamic acid, potassium salt-----	USR.
Dimethyldithiocarbamic acid, sodium salt-----	ALC, BFC, USR, VCC, VMC.
*ALL OTHER ACYCLIC RUBBER-PROCESSING CHEMICALS:	
Waxes and paraffinic products-----	DUP, RCI.
Zinc laurate (Activator, physical property improver, and processing auxiliary)-----	USR.

TABLE 3.--RUBBER-PROCESSING CHEMICALS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of rubber-processing chemicals to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
ACY :	American Cyanamid Co.	MON :	Monsanto Co.
ALC :	Alco Chemical Corp.	NEV :	Neville Chemical Co.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical Group	OMC :	Olin Corp.
DUP :	E. I. duPont de Nemours & Co., Inc.	PAS :	Pennwalt Corp.
FER :	Ferro Corp., Ferro Chemical Div.	PLC :	Phillips Petroleum Co.
GYR :	Goodyear Tire & Rubber Co.	RBC :	Fike Chemicals, Inc.
HXL :	Hexcel Corp., Hexcel Chemical Products	RCI :	Reichhold Chemicals, Inc.
IGI :	ICI Americas, Inc., Chemicals Div.	UPM :	UOP, Inc., UOP Process Div.
KPI :	Kenrich Petrochemicals, Inc.	USR :	Uniroyal, Inc., Uniroyal Chemical Div.
MCB :	Borg-Warner Corp., Borg Warner Chemicals	VCC :	Vinings Chemical Co.
		VNC :	Vanderbilt Chemical Corp.

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



SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION X -- ELASTOMERS

## STATISTICAL HIGHLIGHTS

Edward J. Taylor  
202-523-3709

Elastomers (synthetic rubber) are high polymeric materials with properties similar to those of natural rubber. The term "elastomers" as used in this report means substances, whether in bale, crumb, powder, latex, or other crude form, which can be vulcanized or similarly processed into a material that can be stretched to at least twice their original length; and, 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 1985 are shown in table 1.<sup>1</sup>

Total U.S. production<sup>2</sup> of synthetic rubber in 1985 amounted to 3,828 million pounds, a decrease of 16.9 percent from that produced in 1984. The production of synthetic rubber declined irregularly from 4,849 million pounds in 1981 to 3,828 million pounds in 1985, or by 21.1 percent. (see figure 1.). Total sales of elastomers in 1985 amounted 2,228 million pounds, a decrease of 17.1 percent from that sold in 1984.

Styrene-butadiene rubber (SBR-type rubber) in 1985 continued to be the elastomer produced in the greatest quantity as it has been for more than a quarter of a century. U.S. production of SBR-type rubber, including 11 million pounds of its vinylpyridine sub-type, amounted to 1,440 million pounds in 1985. Solution polymerized butadiene rubber, a stereo type elastomer, was produced domestically in 1985 in the next largest amount—600 million pounds. Other principal types of synthetic elastomers for which U.S. production data are reported separately are ethylene-propylene rubber, production of which was 440 million pounds in 1985; and butadiene-acrylonitrile (NBR-type) rubber, production of which was 118 million pounds.

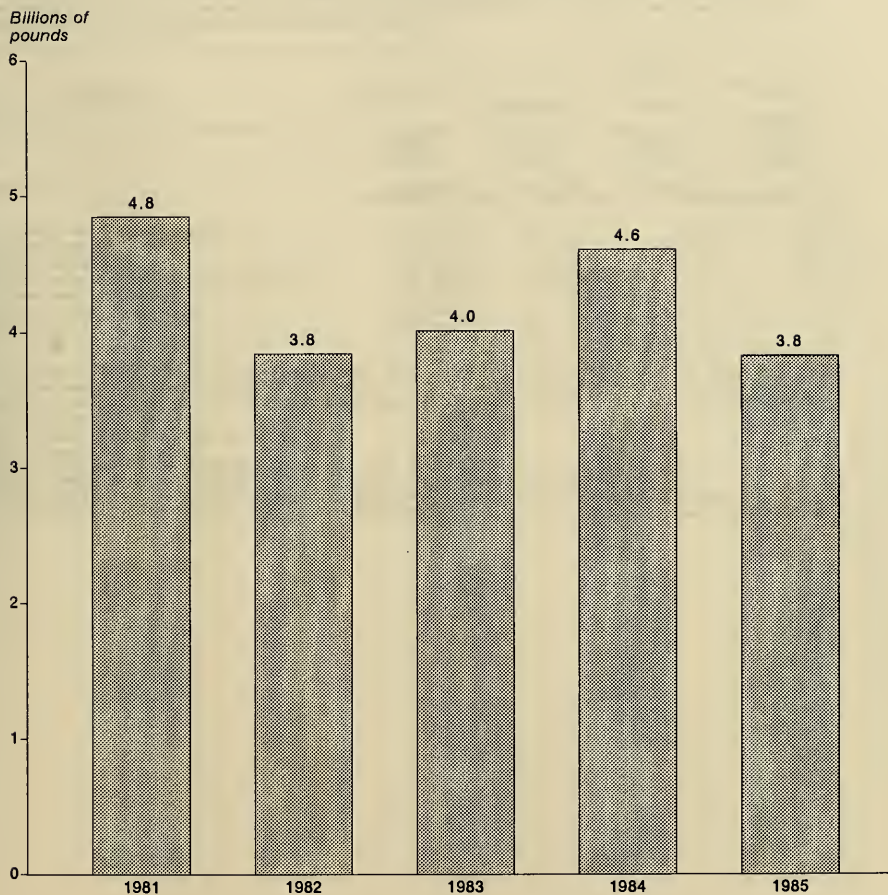
Sales of SBR-type rubber by U.S. producers in 1985 amounted to 651 million pounds. Sales of solution polymerized butadiene rubber amounted to 268 million pounds, and those of ethylene-propylene rubber to 311 million pounds. Sales of NBR-type rubber in 1985 amounted to 104 million pounds.

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<sup>1</sup> See also table 2 which lists these products and indicates the manufacturers of each by code. The codes are identified by company name in table 3.

<sup>2</sup> Urethane type elastomers are now included in the section "Plastics and Resin Materials."

Figure 1.—Elastomers (synthetic rubber).



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.

Employee Turnover

Table 1. Descriptive Statistics

Variable	Mean	SD	Range
Turnover	1.2	0.8	0-5
Age	35	10	20-55
Education	12	1	10-16
Experience	15	8	0-30

The study examined the relationship between turnover and various demographic factors. The results showed that turnover was significantly higher for younger employees (M = 1.5, SD = 0.9) compared to older employees (M = 0.9, SD = 0.6),  $F(1, 198) = 12.34, p < .001$ . Additionally, turnover was significantly higher for employees with less than a high school diploma (M = 1.8, SD = 1.1) compared to those with a high school diploma or higher (M = 1.0, SD = 0.7),  $F(1, 198) = 8.76, p < .01$ .



Figure 1. Turnover by Demographic Group

TABLE 1.--ELASTOMERS (SYNTHETIC RUBBER):<sup>1</sup> U.S. PRODUCTION AND SALES, 1985

[Listed below are elastomers (synthetic rubber) for which reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all elastomers for which data on production and/or sales were reported and identifies the manufacturers of each]

ELASTOMERS	PRODUCTION <sup>2</sup>	SALES		
		QUANTITY <sup>2</sup>	VALUE	UNIT VALUE <sup>3</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	3,827,941	2,227,856	2,054,060	\$0.92
Butadiene-acrylonitrile type (NBR-type)-----	117,987	104,456	94,489	1 .90
Ethylene-propylene type (EP-type)-----	439,887	310,832	236,420	.76
Polyacrylate (ACM) ester type-----	6,202	3,870	8,506	2.20
Polybutadiene (solution polymerized) type (BR-type)---	600,071	268,380	149,465	.56
Styrene-butadiene type (SBR-type) <sup>4</sup> -----	1,428,086	651,012	248,537	.38
Styrene-butadiene-vinylpyridine type-----	10,904	...	...	...
All other elastomers <sup>5</sup> -----	1,224,804	889,306	1,316,643	1.48

<sup>1</sup>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.

<sup>2</sup>Includes oil content of oil-extended elastomers.

<sup>3</sup>Calculated from unrounded figures.

<sup>4</sup>Virtually all production of SBR elastomer is the dry type of product.

<sup>5</sup>Includes acrylic ester, butyl, chlorinated natural rubber, epichlorohydrin, fluoroelastomers, polybutadiene type (emulsion), polychloroprene (neoprene) type, polyisobutylene type, polyisoprenes (including cyclorubber), polysulfide, silicone type, styrene-butadiene-vinylpyridine type (sales only), and miscellaneous elastomers.

TABLE 2.---ELASTOMERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,  
IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*);  
CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND  
MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3]

ELASTOMERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ELASTOMERS</b>	
<b>CYCLIC ELASTOMERS</b>	
<b>CYCLIC ELASTOMERS:</b>	
Cyclized polyisoprene (Cyclorubber)-----	WAY.
Epichlorohydrin elastomers (CO, ECO) type-----	DUP.
*STYRENE-BUTADIENE (S OR SBR) TYPE:	
Styrene-butadiene, dry type-----	BFG, CPY, FRS, GRD, GYR, PIR, SPO.
Styrene-butadiene, latex type-----	BFG, GMI, HHH.
*Styrene-butadiene-vinylpyridine-----	BFG, FRS, GYR.
Styrene-butadiene type elastomers, other-----	FRS, LC.
<b>CYCLIC ELASTOMERS, ALL OTHER:</b>	
Cyclic elastomers, all other-----	HPC, SHC.
<b>ACYCLIC ELASTOMERS:</b>	
*Butadiene-acrylonitrile (NBR) type-----	BFG, CPY, GYR, MMH, USR.
Butyl(isobutylene-isoprene) type-----	ADC, EMJ.
*Ethylene-propylene (EP) type-----	ADC, CPY, DUP, ENJ, USR.
Fluorelastomers (CFM, FKM, FFKM) type-----	DUP, MMH.
*POLYACRYLATE ESTER TYPE:	
Polyacrylic (ACH) ester type elastomers-----	ACY, BFG.
Polyalkylene oxide-----	FGC.
Polybutadiene acrylic acid acrylonitrile terpolymer (PBAM)-----	ASY.
<b>POLYBUTADIENE (BR) TYPE:</b>	
Polybutadiene, emulsion-polymerized-----	GYR.
*Polybutadiene, solution-polymerized-----	ASY, FRS, PLC.
Polychloroprene (Neoprene) (CR) type-----	DKA, DUP, GRY, LC.
Polyisobutylene, type elastomers-----	ENJ.
Polyisoprene (IR) type-----	GYR, LC.
Polysulfide (T) type elastomers-----	MRT.
Silicone (Q) type elastomers-----	DCC, KF, LC, SPD, SMS.
<b>ACYCLIC ELASTOMERS, ALL OTHER:</b>	
Acyclic elastomers, all other-----	DUP, HPC.



TABLE 3.--ELASTOMERS (SYNTHETIC RUBBER): DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of elastomers to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
ACY	American Cyanamid Co.	KF	Dynamit Nobel of America, Dynamit Nobel Chemical Div.
ADC	Anderson Development Co.		
ASY	American Synthetic Rubber Corp.	LC	Lord Corp., Chemical Products Group
BFC	B. F. Goodrich Co., B. F. Goodrich Chemical Group	MMM	Minnesota Mining and Manufacturing Co.
CPY	Copolymer Rubber & Chemical Corp.	MRT	Morton-Thiokol, Inc., Morton Chemical Co. Div.
DCC	Dow Corning Corp.	PLC	Phillips Petroleum Co.
DKA	Denka Chemical Corp.	PLR	Polysar, Inc., Latex Div.
DUP	E. I. duPont de Nemours & Co., Inc.	PRC	Products Research & Chemical Corp.
ENJ	Exxon Chemical Americas	SHC	Shell Oil Co., Shell Chemical Co. Div.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.	SPD	General Electric Co., Silicone Products Dept.
GNT	Diversitech General (Gencorp Co.)	SPO	Synpol, Inc.
GRD	W. R. Grace & Co., Polymers & Chemical Div.	SWS	Stauffer Chemical Co., Stauffer-Wacker Silicones Div.
GYR	Goodyear Tire & Rubber Co.	USR	Uniroyal, Inc., Chemical Group
HPC	Hercules, Inc.	WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.

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

# SYNTHETIC ORGANIC CHEMICALS, 1985

## SECTION XI -- PLASTICIZERS

### STATISTICAL HIGHLIGHTS

Jesse Lawrence Johnson

202-523-0127

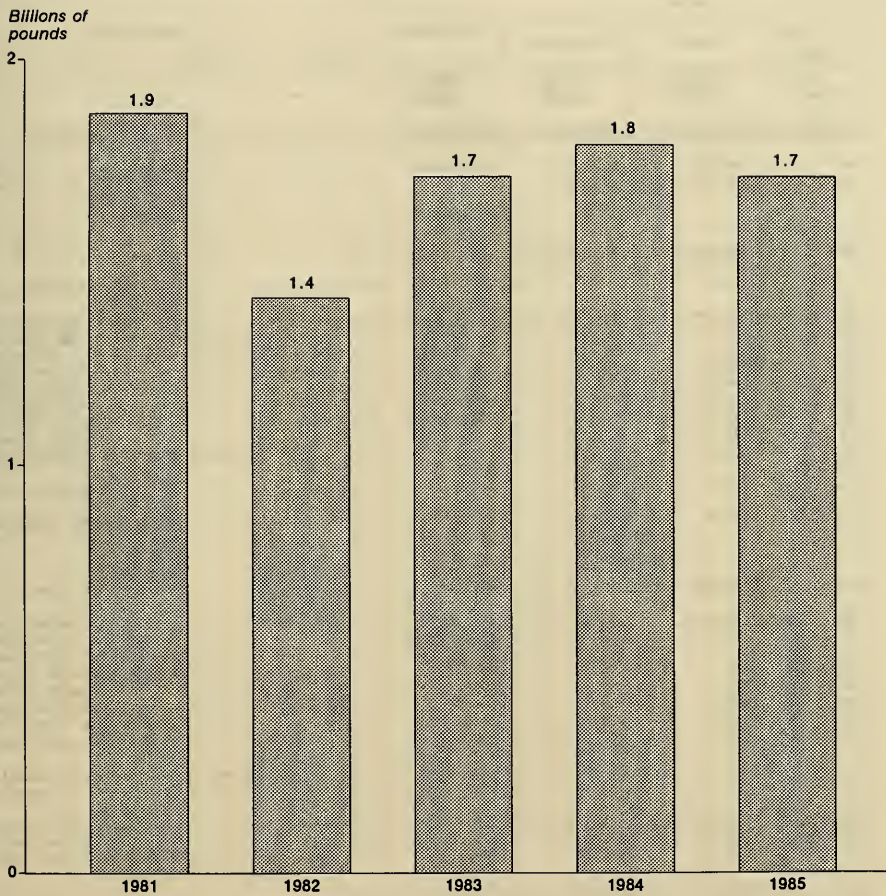
Plasticizers are organic chemicals that are added to synthetic plastics and resin materials to (1) improve workability during fabrication, (2) extend or modify the natural properties of these materials, or (3) develop new improved properties not present in the original material. Table 1 presents statistics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

U.S. production of plasticizers totaled 1,710 million pounds in 1985, a decrease of 4.3 percent from the 1,788 million pounds reported for 1984. The trend of production of these products is shown in the graph in figure 1. Sales of plasticizers totaled 1,470 million pounds, valued at \$741 million, in 1985, compared with 1,685 million pounds, valued at \$849 million, in 1984.

Production of cyclic plasticizers in 1985, which consisted chiefly of the esters of phthalic anhydride, phosphoric acid, and trimellitic acid, amounted to 1,286 million pounds, a decrease of 3.9 percent from the 1,338 million pounds reported for 1984. Sales of cyclic plasticizers in 1985 totaled 1,118 million pounds, valued at \$499 million, compared with 1,307 million pounds, valued at \$578 million, in 1984. The most important cyclic plasticizers were the dioctyl phthalates, with production of 275 million pounds, in 1985.

Production of acyclic plasticizers in 1985 totaled 424 million pounds, a decrease of 5.6 percent from the 449 million pounds reported for 1984. Sales of acyclic plasticizers totaled 351 million pounds, valued at \$243 million, in 1985, compared with 378 million pounds, valued at \$271 million, in 1984. Epoxidized soya oils were the most important acyclic plasticizers in 1985 with production of 96 million pounds.

Figure 1.—Plasticizers.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



## XI -- PLASTICIZERS

TABLE 1.--PLASTICIZERS:<sup>1</sup> U.S. PRODUCTION AND SALES, 1985

[Listed below are plasticizers for which any reported data on production or sales may be published. (Leaders (...) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all plasticizer chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

PLASTICIZERS	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT
		1,000 pounds	1,000 pounds	1,000 dollars
Grand total-----	1,709,859	1,469,748	741,347	\$0.50
Benzenoid <sup>3</sup> -----	1,447,293	1,233,402	585,898	.48
Nonbenzenoid-----	262,566	236,346	155,449	.66
CYCLIC				
Total-----	1,285,753	1,118,334	498,761	.45
Phosphoric acid esters <sup>4</sup> -----	50,526	...	...	...
Phthalic anhydride esters, total-----	1,135,963	970,346	384,443	.40
Dibutyl phthalates (including diisobutyl phthalates)-----	21,732	19,435	8,442	.43
Diethyl phthalate-----	17,151	14,311	18,887	1.32
Diisodecyl phthalate-----	146,269	133,384	45,490	.34
Dimethyl phthalate-----	7,650	7,997	4,060	.51
Dioctyl phthalates-----	275,392	288,313	87,724	.30
Di-tridecyl phthalate-----	21,790	21,228	11,662	.55
All other phthalic anhydride esters-----	645,979	485,678	208,178	.43
Trimellitic acid esters-----	48,545	53,211	37,399	.70
All other cyclic plasticizers <sup>5</sup> -----	50,719	94,777	76,919	.81
ACYCLIC				
Total-----	424,106	351,414	242,586	.69
Adipic acid esters, total-----	125,186	86,736	57,243	.66
Di(2-ethylhexyl) adipate-----	36,991	34,335	17,479	.51
Diisobutyl adipate-----	212	...	...	...
Diisodecyl adipate-----	1,400	1,000	739	.74
Diisooctyl adipate-----	1,496	1,445	824	.57
Di-tridecyl adipate-----	8,952	9,290	8,028	.86
m-Octyl m-decyl adipate-----	5,331	4,169	2,813	.67
All other adipic acid esters-----	70,804	36,497	27,360	.75
Complex linear polyesters and polymeric plasticizers-----	49,527	26,306	25,423	.97
Epoxidized esters, total-----	112,479	112,434	65,321	.58
Epoxidized soya oils-----	95,617	96,282	53,308	.55
All other epoxidized esters-----	16,862	16,152	12,013	.74
Oleic acid esters, total-----	11,511	11,223	7,600	.68
Butyl oleate-----	1,676	1,581	1,028	.65
All other oleic acid esters-----	9,835	9,642	6,572	.68
Palmitic acid esters-----	3,405	3,369	2,769	.82
Phosphoric acid esters-----	17,855	14,262	14,825	1.04
Di(2-ethylhexyl) sebacate-----	3,613	3,477	5,468	1.57

See footnotes at end of table.



## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--PLASTICIZERS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

PLASTICIZERS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>2</sup>
	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>dollars</u>	<u>Per</u> <u>pound</u>
ACYCLIC--Continued				
Stearic acid esters, total-----	9,907	13,265	9,254	\$ .70
n-Butyl stearate-----	7,683	11,186	7,044	.63
All other stearic acid esters-----	2,224	2,079	2,210	1.06
All other acyclic plasticizers <sup>6</sup> -----	90,623	80,342	54,683	.68

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

<sup>2</sup>Calculated from unrounded figures.

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

<sup>4</sup>Includes data for cresyl diphenyl phosphate, dibutyl phenyl phosphate, diphenyl octyl phosphate, tricresyl phosphate, triphenyl phosphate, and other cyclic phosphoric acid esters.

<sup>5</sup>Includes data for glycol dibenzoates, toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

<sup>6</sup>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.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

(CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT)

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC	
n-n-Butyl benzeneulfonamide-----	TMA.
Comarone-indene plasticizers-----	NEV.
Diethylene glycol dibenzoate-----	KLM, YEL.
Dipropamediol dibenzoate (Dipropylene glycol dibenzoate)-----	KLM, YEL.
n-Ethyl-p-tolueneulfonamide-----	MON, RES.
*PHOSPHORIC ACID ESTERS:	
Diphenyl octyl phosphate-----	MON.
Isodecyl diphenyl phosphate-----	SFS.
Tricresyl phosphate-----	FHC, SFS.
Triphenyl phosphate-----	EK, MON, SFS.
Phosphoric acid esters, all other-----	FHC, MON, SFS, SH.
*PHTHALIC ANHYDRIDE ESTERS:	
Bis(2-ethylhexyl)terephthalate-----	EKT.
Butyl benzyl phthalate-----	MON.
Butyl 2-ethylhexyl phthalate-----	DBC.
Butyl octyl phthalates-----	RCI, USS.
Di(2-butoxyethyl) phthalate-----	HAL.
*Diobutyl phthalate (including diisobutyl phthalate)-----	DBC, EKT, HCC, MOD, RCI, USS, WTH.
Dicyclohexyl phthalate-----	X.
Diethylene glycol phthalate-----	CHB.
Diethyl isophthalate-----	X.
*Diethyl phthalate-----	DBC, EKT, KF, MON, MRF.
Di-(n-heptyl-n-nonyl) undecyl phthalate-----	ENJ.
*Diisodecyl phthalate-----	DBC, ENJ, HCC, MOD, RCI, TEK, USS.
Diisooxetyl phthalate-----	ENJ.
Diisononyl phthalate-----	DBC, ENJ, MOD, TEK, USS.
Di(2-methoxyethyl) phthalate-----	EKT.
Dimethyl isophthalate-----	X.
*Dimethyl phthalate-----	EKT, KF, WTC, X.
Dinonyl phthalate-----	ENJ.
Dinonyl undecyl phthalate-----	NOB.
*Ditridecyl phthalate-----	ENJ, HCC, MOD, SH, TEK, USS.
Dlundecyl phthalate-----	MON.
Hexyl n-decyl phthalate-----	VST.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CYCLIC--CONTINUED</b>	
*PHTHALIC ANHYDRIDE ESTERS--CONTINUED:	
n-Octyl n-decyl phthalate-----	RCI, USS.
Phthalic acid, diallyl ester-----	TWA.
*DIOCTYL PHTHALATES:	
Di(2-ethylhexyl) phthalate-----	DBC, EKT, ENJ, HCC, MRF, NOD, RCI, TEK, USS, VST.
Diisooctyl phthalate-----	ENJ, NOD, RCI, TEK.
Di-n-octyl phthalate-----	EK.
Dioctyl phthalates, all other-----	DBC, WTH.
GLYCOL PHTHALATE ESTERS:	
Butyl phthalyl butyl glycolate-----	X.
*Phthalic anhydride esters, all other-----	DBC, HCC, MON, NOD, TEK.
Polyethylene glycol dibenzoate-----	VEL.
Tetrahydrofurfuryl oleate-----	EMR.
Toluenesulfonamide o-, p-mixtures-----	MON.
*TRIMELLITIC ACID ESTERS:	
Tri(2-ethylhexyl) trimellitate-----	DBC, HCC, TEK.
Triisodecyl trimellitate-----	ENJ, HCC, MOD.
Triisononyl trimellitate-----	TEK, USS.
Triisooctyl trimellitate-----	ENJ, NOD, RCI, TEK.
Trimethyl trimellitate-----	FER.
Tri-n-octyl n-decyl trimellitate-----	RCI, TEK.
Trioctyl trimellitate-----	EKT, RCI, USS.
Trimellitic acid esters, all other-----	HCC, TEK, USS, X, X.
*Cyclic plasticizers, all other-----	DBC, NEV, NOD, SBC, X.
<b>ACYCLIC</b>	
*ADIPIIC ACID ESTERS:	
Butylene glycol adipate-----	HAL.
Di-(2-(2-butoxyethoxy)ethyl) adipate-----	HAL, MON, RCI.
Dibutoxyethyl adipate-----	HAL.
*Di(2-ethylhexyl) adipate-----	DBC, EKT, ENJ, HAL, HCC, MRF, NOD, RCI, TEK, USS, WTH.
Di-n-hexyl adipate-----	EKT, MON.
*Diisobutyl adipate-----	EKT, HAL, HCC.
*Diisodecyl adipate-----	EMR, HAL, HCC, MRF, NOD, RCI, SH.
Diisononyl adipate-----	ENJ, TEK, USS.
*Diisooctyl adipate-----	ENJ, HCC, RCI, TEK.
Diisopropyl adipate-----	VND, WTH.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ADIPIC ACID ESTERS--CONTINUED:	
Dimethyl adipate-----	MRP, X.
Di-n-octyl adipate-----	WTH.
Di-n-propyl adipate-----	HOC.
*Ditridecyl adipate-----	EMR, HOC, MOP, SM, WM.
Ethylene glycol adipate-----	HAL.
n-Hexyl n-decyl adipate-----	EMR.
Neopentyl glycol adipate-----	HAL.
*n-Octyl n-decyl adipate-----	HOC, MOP, RCI, TEK, USS.
Propylene glycol adipate-----	HAL.
*Adipic acid esters, all others-----	DBC, EKT, HAL, HOC, WTC.
AZELAIC ACID ESTERS:	
Bis(hydroxypropyl) azelate-----	EMR.
Di(2-ethylhexyl) azelate-----	EKT, EMR, HAL, RCI.
Diiso-octyl azelate-----	EMR.
CITRIC AND ACETYL CITRIC ACID ESTERS:	
Tributyl acetyl citrate-----	X.
Tributyl citrate-----	X.
Triethyl acetyl citrate-----	X.
Triethyl citrate-----	X.
Citric and acetylcitric acid esters, all other-----	X.
*COMPLEX LINEAR POLYESTERS AND POLIMERIC PLASTICIZERS:	
Adipic acid type complex linear polyesters and polymeric plasticizers-----	HAL, MRF, SHK, TEK, WTC, WTH.
Complex linear polyesters and polymeric plasticizers, all other-----	EKK, EMR, RCI, SFS, SM, VMD, WM, WTC.
Poly(2,2,4-trimethyl-1,3-pentanediol) maleate-----	EKT.
*EPOXIDIZED ESTERS:	
*Epoxidized linseed oils-----	FER, VIK, WTC.
Epoxidized pentaerythritol tetraphthalate-----	UCC.
*Epoxidized soya oils-----	FER, FMC, TEK, UCC, VIK, WTC.
2-Ethylhexyl epoxytallates-----	UCC.
Octyl epoxytallates-----	WTC.
*Epoxidized esters, all other-----	VIK.
Glycerol tripropionate-----	EKT.
GLUTARIC ACID ESTERS:	
Neopentyl glycol glutarate-----	HAL.
Propylene glycol glutarate-----	HAL.
Glutaric acid esters, all other-----	HAL.

TABLE 2.---PLASTICIZERS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC---CONTINUED</b>	
<b>MYRISTIC ACID ESTERS:</b>	
Isopropyl myristate	WM, WTH.
Myristyl ethoxy myristate	SCP.
<b>OCTANOIC ACID ESTERS:</b>	
Palmityl octanoate	SBC.
Octanoic acid esters, all other	HAL.
<b>*OLEIC ACID ESTERS:</b>	
2-Butoxyethyl oleate	HAL.
*Butyl oleate	CHL, EHR, HAL, WTC, WTH.
Decyl oleate	SBC, SCP, VND.
2-Ethylhexyl oleate	HAL.
Glyceryl trioleate (Triolein)	EHR, WTC.
Isocetyl oleate	HAL.
Methyl oleate	DA, EHR, TCH, WTC.
Neopentyl glycol dioleate	HCC.
Oleyl oleate	SBC.
<b>PROPYL OLEATES:</b>	
n-Propyl oleate	EHR.
Trimethylolpropane trioleate	HCC.
Oleic acid esters, all other	DA, EHR, HAL.
<b>*PALMITIC ACID ESTERS:</b>	
n-Butyl palmitate	EKT.
2-Ethylhexyl palmitate	VND, WTH.
Isopropyl palmitate	WM, WTH.
2-Methoxyethyl palmitate	EKT.
<b>PELAGONIC ACID ESTERS:</b>	
Glycol pelargonate	EHR, TCH.
Isodecyl pelargonate	EHR.
<b>*PHOSPHORIC ACID ESTERS:</b>	
Tri(2-butoxyethyl) phosphate	FMC, MON, SFS.
Tri(2-chloroethyl) phosphate	SFS.
Tri(2-chloropropyl) phosphate	FER, SFS.
Triethyl phosphate	EKT.
Trioctyl phosphate	SFS.
Phosphoric acid esters, all other	SFS.
<b>RICINOLEIC AND ACETYLRICINOLEIC ACID ESTERS:</b>	
n-Butyl acetylricinoleate	CAS.
Butyl ricinoleate	CAS.
Ethyl glycol monoricinoleate	CAS.



TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
RIGINOLEIC AND ACETYLICINOLEIC ACID ESTERS--CONTINUED	
Glyceryl monoricinoleate	CAS.
Glyceryl tri(acetylricinoleate)	CAS.
Methyl acetylricinoleate	CAS.
Methyl ricinoleate	CAS, DA.
Propylene glycol monoricinoleate	CAS.
SEBACIC ACID ESTERS:	
Dibutoxyethyl sebacate	HAL.
Dibutyl sebacate	EKT, X.
*Di(2-ethylhexyl) sebacate	HAL, HCC, X.
Diisopropyl sebacate	SBC, X.
Dimethyl sebacate	X.
Propylene glycol sebacate	HAL.
*STEARIC ACID ESTERS:	
*n-Butyl stearate	CHL, EMR, TCH, WM, WTC, WTH.
Diethylene glycol succinate	CHB.
2-ethylhexyl stearate	STC, TCH.
Hexadecyl stearate	STC.
Isobutyl stearate	DA, TCH, WTH.
Isodecyl stearate	WM.
Methyl pentachlorostearate	VDH.
Myristyl stearate	VBD.
2-Octydecyl-1,2-stearoyl stearate	VBD.
Tridecyl stearate	HCC.
*Stearic acid esters, all other	SBC, SCP, WTC.
Sucrose acetate isobutyrate	EKT.
Tetraethylene glycol di(2-ethylhexanoate)	HAL, UCC, WM.
Triethylene glycol di(caprylate-caprate)	HAL.
Triethylene glycol di(2-ethylbutyrate)	HAL, UCC.
Triethylene glycol di(2-ethylhexanoate)	EKT.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	EKK.
*Acyclic plasticizers, all other	ARZ, EMR, HCC, HFC, TCH.



XI -- PLASTICIZERS

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1985

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of plasticizers to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
ARZ :	Arizona Chemical Co.	NES :	Ruetgers-Nease Chemical Co.
CAS :	Caschem, Inc.	NEV :	Neville Chemical Co.
CHL :	Chemol Co.	NOD :	Nuodex, Inc.
CMB :	Cambridge Industries Co.	RCI :	Reichhold Chemicals, Inc.
DA :	Diamond Shamrock Corp., Chemicals Div.	SBC :	Scher Chemicals, Inc.
DBC :	Badische Corp.	SCP :	Henkel Corp.
DIX :	Dixie Chemical Co., Inc.	SFS :	Stauffer Chemical Co., Specialty and Intermediates Div.
EK :	Eastman Kodak Co.:	SHX :	Sherex Chemical Co., Inc.
EKT :	Tennessee Eastman Co. Div.	SM :	Mobil Oil Corp., Mobil Chemical Co., Chemical Products Div.
EKK :	Texas Eastman Co. Div.	STC :	American Hoechst Corp., Sou-Tex Works
EMR :	Emery Chemicals Div. of National Distillers & Chemical Corp.	TCH :	Emery Industries, Inc., Trylon Div.
ENJ :	Exxon Chemical Americas	TEK :	Teknor Apex Co.
FER :	Ferro Corp.:	TNA :	Ethyl Corp.
:	Ferro Chemical Div.	UCC :	Union Carbide Corp.
:	Grant Chemical Div.	USS :	U.S. Steel Corp., USS Chemicals Div.
FMC :	FMC Corp.	VDM :	Van De Mark Chemical Co., Inc.
HAL :	C. P. Hall Co.	VEL :	Vesicol Chemical Corp.
HCC :	Hatco Chemical Corp.	VIK :	Viking Chemical Co.
HPC :	Hercules, Inc.	VND :	Van Dyk Div. of Mallinckrodt, Inc.
KF :	Dynamit Nobel of America, Dynamit Nobel Chemical Div.	VST :	Vista Polymers, Inc.
KLM :	Kalama Chemical, Inc.	WM :	Inolex Chemical Co.
MON :	Monsanto Co.	WTC :	Witco Chemical Corp.
MRF :	Morflex Chemical Co., Inc.	WTH :	Union Camp Corp.

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION XII -- SURFACE-ACTIVE AGENTS

## STATISTICAL HIGHLIGHTS

Eric Land

202-523-0491

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 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 "all other" in each of the categories, which was published in previous editions, can be derived by subtracting from the totals of each category the sum of the enumerated items within that category. Data for the production of surface-active agents during 1981-85 are shown in figure 1.

Total U.S. production of surface-active agents in 1985 amounted to 5,363 million pounds, or 2.8 percent less than the 5,519 million pounds reported for 1984. Sales of bulk surface-active agents in 1985 amounted to 3,328 million pounds, valued at \$1,574 million, compared with sales in 1984 of 3,443 million pounds, valued at \$1,874 million. In terms of quantity, sales in 1985 were 3.3 percent less than in 1984.

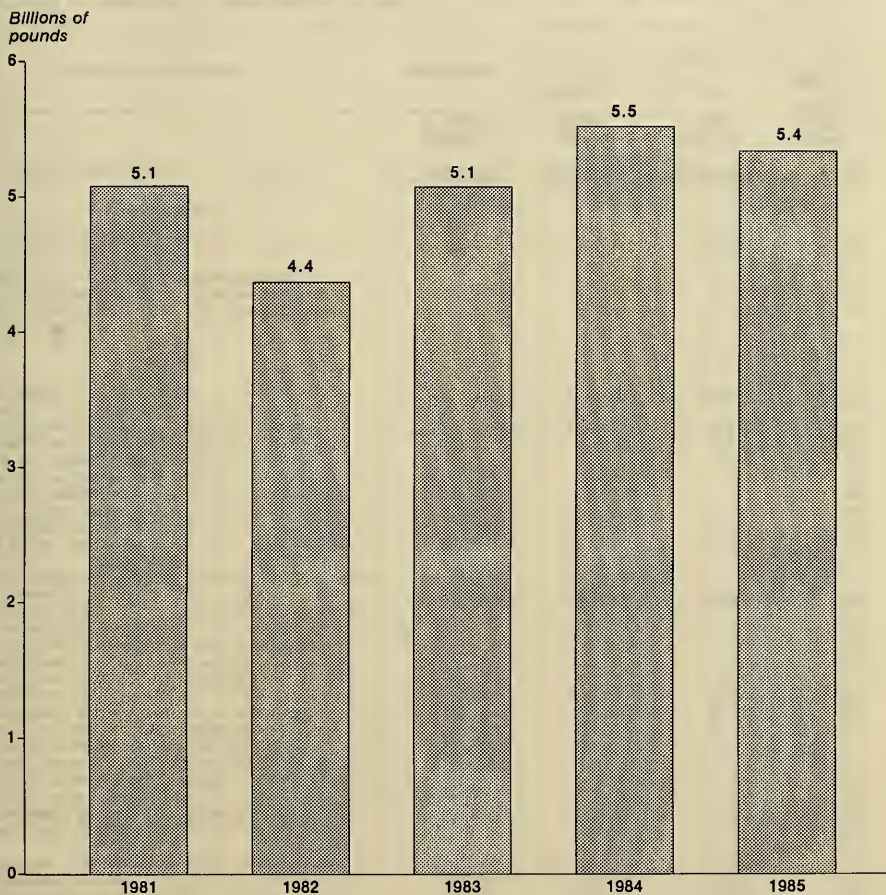
Production of anionic surface-active agents in 1985 amounted to 3,355 million pounds, or 62.6 percent of the total surfactant output reported for 1985. Sales of anionics in 1985 amounted to 1,684 million pounds, valued at \$538 million.

Production of cationic surface-active agents in 1985 amounted to 418 million pounds, 8.3 percent less than the 456 million pounds reported in 1984. Production of nonionic surface-active agents amounted to 1,564 million pounds in 1985, 1.4 percent more than the 1,543 million pounds reported in 1984. Sales of cationic surface-active agents in 1985 decreased by 3.2 percent in terms of quantity, and by 14.3 percent in terms of value when compared with sales as reported in 1984. Sales of nonionics in 1985 decreased by 2.0 percent in terms of quantity, and by 25.6 percent in terms of value when compared with sales as reported in 1984.

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.



Figure 1.—Surface-active agents.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



REPORT ON THE RESEARCH OF  
DR. [Name]



XII -- SURFACE-ACTIVE AGENTS

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TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1985

[Listed below are the surface-active agents for which reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all surface-active agents for which data on production and/or sales were reported and identifies the manufacturers of each]

SURFACE-ACTIVE AGENTS	PRODUCTION <sup>1</sup>		SALES <sup>2</sup>	
	1,000 pounds	1,000 pounds	VALUE	UNIT VALUE <sup>3</sup>
			1,000 dollars	Per pound
Grand total-----	5,363,183	3,327,828	1,574,310	\$0.47
<b>AMPHOTERIC</b>				
Total-----	25,369	22,026	24,973	1.13
(Carboxymethyl)[3-(coconut oil amido)propyl] dimethylammonium hydroxide, inner salt-----	970	935	1,591	1.70
N-Dodecyl-3-iminodipropionic acid, disodium salt-----	254	254	377	1.48
(Mixed alkyl) sulfobetaine-----	1,099	...	...	...
<b>ANIONIC</b>				
Total-----	3,355,178	1,683,542	537,646	.32
Carboxylic acids (and salts thereof), total-----	831,989	157,871	71,970	.46
Amine salts of fatty, rosin, and tall oil acids-----	2,625	1,292	1,603	1.24
Coconut oil acids, potassium salt-----	...	329	193	.59
Coconut oil acids, sodium salt-----	104,125	3,236	1,307	.54
Oleic acid, sodium salt-----	417	133	175	1.32
Palm oil acids, sodium salt-----	222	56	28	.50
Stearic acid, potassium salt-----	682	490	462	.94
Tallow acids, sodium salt-----	324,940	21,540	5,950	.28
Phosphoric and polyphosphoric acid esters (and salts thereof), total-----	43,642	33,618	33,138	.99
Alcohols and phenols, alkoxylated and phosphated, total-----	30,441	27,534	24,296	.88
Decyl alcohol, ethoxylated and phosphated-----	1,459	1,317	945	.72
Dinonylphenol, ethoxylated and phosphated-----	843	797	762	.96
Mixed linear alcohols, ethoxylated and phos- phated-----	5,695	5,106	5,082	1.00
Nonylphenol, ethoxylated and phosphated-----	12,478	11,531	6,988	.61
Phenol, ethoxylated and phosphated-----	2,963	2,863	3,181	1.11
Tridecyl alcohol, ethoxylated and phosphated-----	760	...	...	...
All other phosphoric and polyphosphoric acid esters: (and salts thereof), total-----	13,201	6,084	8,842	1.45
Decyl and octyl phosphate-----	756	721	425	.59
2-Ethylhexyl phosphate, sodium salt-----	300	248	335	1.35
Mixed alkyl phosphate-----	2,697	1,055	1,670	1.58
Sulfonic acids (and salts thereof), total-----	1,769,507	1,276,125	284,340	.22
Alkylbenzenesulfonates, total-----	568,642	187,798	97,427	.52
Dodecylbenzenesulfonic acid-----	234,372	122,819	56,534	.46
Dodecylbenzenesulfonic acid, calcium salt-----	7,062	3,793	3,865	1.02
Dodecylbenzenesulfonic acid, isopropylamine salt--	5,067	4,158	3,347	.80
Doceylbenzenesulfonic acid, sodium salt-----	168,941	47,927	26,105	.54
Dodecylbenzenesulfonic acid, triethanolamine salt-----	7,188	6,874	3,998	.58
Tridecylbenzenesulfonic acid, sodium salt-----	118,987	...	...	...

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION <sup>1</sup>	SALES <sup>2</sup>		
		QUANTITY <sup>1</sup>	VALUE	UNIT VALUE <sup>3</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ANIONIC--Continued				
Sulfonic acids (and salts thereof)--continued				
Benzene-, cumene-, toluene-, and xylensulfonates,				
total-----	105,833	91,137	24,217	\$0.27
Cumenesulfonic acid, sodium salt-----	8,007	7,922	3,095	.39
Xylensulfonic acid, sodium salt-----	68,732	60,209	13,795	.23
Ligninsulfonates and naphthalenesulfonates, total--	979,824	924,765	92,768	.10
Diisopropyl-naphthalenesulfonic acid, sodium salt--	1,648	1,280	2,697	2.11
Ligninsulfonic acid, ammonium salt-----	6,307	6,334	496	.08
Ligninsulfonic acid, calcium salt-----	560,077	520,637	23,749	.05
Ligninsulfonic acid, chromium salt-----	54,908	53,748	8,416	.16
Ligninsulfonic acid, sodium salt-----	289,389	278,051	22,606	.08
Mixed alkane sulfonic acid, sodium salt-----	9,089	7,672	5,944	.77
Sulfosuccinamic acid derivatives-----	2,167	1,839	2,148	1.17
Taurine derivatives-----	1,690	1,702	3,131	1.84
Sulfonic acids having ester or ether linkages,				
total-----	76,599	35,416	44,318	1.25
Sulfosuccinic acid esters, total-----	21,172	19,652	22,554	1.15
Sulfosuccinic acid, bis(2-ethylhexyl)ester,				
sodium salt-----	14,565	14,013	16,560	1.18
Sulfosuccinic acid, ditridecyl ester,				
sodium salt-----	193	158	212	1.34
All other sulfonic acids (and salts thereof)-----	25,663	25,616	14,387	.56
Sulfuric acid esters (and salts thereof), total-----	668,704	199,195	139,574	.70
Acids, amides, and esters, sulfated-----	9,926	6,488	3,530	.54
Alcohols, sulfated, total-----	275,925	90,289	66,634	.74
Dodecyl sulfate, sodium salt-----	1,725	1,517	1,312	.86
Dodecyl sulfate, ammonium salt-----	28,052	19,597	10,281	.52
Dodecyl sulfate, diethanolamine salt-----	1,486	1,584	1,158	.73
Dodecyl sulfate, magnesium salt-----	273	221	245	1.11
Dodecyl sulfate, sodium salt-----	42,926	40,826	26,987	.66
Dodecyl sulfate, triethanolamine salt-----	13,167	10,562	7,694	.73
2-Ethylhexyl sulfate sodium salt-----	1,412	1,331	4,212	3.17
Mixed linear alcohols, sulfated, ammonium salt--	48,556	3,778	3,566	.94
Mixed linear alcohols, sulfated, triethanolamine				
salt-----	20,119	4,623	3,996	.86
Octyl sulfate, sodium salt-----	209	213	314	1.47
Ethers, sulfated, total-----	357,558	78,207	52,770	.67
Alkylphenols, ethoxylated and sulfated-----	7,012	7,207	7,343	1.02
Dodecyl alcohol, ethoxylated and sulfated,				
ammonium salt-----	1,926	1,645	1,168	.71
Dodecyl alcohol, ethoxylated and sulfated,				
sodium salt-----	11,201	10,351	9,764	.94
Mixed linear alcohols, ethoxylated and sulfated				
ammonium salt-----	...	29,893	18,013	.60
Mixed linear alcohols, ethoxylated and sulfated,				
sodium salt-----	180,907	28,526	15,693	.55
Natural fats and oils, sulfated, total-----	25,295	24,211	16,641	.69
Castor oil, sulfated, sodium salt-----	3,176	2,874	2,106	.73
Coconut oil sulfated, sodium salt-----	33	...	...	...
Mixed fish oils, sulfated, sodium salt-----	2,232	2,355	865	.37
Neatsfoot oil, sulfated, sodium salt-----	811	...	...	...
Tall oil, sulfated, sodium salt-----	948	798	327	.41
Tallow sulfated, sodium salt-----	750	613	247	.40
All other anionic surface-active agents-----	41,336	16,733	8,624	.52

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	SALES <sup>2</sup>			
	PRODUCTION <sup>1</sup>	QUANTITY <sup>1</sup>	VALUE	UNIT VALUE <sup>3</sup>
<b>CATIONIC</b>				
Total-----	418,466	311,759	298,840	\$ .96
Amine oxides and oxygen-containing amines (except those having amide linkages), total-----	90,310	41,596	34,671	.83
Acyclic, total-----	82,766	35,253	28,142	.80
(Coconut oil alkyl)amine, ethoxylated-----	2,379	3,507	3,016	.86
(Mixed alkyl)amine, ethoxylated-----	686	...	...	...
(9-Octadecenyl)amine, ethoxylated-----	1,001	...	...	...
(Tallow alkyl)amine, ethoxylated-----	6,548	6,310	3,576	.57
N-(Tallow alkyl)trimethylenediamine, ethoxylated-----	...	1,924	1,530	.79
Cyclic (including imidazoline and oxazoline derivatives), total-----	7,544	6,343	6,529	1.03
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline-----	594	377	1,255	3.33
Amines and amine oxides having amide linkages, total-----	29,112	14,037	13,962	.99
3-Lauramido-N,N-dimethylpropyl amine oxide-----	300	325	628	1.93
Stearic acid-diethylenetriamine condensate-----	670	556	858	1.54
Stearic acid-ethylenediamine condensate, mono-ethoxylated-----	169	163	134	.82
Tall oil acids polyalkylenepolyamine condensate-----	10,446	...	...	...
Amines, not containing oxygen (and salts thereof), total-----	108,383	75,587	68,250	.90
Amine salts-----	585	...	...	...
Diamines and polyamines-----	25,480	19,895	17,030	.86
Imidazoline derivatives-----	9,198	9,475	7,749	.82
N-(9-Octadecenyl)trimethylenediamine-----	973	...	...	...
N-(Tallow alkyl)dipropylenetriamine-----	548	191	169	.88
N-(Tallow alkyl)trimethylenediamine-----	7,414	3,903	3,185	.82
Monoamines, total-----	82,318	54,129	49,492	.91
(Coconut oil alkyl)amine-----	...	1,477	1,799	1.22
N,N-Dimethyloctadecylamine-----	1,337	323	510	1.58
(Hydrogenated tallow alkyl)amine-----	5,419	4,367	3,689	.84
9-Octadecenylamine-----	8,519	6,017	4,676	.78
Octadecylamine-----	2,007	1,475	1,555	1.05
(Soybean oil alkyl)amine-----	2,623	899	665	.74
(Tallow alkyl)amine-----	7,633	8,383	5,867	.70
Quaternary ammonium salts, containing oxygen-----	41,079	31,966	29,148	.91
Quaternary ammonium salts, not containing oxygen-----	...	...	...	...
Total-----	146,620	145,688	127,926	.88
Acyclic, total-----	116,452	119,570	105,614	.88
Bis(coconut oil alkyl)dimethylammonium chloride-----	...	1,584	2,402	1.52
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	65,232	64,399	51,682	.80
N,N,N',N',N'-Pentamethyl-N-(tallow alkyl)trimethylene-bis(ammonium chloride)-----	...	1,071	898	.84
Trimethyl(tallow)ammonium chloride-----	718	1,205	1,218	1.01

See footnotes at end of table.



TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION <sup>1</sup>	SALES <sup>2</sup>		
		QUANTITY <sup>1</sup>	VALUE	UNIT
		1,000 pounds	1,000 dollars	VALUE <sup>3</sup> Per pound
CATIONIC--Continued				
Quaternary ammonium salts, not containing oxygen--				
Continued				
Benzenoid, total <sup>4</sup>	30,168	26,118	23,312	\$0.85
Benzyl(coconut oil alkyl)dimethylammonium chloride	2,665	...	...	...
Benzyl(mixed alkyl)ammonium chloride	12,418	11,137	7,520	.68
1-Benzylpyridinium chloride	139	139	157	1.13
Benzyltrimethylammonium chloride	3,913	3,445	2,611	.76
All other cationic surface-active agents	2,955	2,885	24,883	8.62
NONIONIC				
Total	1,564,163	1,310,501	712,851	.54
Carboxylic acid amides, total	52,931	48,257	40,243	.83
Diethanolamine condensates (amine/acid ratio=2/1), total	16,664	13,834	10,256	.74
Coconut oil acids	7,767	6,346	5,121	.81
Coconut oil and tallow acids	3,206	3,061	1,576	.51
Lauric and myristic acids	787	237	255	1.08
Oleic acid	742	505	372	.74
Stearic acid	88	...	...	...
Tall oil acids	1,880	1,660	1,197	.75
Diethanolamine condensates (other amine/acid ratios), total	26,838	24,171	20,382	.84
Coconut oil acids (amine/acid ratio=1/1)	19,051	17,449	14,154	.81
Lauric acid (amine/acid ratio=1/1)	3,592	2,806	2,915	1.04
Lauric and myristic acids (amine/acid ratio=1/1)	1,633	1,586	1,514	.95
Linoleic acid (amine/acid ratio=1/1)	493	512	460	.90
Oleic acid (amine/acid ratio=1/1)	136	83	57	.69
Soybean oil acids (amine/acid ratio=1/1)	1,027	987	604	.61
Stearic acid (amine/acid ratio=1/1)	118	87	63	.72
Other carboxylic acid amides, total	16,428	10,252	9,605	.94
Coconut oil acid-ethanolamine condensate (amine/acid ratio=1/1)	4,466	1,963	1,822	.93
Carboxylic acid esters, total	259,137	206,463	170,960	.83
Anhydrosorbitol esters, total	33,686	31,535	22,761	.72
Anhydrosorbitol monolaurate	4,883	4,844	3,570	.74
Anhydrosorbitol mono-oleate	6,765	4,993	4,003	.80
Anhydrosorbitol monostearate	17,763	17,605	11,872	.67
Anhydrosorbitol trioleate	2,250	1,999	1,473	.74
Diethylene glycol esters, total	17,367	1,447	1,075	.74
Diethylene glycol monolaurate	423	432	281	.65
Diethylene glycol monostearate	71	81	82	1.01
Ethoxylated sorbitol and anhydrosorbitol esters, total	30,841	28,424	22,342	.79
Ethoxylated anhydrosorbitol monolaurate	5,573	5,304	4,537	.86
Ethoxylated anhydrosorbitol mono-oleate	7,636	7,149	4,845	.68
Ethoxylated anhydrosorbitol monostearate	11,087	9,859	7,430	.75
Ethoxylated anhydrosorbitol triester of tall oil acids	532	528	325	.62
Ethoxylated anhydrosorbitol trioleate	2,094	2,035	1,724	.85
Ethoxylated anhydrosorbitol tristearate	921	807	668	.83

See footnotes at end of table.



## XII -- SURFACE-ACTIVE AGENTS

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TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION <sup>1</sup>		SALES <sup>2</sup>	
	1,000 pounds	1,000 pounds	VALUE	UNIT
			1,000 dollars	VALUE <sup>3</sup> Per pound
NONIONIC--Continued				
Carboxylic acid esters--Continued				
Ethylene glycol monostearate	2,715	2,641	2,102	.80
Glycerol esters, total	60,700	53,366	46,874	.88
Complex glycerol esters	11,339	8,207	10,817	1.32
Glycerol esters of chemically defined acids, total	18,004	14,772	12,352	.84
Glycerol mono-oleate	6,123	4,347	3,803	.87
Glycerol monoricinoleate	55	52	77	1.46
Glycerol monostearate	11,149	10,090	8,987	.80
Glycerol esters of mixed acids	31,357	30,387	23,705	.78
Natural fats and oils, ethoxylated, total	32,995	24,090	21,457	.89
Castor oil, ethoxylated	13,756	9,859	7,167	.73
Hydrogenated castor oil, ethoxylated	5,064	3,639	4,295	1.18
Lanolin, ethoxylated	1,894	1,366	1,202	.88
Polyethylene glycol esters, total	46,570	38,827	29,231	.75
Polyethylene glycol diester of tall oil acids	3,825	1,449	817	.56
Polyethylene glycol diisaurate	857	901	924	1.03
Polyethylene glycol dioleate	2,916	661	537	.81
Polyethylene glycol monoester of tall oil acids	664	503	419	.83
Polyethylene glycol monolaurate	5,019	4,436	3,403	.77
Polyethylene glycol mono-oleate	3,563	2,458	2,059	.84
Polyethylene glycol monopelargonate	1,431	...	...	...
Polyethylene glycol monostearate	5,934	5,124	4,296	.84
Polyethylene glycol sesquiester of tall oil acid	2,054	1,764	1,190	.67
Polyglycerol esters, total	1,555	1,488	2,076	1.40
Polyglycerol mono-oleate	640	640	791	1.24
1,2-Propanediol monostearate	1,665	1,328	1,907	1.44
Ethers, total	1,215,350	1,044,620	484,219	.46
Benzenoid ethers, total <sup>4</sup>	432,013	379,536	178,788	.47
Dinonylphenol, ethoxylated	4,173	3,343	2,763	.83
Dodecylphenol, ethoxylated	15,548	13,954	7,440	.53
Nonylphenol, ethoxylated	323,314	297,738	113,983	.38
Nonylphenol, ethoxylated and propoxylated	825	...	...	...
Phenol, ethoxylated	1,853	770	642	.83
Nonbenzenoid ethers, total	703,976	605,177	260,440	.43
Chemically-defined linear alcohols, ethoxylated, total	28,045	24,022	24,439	1.02
Decyl alcohol, ethoxylated	6,913	4,953	2,534	.51
Dodecyl alcohol, ethoxylated	3,221	2,757	2,285	.83
9-Octadecenyl alcohol, ethoxylated	1,213	680	730	1.07
Octadecyl alcohol, ethoxylated	1,471	...	...	...
Oleyl alcohol, ethoxylated	2,365	2,357	2,750	1.17
Mixed linear alcohols, alkoxylated, total	675,931	581,155	236,001	.41
Mixed linear alcohols, ethoxylated	607,747	516,148	204,392	.40
Mixed linear alcohols, ethoxylated and propoxylated	25,220	28,708	18,700	.65

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION <sup>1</sup>	SALES <sup>2</sup>		
		QUANTITY <sup>1</sup>	VALUE	UNIT VALUE <sup>3</sup>
	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>dollars</u>	<u>Per</u> <u>pound</u>
NONIONIC--Continued				
Ethers--Continued				
Other ethers and thioethers, total-----	79,282	59,772	44,991	\$0.75
Mixed alcohols, ethoxylated-----	6,460	...	...	...
Poly(mixed ethylene, propylene) glycol-----	12,979	...	...	...
Tridecyl alcohol, ethoxylated-----	13,481	8,699	4,887	.56
All other nonionic surface-active agents-----	36,745	11,161	17,429	1.56

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

<sup>2</sup>Sales include products sold as bulk surface-active agents only.

<sup>3</sup>Calculated from unrounded figures.

<sup>4</sup>The term "benzenoid" used in this report, describes any surface-active agent, except lignin derivatives, whose molecular structure includes 1 or more 6-membered carbocyclic or heterocyclic rings with conjugated double bonds (e.g., the benzene ring or the pyridine ring).

NOTE: Data for "all other" categories, which were published in previous editions of this report, can be derived by subtracting from the totals of each category the sum of the enumerated items within that category.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT]

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMPHOTERIC	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium chloride, disodium salt	BRD.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt	X.
Bis(2-hydroxyethyl)allow ammonium ethanoate	MIR.
3-(Caprylamido)ethylene-(2-hydroxyethyl)amino-propionic acid	MIR.
Caprylamphopropionate	MOA.
1-Carboxyethyl-1-(2-ethoxycarboxyethyl)-2-cocoimidazolinium, disodium salt	SBC.
1-Carboxyethyl-1-(2-hydroxyethyl)-2-heptyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.
1-Carboxyethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.
(1-Carboxyheptadecyl)trimethylammonium hydroxide, inner salt	DUP.
(Carboxymethyl-3-cocamidopropyl)dimethylammonium chloride, sodium salt	ENJ.
*Carboxymethyl[3-(coconut oil amido)propyl]-dimethylammonium hydroxide, inner salt	
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium hydroxide, sodium derivative, sodium salt	CYL, JOR, MIR, OMX, SCF, SHX.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-heptyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	BRD, MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	BRD, MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMPHOTERIC--CONTINUED	
(Carboxymethyl)-3-(laurylamidopropyl)dimethyl ammonium hydroxide, inner salt	JOR, MIR.
Cocamidophoglycinate	MOA
Cocamidopropyl betaine	CRD, MOA.
3-[3-(Cocamidopropyl)dimethylammonio]-2-hydroxypropane sulfonate	MIR.
(3-Cocamidopropyl)(2-hydroxy-3-sulfopropyl)dimethyl hydroxide, inner salt	SBC.
(3-Cocamidopropyl)-(2-hydroxy-3-sulfopropyl)-dimethyl ammonium hydroxide, inner salt	SHX.
3-(Cocamidopropyl)-2-hydroxy-3-sulfopropylidimethyl ammonium hydroxide, inner salt	SCP.
Cocosphocarboxylate	MOA.
Cocosphocarboxylate	MOA.
Cocosphopropionate	MOA.
N-(Coconut oil alkyl)-8-alanine, partial sodium salt	SCP.
N-(Coconut oil alkyl)-8-alanine, sodium salt	DUF, WN.
3-(Coconut oil alkyl)amidoethylene-(2-hydroxyethyl)-aminopropionic acid	MIR.
N-(Coconut oil alkyl)aminobutyric acid	ARC.
N,N-Di(hydroxyethyl)-n-carboxymethyl tallow ammonium quat, inner salt	SHX.
Di-(hydrogenated tallow)methylammonium tallowate	SHX.
Dimethyloleylammonium ethanoate	MIR.
N-Dodecyl-3-aminopropionic acid	MOA.
*N-Dodecyl-3-aminopropionic acid, disodium salt	IAC, MIR, MOA, SCP.
N-Dodecyl-3-aminopropionic acid, monosodium salt	MIR.
N-Dodecyl-3-aminopropionic acid, monosodium salt	SCP.
Heptadecylmethylbenzimidazole sulfonic acid, sodium salt	BRD
1-(2-Hydroxyethyl)-2-heptyl-3-carboxyethyl-imidazoline, sodium salt	SCP.
1-Hydroxyethyl-1-(2-hydroxy-3-sodium sulfonatopropyl)-2-capryl-2-imidazolium hydroxide	MIR.
1-Hydroxyethyl-1-(2-hydroxy-3-sodium sulfonatopropyl)-2-nor-coconut oil fatty acids-2-imidazolium hydroxide	MIR.
1-Hydroxyethyl-1-(2-hydroxy-3-sodium sulfonatopropyl)-2-oleyl-2-imidazolium hydroxide	MIR.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMPHOTERIC--CONTINUED	
1-(2-Hydroxyethyl)-1-(sodium carboxymethylene-oxethylene)-2-nor-coconut oil fatty acids-2-imidazolium hydroxide	MIR.
Isodecylpropylaminopropionic acid, monosodium salt	ENJ.
Isostearic amphopropionate	MOA.
Laurylamidopropyl betaine	MOA.
Laurylamphoglycinate	MOA.
* (Mixed alkyl)sulfobetaine	BRD, JOR, MOA, X.
Oleic acid-ethylenediamine condensate, propoxylated and sulfated, sodium salt	MOA.
Oleyl betaine	SCP.
1-(Sodium carboxyethylene)-1-(sodium carboxymethylene-oxethylene)-2-nor-(tall oil fatty acids)-2-imidazolium hydroxide	MIR.
1-(Sodium carboxymethyl)-1-(sodium carboxymethylene-oxethylene)-2-nor-(coconut oil fatty acids)-2-imidazolium lauryl sulfate	MIR.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt	MIR, MOA, SCP.
Tridecylpoly(ethyleneoxy)propionic acid, potassium salt	MRV.
Amphoteric surface-active agents, all other	DUP, S, WTC, X.
ANIONIC	
CARBOXYLIC ACIDS (AND SALTS THEREOF):	
AMINE SALTS OF FATTY, ROSIN, AND TALL OIL ACIDS:	
Coconut oil acids, diethanolamine salt	SKX.
Coconut oil acids, ethanolamine salt	SPF.
Coconut oil acids, triethanolamine salt	DA.
Isostearic acid, triethanolamine salt	FCI.
Octanoic acid, triethanolamine salt	X.
Oleic acid, diethylamine salt	WTC.
Oleic acid, morpholine salt	X.
Oleic acid, triethanolamine salt	CPG, X.
3-Propanoic acid, coco-amino, sodium salt	PCI.
Rosin acids, triethanolamine salt	CPG.
Stearic acid, N,N,N',N'-tetrakis(2-hydroxyethyl)-ethylenediamine salt	ICI.
Stearic acid, triethanolamine salt	AAC, CFC, GGY, PCI, X.



TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
CARBOXYLIC ACIDS (AND SALTS THEREOF)--CONTINUED	
AMINE SALTS OF FATTY, ROSIN, AND TALL OIL	
ACIDS--CONTINUED	
Tall oil acids, diethanolamine salt (Condensate)	SHY
Tallow acids, ethanolamine salt	SBF
Tallow acids, triethanolamine salt	SBF
Amine salts of fatty, rosin, and tall oil acids, all other	S, WM
CARBOXYLIC ACIDS HAVING AMIDE, ESTER, OR ETHER LINKAGES:	
5 (or 6)-Carboxy-4-hexyl-2-cyclohexene-1-octanoic acid, reaction products with castor oil	X
N-(Coconut oil acyl)sarcosine	HMP
N-(Coconut oil acyl)sarcosine, sodium salt	HMP
Dodecylxypoly(ethyleneoxy)acetic acid, sodium salt	MIR
N-Lauroyliminodiacetic acid	HMP
N-Lauroylsarcosine	HMP
N-Lauroylsarcosine, ammonium salt	HMP
N-Lauroylsarcosine, sodium salt	HMP
Mixed(secondary linear alcohol)polyethylene	
Propionic acid, sodium salt	CHP
N-Oleoylsarcosine, sodium salt	GHF
N-Oleoylsarcosine	HMP
Poly(oxy-1,2-ethanediyl)- $\alpha$ -carboxy methyl, omega- (tri-decyloxy), potassium salt	PCI
Tridecylxypoly(ethyleneoxy)acetic acid, sodium salt	HMP
Carboxylic acids with amide, ester or ether linkage, other	DA, WTC
POTASSIUM AND SODIUM SALTS OF FATTY, ROSIN, AND TALL OIL ACIDS:	
Animal grease, sodium salt	NMC
5 (or 6)carboxy-4-hexyl-2-cyclohexene-1-octanoic acid, potassium/sodium salt	X
Castor oil acids, sodium salt	
Citric acid, sodium salts (50% in sodium phosphates (20%))	STC
*Coconut oil acids, potassium salt	AGP, CON, ESS, HEW, HFP, HNT, LAS, LUR, NMC, PG, PNX, SOP
*Coconut oil acids, sodium salt	BSW, CON, CF, HEW, LAS, LEV, NMC, NFR, PG, SOP, X
Corn oil acids, potassium salt	HNT, NMC

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMONIC--CONTINUED	
CARBOXYLIC ACIDS (AND SALTS THEREOF)--CONTINUED	
POTASSIUM AND SODIUM SALTS OF FATTY, ROSIN, AND	
TALL OIL ACIDS--CONTINUED	
2-Ethylhexanoic acid, potassium salt-----	UPF.
Gluconic acid, potassium and sodium salts with	
20 percent mix of sodium bisulfite-formaldehyde-----	STC.
Heptanoic acid, potassium salt-----	X.
Hexyl(isononyl anide)carboxylic acid, mono-and	
triethanolamine salts-----	STC.
Hexyl(isononyl anide)carboxylic acid, triethanol-	
di-and triethanolamine salts-----	STC.
Isonanoic acid, sodium salt-----	STC.
Isoostearic acid, isopropoxy titanium salt-----	KPI.
Mixed vegetable fatty acids, potassium salt-----	CEL, QCP.
Mixed vegetable fatty acids, sodium salt-----	NMC, QCP.
Mixed vegetable fatty acids, triethanolamine salt-----	EFR.
Naphthenic acid, potassium salt-----	WBG.
Oleic acid, ammonium salt-----	CCC.
Oleic acid, epoxidized, ammonium salt-----	SCP.
Oleic acid, potassium salt-----	BSW, DA, HAL, HMT, PG, WBG, X.
*Oleic acid, sodium salt-----	BSW, DA, USR, WBG, WTC.
Olive oil acids, sodium salt-----	HMT.
Palm kernel oil acids, sodium salt-----	PG.
*Palm oil acids, sodium salt-----	NMC, PG.
Rosin acids, potassium salt-----	BSW, HEM, LAS.
Soybean oil acids, sodium salt-----	ARZ, X.
*Stearic acid, potassium salt-----	SLM(E), X.
Stearic acid, ammonium salt-----	DA, PNX.
*Stearic acid, potassium salt-----	BSW, CCC, CON, DA, HEM, WTC.
Tall oil acids-----	CON, DA, NOC, STP, WTC.
Tall oil acids, potassium salt-----	WVA.
Tall oil acids, sodium salt-----	CCC, CON, DA, DAN, ESS, HFP, HMT, PMX, SOP.
Tallow acids, potassium salt-----	CON, GDC, RHC, WVA, X.
*Tallow acids, sodium salt-----	AGF, LAS, PG, PNX.
Potassium and sodium salts of fatty, rosin, and	
tall oil acids, all other-----	BSW, CON, CP, DA, HEM, LAS, LEV, NMC, NFR, PG, PNX, X. DA, USR.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF):	
ALCOHOLS AND PHENOLS, ALKOXYLATED AND PHOSPHATED:	
Amyl alcohol, ethoxylated and phosphated	GAF.
Butyl alcohol, ethoxylated and phosphated	GAF.
*Decyl alcohol, ethoxylated and phosphated	GAF, MCB, MCP, RFC, STC, TCH.
*Dodecyl alcohol, potassium salt	RFC.
*Dinonylphenol, ethoxylated and phosphated	CFC, GAF, WTC.
*Dodecyl alcohol, ethoxylated and phosphated	GAF.
*Dodecylphenol, ethoxylated and phosphated	DEX, GAF.
2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated	CCC.
2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated, sodium salt	CCC.
2-Ethylhexanol, ethoxylated and phosphated	DA, SOS, STC.
2-Ethylhexanol, ethoxylated and phosphated, potassium salt	CHP.
2-Ethylhexanol, phosphated	MCB.
2-Ethylhexanol, phosphated, potassium salt	MCB.
Hexyl alcohol, ethoxylated and phosphated	GAF.
Hexyl alcohol, phosphated, potassium salt, solubilized	MCB.
Mixed linear alcohols, alkoxyated and phosphated, potassium salt	PCI.
*Mixed linear alcohols, ethoxylated and phosphated	HRT, JOR, MCB, MOA, HRV, RFC, SCP, TCH, WTC, X, X.
Mixed linear alcohols, ethoxylated and phosphated, sodium salt	CHP.
Mixed tridecyl alcohol and 2-ethylhexanol, phosphated, potassium salt	CHP.
*Nonylphenol, ethoxylated and phosphated	CET, CTL, CYL, DA, DEX, ESS, FTK, GAF, GDC, HRT, JOB, LVR, MCB, MCP, MOA, HZC, OMC, RFC, SCP, SOP, STC, TCC, WVA(E), WTC, X.
Nonylphenol, ethoxylated and phosphated, barium salt	WTC.
9-Octadecenyl alcohol, ethoxylated and phosphated	GAF, GLX, STC.
9-Octadecyl alcohol, ethoxylated and phosphated	GAF.
Octylphenol, ethoxylated and phosphated	RH, RFC, WTC.
Octylphenol, ethoxylated and phosphated, magnesium salt	OMX.

TABLE 2.---SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC---CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF)---CONTINUED	
ALCOHOLS AND PHENOLS, ALKOXYLATED AND PHOSPHATED---CONTINUED:	
Nonylphenol, ethoxylated and phosphated	OMC.
*Phenol, ethoxylated and phosphated	GAF, JOR, MCB, MCP, MIL, MOA, MZC, RH, TCH, WTC.
Polyhydric alcohol, ethoxylated and phosphated	DEX, GAF.
Tridecyl alcohol, ethoxylated and phosphated,	
polyalkylene polyamine salt	X.
*Tridecyl alcohol, ethoxylated and phosphated	DAM, DEK, GAF, HIP, MIL, OMC, X.
Tridecyl alcohol, ethoxylated and phosphated,	
potassium salt	DEX.
Alcohols and phenols, alkoxyated and phosphated	
or polyphosphated, all other	GAF, WTC.
ALCOHOLS, PHOSPHATED OR POLYPHOSPHATED:	
Butyl methyl pyrophosphate isopropoxy titanium salt	KFI.
Butyl phosphate, potassium salt	DUP.
*Decyl and octyl phosphate	DA, MZG, STC.
2-Ethylhexyl phosphate	GHP, MCP, OMC.
2-Ethylhexyl phosphate, potassium salt	PCI.
*2-Ethylhexyl phosphate, sodium salt	GHP, DAM, WTC.
2-Ethylhexyl polyphosphate	SFS.
Hexyl phosphate	DEX, SFS.
Hexyl phosphate, potassium salt	ICI, STC.
Hexyl polyphosphate, potassium salt	ICI.
Methylbutyl phosphate ethylenedioxytitanium salt	SCP.
*Mixed alkyl phosphate, sodium salt	KFI.
*Mixed alkyl phosphate	X.
*Mixed alkyl phosphate, alkylamine salt	X.
*Mixed alkyl phosphate, diethanolamine salt	DUP, SFS, STC, WTC, X.
*Mixed alkyl phosphate, potassium salt	DUP, SCP.
*Mixed alkyl phosphate, triethanolamine salt	STC, X.
Octyl phosphate	X.
Octyl phosphate, alkylamine salt	SCP, WTC.
Octyl phosphate, isopropoxy titanium salt	X.
Octyl phosphate nealkoxy titanium salt	KFI.
Octyl phosphate, potassium salt	DEX.
Octyl polyphosphate	DEX.
Octyl pyrophosphate, ethylenedioxy titanium salt	KFI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ALCOHOLS, PHOSPHATED OR POLYPHOSPHATED--CONTINUED	
Octyl pyrophosphate, ethylenedioxy titanium salt/dimethylaminomethacrylate salt	KPI.
Octyl pyrophosphate, isopropoxy titanium salt	KPI.
Octyl pyrophosphate neoalkoxy titanium salt	KPI.
Octyl pyrophosphate, oxethylenedioxy titanium salt	STC.
Tridecyl phosphate	DA, HRT, KPI, WTC.
Phosphated and polyphosphated alcohols, all other	
OTHER PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS:	
Blend of fatty and phosphate esters	MIL.
Ethanolamine, N,N-dimethylene phosphonic acid	OMC.
Glycerol, ethoxylated and phosphated	X.
Glycerol monester of mixed fatty acids, phosphated	WTC.
Polyoxyalkylate(fatty alcohol), phosphate ester	BAS.
Stearyl amine polyphosphoric acid, ethoxylated	GDC.
Phosphoric and polyphosphoric acid esters, all other	BAS, MOA, SFS, X, X.
SULFONIC ACIDS (AND SALTS THEREOF):	
ALKYLBENZENESULFONATES:	
*Dodecylbenzenesulfonic acid	CTL, EMK, JLF, LEV, ROW, PIL, PLX, STF(E), TCI, TEN, VST, WTC, WVA(E), X.
Dodecylbenzenesulfonic acid, (mixed alkyl)amine salt	ECC, HIP, X.
*Dodecylbenzenesulfonic acid, ammonium salt	CCC, X.
*Dodecylbenzenesulfonic acid, calcium salt	ICI, RH, STC, STP, TWH, WTC, X.
Dodecylbenzenesulfonic acid, ethoxylated, oleyl amine salt	STC.
Dodecylbenzenesulfonic acid, diethanolamine salt	VFC, WTC.
Dodecylbenzenesulfonic acid, isopropylamine salt	PIL.
*Dodecylbenzenesulfonic acid, isopropylamine salt	CTL, ICI, STP, WTC.
Dodecylbenzenesulfonic acid, isopropoxy titanium salt	KPI.
Dodecylbenzenesulfonic acid, monoethanolamine salt	FTX, FCI, RCI.
Dodecylbenzenesulfonic acid, potassium salt	GDC, FCI.
*Dodecylbenzenesulfonic acid, sodium salt	AAC, BIA, CP, CFC, CRT, CTL, DUP, ECC, JLF, LEV, NMC, PCI, PG, PIL, PLX, PMK, RFC, SOP, STF(E), TEN, VST, WTC, WVA(E).
*Dodecylbenzenesulfonic acid, triethanolamine salt	AAC, BRD, CCC, CFC, CTL, ESS, FTX, PIL, STP, WTC.
Dodecylbenzene sulfonates, all other	HK, MRV.



TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANTONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
ALKYLENESULFONATES--CONTINUED	
Benzenesulfonic acid, mixed linear (C <sub>9</sub> -14)	LEV.
Didodecylbenzenesulfonic acid	WTC.
Tridecylbenzenesulfonic acid	PLX.
*Tridecylbenzenesulfonic acid, sodium salt	BLA, CMT, CP, LAS, NFR, PG, STP.
Alkylbenzenesulfonates, all other	WTC.
BENZENE-, CUMENE-, TOLUENE-, AND XYLENESULFONATES:	
Benzenesulfonic acid, 3,3'-(1-methylthylidene)-bis(6-hydroxydisodium salt), polymer with formaldehyde and 4,4'-sulfonylbis(phenol)	DA.
Cumenesulfonic acid, ammonium salt	NES.
*Cumenesulfonic acid, sodium salt	DA, NES, STP, WTC.
Toluenesulfonic acid, potassium salt	NES.
Toluenesulfonic acid, sodium salt	NES, PG, VST.
Xylenesulfonic acid, ammonium salt	NES, STP, WTC.
Xylenesulfonic acid, potassium salt	NES.
*Xylenesulfonic acid, sodium salt	ICI, NES, PII, SDG, STP, WTC.
LIGHTSULFONATES:	
Ligninsulfonic acid, aluminum salt	DA.
*Ligninsulfonic acid, ammonium salt	MAR, PSP, RAY, SPA.
*Ligninsulfonic acid, calcium salt	FFC, LKI, MAR, PSP.
*Ligninsulfonic acid, chromium salt	MAR, PSP, RAY.
Ligninsulfonic acid, iron salt	MAR, PSP.
Ligninsulfonic acid, magnesium salt	MAR.
Ligninsulfonic acid, mixed chromium and iron salts	PSP.
Ligninsulfonic acid, potassium salt	FFC.
Ligninsulfonic acid, propoxylated, sodium salt	STP.
*Ligninsulfonic acid, sodium salt	MAR, PSP, RAY, WVA.
Ligninsulfonic acid, zinc salt	MAR, PSP.
NAPHTHALENESULFONATES:	
Butyl-naphthalenesulfonic acid, sodium salt	DA, ECC, UDI.
Butyl-o-phenylphenol sulfonic acid, sodium salt	EBG.
Di(C <sub>8</sub> -C <sub>12</sub> alkyl)naphthalenesulfonic acid	X.
Dibutyl-naphthalenesulfonic acid	UDI.
*Diisopropylnaphthalenesulfonic acid, sodium salt	DA, DUF, UDI.
Isopropylnaphthalenesulfonic acid	UDI.
Methyl-naphthalenesulfonic acid, sodium salt	FFC, DA, UDI.
Methylnonylnaphthalenesulfonic acid, sodium salt	UDI.
Naphthalenesulfonic acid, ammonium salt	DA.
4,4'-Sulfonyldiphenolnaphthalenesulfonic acid	FCI.
Naphthalenesulfonates, all other	HAL, ICI, UDI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
SULFONIC ACIDS HAVING AMIDE LINKAGES:	
SULFOSUCCINAMIC ACID DERIVATIVES:	
N-(Coconut oil alkyl)sulfosuccinamic acid, disodium salt-----	SCP.
N-(1,2-Dicarboxylethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt-----	ACY, MOA.
Lauric alkenolamidesulfosuccinate, sodium salt-----	TCH.
N-Octadecylsulfosuccinamic acid, disodium salt-----	ACY, WTC.
Oleamidisulfosuccinamic acid, disodium salt-----	SBC.
N-(Ceteoyloxyisopropyl)sulfosuccinamic acid-----	WTC.
TAURINE DERIVATIVES:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt-----	GAF.
N-Methyl-N-oleoyltaurine, sodium salt-----	CPC, GAF, STC.
N-Methyl-N-palmitoyltaurine, sodium salt-----	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt-----	CCC, GAF, WVA.
Sulfonic acids having amide linkages, all other-----	STC.
SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
SULFOSUCCINIC ACID ESTERS:	
Sulfosuccinic acid, bis(diisobutyl)ester, ammonium salt-----	MOA.
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl)- ester, sodium salt-----	MOA, NSC.
*Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt-----	ACC, ACY, CCC, CHP, CRT, ECC, EMK, ENJ, FTX, HDC, HCF, MOA, RH, RFC, SCO, STC, WTC.
Sulfosuccinic acid, dihexyl ester, sodium salt-----	ACY, MOA.
Sulfosuccinic acid, dodecyl ester, sodium salt-----	ACY.
Sulfosuccinic acid, dioctyl ester, sodium salt-----	DA, SOS.
Sulfosuccinic acid, dioctyl ester, sodium salt-----	MOA.
Sulfosuccinic acid, dipentyl ester, sodium salt-----	ACY, DA.
*Sulfosuccinic acid, dodecyl ester, sodium salt-----	ACY, DA, MOA.
Sulfosuccinic acid, (coconut oil alkyl)- iminoisopropanol half-ester, sodium salt-----	MOA.
Sulfosuccinic acid, mixed linear alcohols, ethoxylate ester, sodium salt-----	AAC.
Sulfosuccinic acid, monolauramide ester, disodium salt-----	MOA.
Sulfosuccinic acid, monolauryl(polyethoxy)ester, disodium salt-----	TCH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ANIONIC--CONTINUED</b>	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
SULFONIC ACIDS HAVING ESTER OR OTHER LINKAGES-- CONTINUED	
SULFOSUCCINIC ACID ESTERS--CONTINUED	
Sulfosuccinic acid, mono-oleamidopolyethyleneglycol ester, disodium salt-----	SGP.
Sulfosuccinic acid esters, all other-----	MIR, WTC.
ALL OTHER SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
Coconut oil acids, 2-sulfoethyl ester, sodium salt----	DA, FTK, GAF, JOR, LEV.
Dipolyethersulfonic acid, diethanolamine salt-----	VFC.
Dodecylphenyloxidisedisulfonic acid-----	X.
Dodecylphenyloxidisedisulfonic acid, disodium salt----	CTL, DOM, X.
Dodecyl sulfacetate-----	DA.
Dodecyl sulfacetate, sodium salt-----	STP.
Glycerol monostearate sulfacetate, sodium salt-----	WTC.
Iso-octylphenol, ethoxylated and sulfonated, sodium salt-----	GAF, RH.
n-Octylphenol, ethoxylated and sulfonated, sodium sodium salt-----	AAC, CRT, PG.
Sulfonic acids with ester linkages, all other-----	WTC.
Sulfonic acids with ether linkages, all other-----	DA, WTC.
OTHER SULFONIC ACIDS:	
Allyl sulfonate, sodium salt-----	ARD.
Diphenylsulfone sulfonic acid, potassium salt-----	UPF.
(Mixed alkane)sulfonic acid, sodium salt-----	AAC, AZS, CCL, DUP, ONK, WTC, WVA(E), X, X.
Oleyloxyethylamide oxypropenol sulfonic acid-----	S.
Petroleum sulfonic acid, water soluble (Acid layer), sodium salt-----	PLL, WTC.
Tall oil, sulfonated, potassium salt-----	X.
Sulfonic acids, all other-----	CLU, HAL, SLM, STP, WTC.
SULFURIC ACID ESTERS (AND SALTS THEREOF):	
ACIDS, AMIDES, AND ESTERS, SULFATED:	
CARBOXYLIC ACID ESTERS (EXCEPT NATURAL FATS AND OILS), SULFATED:	
ESTERS OF SULFATED OLEIC ACID:	
Butyl oleate, sulfated, sodium salt-----	HIP, ICI, MCP, MCV, MSC.
Butyl and propyl oleate, sulfated, sodium salt-----	CRT, LUR.
Isopropyl oleate, sulfated, sodium salt-----	DKA.
Methyl oleate, sulfated, sodium salt-----	DA, ICI.
Oleic acid, sulfated-----	ACT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFURIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ACIDS, AMIDES, AND ESTERS, SULFATED--CONTINUED	
CARBOXYLIC ACID ESTERS (EXCEPT NATURAL FATS AND OILS), SULFATED--CONTINUED	
ESTERS OF SULFATED OLEIC ACID--CONTINUED	
Oleic acid, sulfated, disodium salt	MCP, TEN.
Oleic acid, sulfated, sodium salt	ACY.
Propyl oleate, sulfated, sodium salt	CHP, HRV.
Esters of sulfated oleic acid, all other	DA.
OTHER CARBOXYLIC ACID ESTERS:	
Coconut oil acids--ethanolamine salt, sulfated, potassium salt	EMK.
Glycerol monoester of coconut oil acids, sulfated, sodium salt	CP.
Mixed alkyl phenol sulfate, ethoxylated, triethanolamine salt	MIL.
9-Octadecenyl acetate, sulfated, sodium salt	DUP.
Tall oil acids, sulfated, sodium salt	ICI.
ALCOHOLS, SULFATED:	
DODECYSULFATE SALTS:	
*Dodecyl sulfate, ammonium salt	AAC, BRD, CTL, CYL, JRG, LEV, ONX, STP(E), TCH, TMI, WTC, WVA(E).
*Dodecyl sulfate, diethanolamine salt	TMI, WTC, WVA(E).
Dodecyl sulfate, N,N-diethylcyclohexylamine salt	BRD, DUP, JRG, ONX, STP, TCH, WTC.
Dodecyl sulfate, isopropanolamine salt	DUP.
*Dodecyl sulfate, magnesium salt	BRD, JRG.
Dodecyl sulfate, potassium salt	AAC, BRD, CYL, ONX, WTC.
*Dodecyl sulfate, sodium salt	PG.
*Dodecyl sulfate, triethanolamine salt	AAC, BRD, DUP, ONX, STP, TCH, WTC, WVA(E).
	AAC, BRD, CYL, ONX, SHX, STP(E), TCH, TMI, WTC, WVA(E).
*Decyl sulfate, sodium salt	AAC, SCP, WTC.
3,9-Diethyl-6-tridecyl sulfate, sodium salt	NCC.
*2-Ethylhexyl sulfate, sodium salt	AAC, BRD, MCC, PCI, SCP, SOS, TCH, WTC.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	NCC.
Hexadecyl sulfate, sodium salt	CTL.
Hexyl sulfate, potassium salt	DEX.
Lauryl sulfate, sodium salt	BOA.
Linear alcohols, sulfated, all other	DA, WTC.
*Mixed linear alcohols, sulfated, ammonium salt	CP, NTL, PG, S, SCP, WTC, X.
Mixed linear alcohols, sulfated, diethanolamine salt	SCP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURERS, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFURIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ALCOHOLS, SULFATED--CONTINUED	
Mixed linear alcohols, sulfated, sodium salt	DA, DUF, ONX, PG, SCP, SEA, WTC.
*Mixed linear alcohols, sulfated, triethanolamine salt	AAC, CTL, ONX, PG, SCP, WTC.
*Octyl sulfate, sodium salt	AAC, AFX, DUF.
*Oleyl sulfate, sodium salt	DUF.
Polyglycidol sulfate	GAF.
Tridecyl sulfate, sodium salt	AAC.
ETHERS, SULFATED:	
ALXIPHENOLS, ETHOXYLATED AND SULFATED:	
(Mixed alkyl)phenol, ethoxylated and sulfated, sodium salt	PRL.
1-naphthol, ethoxylated and sulfated, free acid	TCH.
Nonylphenol, ethoxylated and phosphated, partial sodium salt	GAF.
Nonylphenol, ethoxylated and sulfated, ammonium salt	GAF, RFC, STP.
Nonylphenol, ethoxylated and sulfated, sodium salt	GAF, WTC.
Octylphenoxypolyethoxyethyl sulfate	RH.
Sulfated cyclic ethers, all other	STP(E), WVA(E).
Decyl alcohol, propoxylated and sulfated, sodium salt	AFX.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	AAC, MOA, STP(E), WTC.
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt	AAC, CTL, ONX, SCP, STP(E), TCH, WTC.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt	X.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, potassium salt	AFX.
Isobutanol, ethoxylated and sulfated, ammonium salt	X.
Mixed linear alcohol, ethoxylated and sulfated, mixed sodium and cocamphocarboxylate salts	AAC.
*Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	BRD, ONX, PG, SCP, SHC, STP(E), VST, WTC, X, X.
Mixed linear alcohols, ethoxylated and sulfated, diethanolamine salt	SCP.
Mixed linear alcohols, ethoxylated and sulfated, potassium salt	SVC.
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt	AAC, BRD, DUF, GAF, ONX, PG, PFL, SCP, SHC, SHX, STP, TCH, TCI, VST, WTC, WVA.



TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ANIONIC--CONTINUED</b>	
<b>SULFURIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED</b>	
<b>ETHERS, SULFATED--CONTINUED</b>	
Tridecyl alcohol, ethoxylated and sulfated, ammonium salt	ARC.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt	AAC.
<b>NATURAL FATS AND OILS, SULFATED:</b>	
*Caster oil, sulfated, sodium salt	ACT, ACY, APX, ABL, CRT, DA, DEX, HIP, ICI, LUR, MV, SCP, SLM, WHW.
*Coconut oil, sulfated, sodium salt	ACT, CIN, HRD.
Cod oil, sulfated, sodium salt	SEA, WHW.
Grease, other than wool, sulfated, sodium salt	WHW.
Herring oil, sulfated	SLM.
Herring oil, sulfated, sodium salt	SEA, SLM.
Lard, sulfated, sodium salt	CRT, MED, WHW.
Mixed fish oils, sulfated, ammonium salt	CIN.
*Mixed fish oils, sulfated, sodium salt	CIN, MRD, SLM, WHW.
Mixed vegetable oils, sulfated, sodium salt	CIN, CPC.
*Mustard seed oil, sulfated, sodium salt	DA.
*Neatsfoot oil, sulfated, sodium salt	CIN, SEA, SLM.
Peanut oil, sulfated, sodium salt	ACT.
Pecan oil, sulfated, sodium salt	CRT.
Pine oil, sulfated	SCM.
Ricebean oil, sulfated, sodium salt	DA.
Soybean oil, sulfated, sodium salt	ACT, WHW.
Tall oil, sulfated, ammonia salt	CIN.
*Tall oil, sulfated, sodium salt	ACT, APX, CIN, SOS, WHW WVA.
*Tallow, sulfated, sodium salt	ACT, CCC, ECC, LUR, HRD, MSC, SLM, SOS, WHW.
Natural fats and oils, sulfated, all other	DA.
All other sulfuric acid esters	BFP, DA, SLM.
<b>OTHER ANIONIC SURFACE-ACTIVE AGENTS:</b>	
Alkylalcohol ethoxylated and carbonated, sodium salt	S.
Blend of hydrocarbons and esters	MIL.
Ethoxylated acetic acid, sodium salt	S.
Half-phthalic acid ester of tallow alkanolamide/monoglyceride	EFH.
Isobutyl phthalate	SHX.
Lignin, sodium salt	WVA.
Maleated esterified tall oil	ENP.

TABLE 2. -- SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
OTHER ANIONIC SURFACE-ACTIVE AGENTS--CONTINUED	
Maleated linseed oil-----	ENP.
Mixed linear alcohols, ethoxylated and carbonated, sodium salt-----	S.
Tridecyl alcohol, ethoxylated and carbonated, sodium sodium salt-----	S.
Anionic surface-active agents, all other-----	DAM, DUP, MIR, SLM.
CATIONIC	
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMTDR LINKAGES):	
ACYCLIC:	
3-C <sub>12</sub> -18 alkyl(oxy)-1-propanamine-----	ENJ.
3-C <sub>12</sub> -18 alkyl(oxy)-1-propanamine-----	ENJ.
N-C <sub>12</sub> -18 alkyl(oxy)propyl trimethylene diamine-----	ENJ.
Bis-hydroxyethyl-cococamine oxide, phosphated potassium salt-----	JOR.
N,N-Bis(2-Hydroxyethyl)-(cocount oil alkyl)amine oxide-----	ARC.
Bis-(2-Hydroxyethyl)isodocylpropylamine oxide-----	ENJ.
N,N-Bis(2-Hydroxyethyl)octadecylamine-----	ARC, SHX.
N,N-Bis(2-Hydroxyethyl)(tallow alkyl)amine-----	ARC, MZC, SHX.
N,N-Bis(2-Hydroxyethyl)(tallow alkyl)amine acetate-----	MZC.
Cocamidopropyl dimethyl amine-----	SOS.
*Cocount oil alkylamine, ethoxylated-----	ARC, ENJ, MZC, SHX, SVC, TCH, X.
Cocylamidopropyl dimethylamine oxide-----	SCP.
Diethylenetriamine, ethoxylated and propoxylated-----	X.
Diethylenetriamine, propoxylated-----	X.
N,N-Dimethyl(cocount oil alkyl)amine oxide-----	ARC.
N,N-Dimethyldodecylamine oxide-----	BRD, JOR, PG, SHX, X.
N,N-Dimethylhexadecylamine oxide-----	ARC, BRD, ONK.
N,N-Dimethyl(mixed alkyl)amine oxide-----	PG, S.
N,N-Dimethyl oleyl amine oxide-----	SCP.
Di(pyrrolidonyl)ethyleneimine-----	PCI.
Ethoxylated and quaternized hydrogenated tallow alkyl amine-----	SVC.
Ethylene diamine, alkoxylated-----	X.
Hexyloxypropyl amine-----	DUF, ENJ.
(Hydrogenated tallow alkyl)amine, ethoxylated-----	ENJ, SHX.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)- ethylene diamine-----	ONK, WTC, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES)--CONTINUED	
ACYCLIC--CONTINUED	
Isodecylpropylamine	ENJ
Isodecylpropylamine, ethoxylated	ENJ
3-(3-Isodecylpropylaminopropyl) amine	SHX
N-Isodecylpropyl trimethylene diamine	ENJ
Isopropoxy-tris(2-ethylendiamino)ethyl titanate	KYI
Isotridecylpropylamine	ENJ
N-Isotridecylpropyl trimethylene diamine	ENJ
3-(Mixed alkoxy)propylamine, ethoxylated oxides	SHX
3-(3-Mixed alkoxy)propylaminopropyl amine	SHX
*(Mixed alkyl)amine, ethoxylated	ICI, RH, SHX, SVC.
Mixed alkyl)oxypropylamine	AZS
*(9-Octadecenyl)amine, ethoxylated	X.
Octadecylamine, ethoxylated	ARC, GAF, STG, TCH, X.
3-Octyloxy and 3-decylxy-propylamine	ARC, TCH
Oleylamine, ethoxylated	ARC
Polyalkylene polyamine, ethoxylated	MCB
Polyether amine, ethoxylated	X.
1-Propanamine, alkoxylated	RH
1,3-Propanediamine, alkoxylated	SHX
(Soybean oil alkyl)amine, ethoxylated	ARC, BAS, ENJ, MCB, SHX, SVC, TCH.
*(Tallow alkyl)amine, ethoxylated	ARC, DA, DDF, ENJ, GAF, MCB, S, SHX, STP, TCH, WVA(E), X.
(Tallow alkyl)amine, propoxylated	ARC
*(Tallow alkyl)trimethylenediamine, ethoxylated	ARC, BAS, ENJ.
*(Tallow alkyl)trimethylenediamine, propoxylated	ARC
Tallow ethyl alkylamine, ethoxylated, sulfate	RPC
N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine	MZC
N,N,N',N'-Tetrakis(2-hydroxypropyl)-ethylenediamine, propoxylated and ethoxylated	BAS, MZC
3-(3-Tridecyloxy)propylaminopropyl amine	SHX
Triethanolamine, ethoxylated	MIL, RSA, TCH.
Triethanolamine salicylate	EFH
Amine oxides and oxygen-containing amines (except those with amide linkages), cyclic, all other	BAS, DA, SDH, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES)--CONTINUED	
CYCLIC:	
Aniline, ethoxylated-----	MIL.
2-Butenedioic acid-( $\alpha$ )diamine - 1-(2-aminoethyl)-2-(tall oil alkyl)-2-imidazoline condensate-----	X.
2,5-Dimethoxyamine, ethoxylated-----	MIL.
2-Hexadecyl-1,4-hydroxymethyl-4-ethyl-2-oxazoline-----	BRD.
N-Hexadecylmorpholine-----	BRD.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine-----	MIR.
1-(2-Hydroxyethyl)-2-monyl-2-imidazoline-----	BRD, MIR, MOA, MZC, SCP, SHK.
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline-----	MOA, TCH.
1-(2-Hydroxyethyl)-2-nor(soys oil alkyl)-2-imidazoline-----	MIR.
*1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline-----	BRD, HDG, MIR, MOA, WTC, X.
1-(2-Hydroxyethyl)-2-(tall oil alkyl)imidazoline, fatty acid salt-----	X.
Lignin amine-----	WVA.
1-(2-Naphtheneic acid amidoethyl)-2-naphthyl-2-imidazoline-----	ARC.
Rosin amine, ethoxylated-----	HPC, WTC, X.
m-Toluidine, ethoxylated-----	ML.
Amine oxides and oxygen-containing amines (Except those having amine linkages), cyclic, all other-----	DA, TCH, WTC.
AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
CARBOXYLIC ACID - DIAMINE AND POLYAMINE CONDENSATES:	
Acetic acid, amides with polyalkylene polyamines, salt-----	X.
Caprylic acid tetraethylene-pentamine condensate-----	ICI.
Carboxylic acid-diamine and polyamine condensates, all other-----	DA, MOA, WTC.
Coconut acids, dimethylpropylamine condensate, carboxylated-----	AAC.
Coconut oil acids-N,N-dimethyltrimethylenediamine condensate-----	FTX, SCP.
Mixed fatty acids-polyalkylenepolyamine condensate-----	TCH.
Naphtheneic acids-polyalkylene polyamine condensate-----	X.
Naphtheneic acids-tall oil fatty acids-polyalkylene polyamine condensate-----	X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES--CONTINUED	
CARBOXYLIC ACID - DIAMINE AND POLYAMINE CONDENSATES-- CONTINUED	
2-Nor tall oil alkyl-1-tall oil amidoethyl imidazoline-----	SHX.
Oleic acid-diethylenetriamine condensate-----	DA, ICI.
Oleic acid-N,N-dimethyltrimethylenediamine condensate-----	CCW.
Pelargonic acid-tetraethylenepentamine condensate-----	ICI, STC.
Stearic acid-diethylenetriamine condensate-----	CRT, DA, JOR, S, SMM.
Stearic acid-diethylenetriamine condensate, ethyl sulfate-----	GDC.
Stearic acid-ethylenediamine condensate-----	CLD, SOS.
Stearic acid-ethylenediamine condensate, monoethoxylated ethyl sulfate-----	GDC.
Stearic acid mixed amine condensate-----	STC.
Stearic acid-tetraethylenepentamine condensate-----	ONX.
Stearic acid-tetraethylenepentamine condensate, acetate salts-----	X.
Tall oil acids/aminoethylpiperazine condensate-----	ENJ.
Tall oil acids-diethylenetriamine condensate-----	SCP, WVA.
Tall oil acids-N,N-dimethylpropylenediamine condensate-----	FER.
Tall oil acids/ethylene/amine distillation residue, condensate-----	ENJ.
Tall oil acids-mixed polyamine condensate-----	WVA.
*Tall oil acids-polyalkylenepolyamine condensate-----	QCF, WVA, X.
Tall oil acids-polyalkylenepolyamine condensate, salts, with dodecylbenzene sulfonic acid and/or tall oil fatty acids-----	X.
CARBOXYLIC ACID - DIAMINE AND POLYAMINE CONDENSATES, ALKOXYLATED:	
Mixed fatty acids-diethylene triamine diethyl- sulfate condensate-----	JOR.
*Stearic acid-ethylenediamine condensate, monoethoxylated-----	DEX, ICI, SLC.
Carboxylic acid-diamine and polyamine condensates, alkoxylated, all other-----	SHX, STP, WVA(E).



TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES--CONTINUED	
OTHER AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
Cocamidopropyl dimethyl amine oxide	ONX, SBC.
N,N'-(Di-tall oil acid)amidoethylamine	X.
3-Laureamido-N,N-dimethylpropylamine oxide	JOR, ONX, SUN.
Stearamidoethyl-diethylamine	S.
Stearamidoethyl-ethanolamine acetate	S.
Stearic acid, diethanolamine condensate, methyl sulfatate	DUP.
Stearic acid-imino-bis(propyl amine) condensate	JOR.
AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF):	
AMINE SALTS:	
N,N-Dimethyl-N-alkylamine phosphate (Hydrogenated tallow alkyl)amine acetate (Mixed alkyl)amine phosphate	X. ARC, WTC. X.
Octadecylamine acetate	ARC, STC.
(Tallow alkyl)amine acetate	ARC, X.
N-(Tallow alkyl)trimethylethylenediamine acetate	ARC.
N-(Tallow alkyl)trimethylethylenediamine oleate	ARC, JTO.
Amine salts (not containing oxygen), all other	DA.
DIAMINES AND POLYAMINES:	
IMIDAZOLINE DERIVATIVES:	
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline	WTC.
2-Heptadecyl-2-imidazoline	CGI, SGO.
Stearamidoethyl-2-heptadecyl imidazoline	ICI.
N-(Coconut oil alkyl)trimethylethylenediamine	ARC, JTO, SHK.
N-(Dimeraicidalkyl)trimethylethylenediamine	ENO.
Dimethylaminopropylamine	AZS.
N-(Docosyl and eicosyl)tarimethylethylenediamine	ENO.
N-(Ethylheptyl)trimethylethylenediamine	ARC.
N-(Mixed alkyl)polyethylenepolyamine	CCW, WTC.
*N-(9-Octadecenyl)trimethylethylenediamine	ARC, JTO, SHK.
Polyalicyclic polyamines and salts and quats	X.
2-Propyl-3-tallow-1,3-tetrahydropropylidene	ARC.
N-(Soybean oil alkyl)trimethylethylenediamine	ENO.
3-(Tall oil amino)propyl amine	SHK.
*N-(Tallow alkyl)diisopropylenetriamine	ARC, ENJ, JTO, SHK.
*N-(Tallow alkyl)trimethylethylenediamine	ARC, ENJ, ENO, JTO.
N-(Tallow alkyl)-N,N'-trimethyl-1,3-propane diamine	ARC.
3-tetradecylaminopropyl amine	SHK.
Diamines and polyamines, all other	SHK, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CATIONIC--CONTINUED</b>	
AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF)--	
CONTINUED	
PRIMARY MONOAMINES:	
Alkylidimethylamine oxide-----	STC.
Arachidylbenzylalkyl amine-----	ENO.
* (Coconut oil alkyl)amine-----	ARC, JTO, MCB, SHX.
Dimeric dialkyl amine-----	ENO.
Dodecylamine-----	ARC, SHX.
(Erucyl alkyl)amine-----	ENO.
Hexadecylamine-----	ARC, ENO.
* (Hydrogenated tallow alkyl)amine-----	ARC, ENO, JTO, SHX.
(Mixed alkyl)amine-----	SHX.
*9-Octadecylamine-----	ARC, ENO, JTO, SHX.
*Octadecylamine-----	ARC, ENO, SHX.
* (Soybean oil alkyl)amine-----	ARC, ENO, JTO.
(Tall oil alkyl)amine-----	ARC.
* (Tallow alkyl)amine-----	ARC, ENO, JTO, SHX.
SECONDARY AND TERTIARY MONOAMINES:	
Bis (coconut oil alkyl)amine-----	ARC.
Bis (hydrogenated tallow alkyl)amine-----	ARC, SHX.
Bis (tallow alkyl)amine-----	ARC.
N,N-Dimethyl (coconut oil alkyl)amine-----	ARC, ARC, ONX, TNA.
N,N-Dimethylhexadecylamine-----	ARC, ONX.
N,N-Dimethyl (hydrogenated tallow alkyl)amine-----	ARC.
N,N-Dimethyl (mixed alkyl)amine-----	BRD, ONX.
N,N-Dimethyl-9-octadecylamine-----	ARC.
*N,N-Dimethyloctadecylamine-----	ARC, ENO, ONX, SHX.
N,N-Dimethyl (soybean oil alkyl)amine-----	ARC, ENO.
N,N-Dimethyl (tall oil alkyl)amine-----	ARC.
N,N-Dimethyl (tallow alkyl)amine-----	ENO.
N,N-Dimethyltetradecylamine-----	ARC, BRD.
N-Methylbis (coconut oil alkyl)amine-----	ARC, SHX.
N-Methylbis (hydrogenated tallow alkyl)amine-----	ARC, ENO, SHX.
N-Methylbis (octyl-decyl)amine-----	ARC, ENO, SHX.
Methyl diidecylamine-----	ONX, TNA.
N-Methyloctadecylamine-----	ARC.
(Mixed C <sub>8</sub> -C <sub>10</sub> ) tertiary amine-----	AZS.
Tri (hydrogenated tallow) amine-----	SHX.
Trilaurylamine-----	SCP.
Tri (mixed alkyl) amine-----	SHX, TNA.
Triocetylamine-----	BRD, SCP, SHX.
Secondary and tertiary monoamines, all other-----	ARC, SHX.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS:	
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2-hydroxyethyl)ammonium ethyl sulfate	LUR.
Benzene-methanamonium-N-(3-aminopropyl)-N-dimethyl-N-cococetyl derivatives-chlorides	X.
Benzene-methanamonium-N,N-dimethyl-N-tetradecyl-chloride	X.
Benzyl(cococut oil alkyl)bis(2-hydroxyethyl)-ammonium chloride	X.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	X, X.
Benzyl(polyoxyethylene-cococamine)ammonium chloride with benzyl (polyoxyethylene, tallow amine) ammonium chloride	S.
Benzyl(polyoxyethylene, octadecylamine) ammonium chloride with benzyl(polyoxyethylene, tallow amine) ammonium chloride	S.
Benzyl(rosin amine)ammonium chloride, ethoxylated	X.
Benzyl(tallow alkyl)bis(2-hydroxyethyl)ammonium chloride	DUP.
Bis(N-amidopropyl, N,N-dimethyl, N-benzylammonium chloride)	SBC
Bis(N-amidopropyl)-N,N-dimethyl-N-ethylammonium ethyl sulfate, dimer acid	SBC.
Bis(N,N'-ethyl(ciseric/arachidic/behemic)amide)-cyanoethyl ethylammonium ethosulfate	PCI.
Bis(2-Hydroxyethyl, ethoxylated)methyl(9-octadecenyl)-ammonium chloride	ARC.
Bis(2-Hydroxyethyl, ethoxylated)-methyloctadecylammonium chloride	ARC.
Bis-2-Hydroxyethyl-Hydrogenated tallo-ethyl sulfate	ICI.
Bis(2-Hydroxyethyl)methyl(tallow alkyl)ammonium chloride	ARC, MZC.
Bis-2-Hydroxyethyl-octyl-methyl-p-toluene sulfonate	HKL.
Bis(2-Hydroxypropyl)methyl(tallow alkyl)-methosulfate	ARC.
1,3-Bis(stearyl)dimethylammonium chloride-2-propanol	JOR.
(Cococut oil alkyl)bis(2-hydroxyethyl, ethoxylated)-methylammonium chloride	ARC, EMJ, GAF, SHK.
Cococut oil fatty acid polyoxyethylene	S.
Dimethylodocylmethylammonium ether sulfate	PCI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
OXIGEN-CONTAINING QUATERNARY AMMONIUM SALTS--CONTINUED	
Ethanolaminium, 2-hydroxy-N,N-bis(2-hydroxyethyl)-N-methyl-, salt with silicic acid	TCH.
Ethoxylated(hydrogenated tallow amine), methyl ammonium chloride	ENJ.
Ethoxylated, quaternized (C <sub>12-18</sub> alkyl) oxypropyl trimethylene diamine	ENJ, MCB.
Ethoxylated, quaternized reaction product of formaldehyde and tallow diamine	ENJ.
Ethoxylated tallow amine, potassium propionate derivative	SVC.
N-Ethyl-N,N-bis(polyoxyethylene)tallow ammonium ethyl sulfate	SHX.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	ICI, SHX.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate	BRD, ICI.
1-Ethyl-2-isooctadecyl-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	SBC.
Ethyl(polyoxyethylene, cocamine)ethylsulfate	S.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate	ICI.
$\alpha$ -Glycomamidopropyl dimethyl-2-hydroxyethyl ammonium ammonium chloride	VND.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium dihydrogen phosphate	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium nitrate	ACY.
Hydroxyethyl-2-undecyl-2,3-imidazoline	MOA.
N-2-Hydroxypropylammonium acetate	X.
N-2-Hydroxypropyl-N-methyl-N,N-bis(tallow amido ethyl)-ammonium ethyl sulfate	SHX.
(3-Laurylamidopropyl)trimethylammonium methyl sulfate	ACY.
2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride	WTC.
Methyl, bis-(2-hydroxyethyl)hydrogenated tallow alkylammonium chloride	ENJ.
Methyl, bis-(2-hydroxyethyl)isodecylxypropyl-ammonium chloride	ENJ.
Methyl, bis-(2-hydroxyethyl)isotridecylxypropyl-ammonium chloride	ENJ.
Methyl, bis-(2-hydroxyethyl)-(soyaalkyl)ammonium chloride	ENJ.
Methyl glolely ethoxy ammonium methyl sulfate	SHX.

TABLE 2. -- SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS--CONTINUED	
1-Methyl-2-(8-heptadecenyl)-1-(9-octadecenyl)amidoethyl	SHX.
1-Methyl-2-nor-tallow-1-2-tallow amidoethylimidazolinium methyl sulfate	SHX.
N-Methyl-N-polyoxyethylene-N,N-bis(hydrogenated tallow amidoethyl) ammonium	SHX.
N-Methyl-N-polyoxyethylene-N,N-bis(tallow amidoethyl)	SHX.
1-Methyl-2-(2-stearoyloxyethyl)carbamoylepyridinium chloride	BRD, WTC.
Methyltallowdiethylenetriamine condensate, polyethoxylated, methyl sulfate	SVC.
Methyltallowdiethylenetriamine condensate, polypropoxylated, methyl sulfate	SVC.
Mixed (coco and soya fatty acids), reaction products with chloromethane and diethylenetriamine, ethoxylated, quaternized	EMJ.
Mixed fatty acid amide with diethylene triamine/ethyl sulfate	EPH.
Oxygen-containing quaternary ammonium salts (Except those having amide linkages), all other--N,N',N'',Penta-(2-hydroxyethyl)-N-(tallow alkyl)-1,3-diaminopropane diacilate	DA, MOA, SHX, VND, X, X.
Polyethylenimine methyl ammonium sulfate	ARC.
1-Propanaminium, N-ethyl-N,N-dimethyl-3-(1-oxooctadecyl)amino-, ethyl sulfate	STC.
Soya fatty acids, reaction products with chloromethane and diethylenetriamine, ethoxylated, quaternized	SBC.
Soya fatty acids, reaction products with chloromethane and diethylenetriamine, propoxylated, quaternized	ENJ.
Stearylamidopropylidimethylmyristyl acetate ammonium chloride	ENJ.
Stearylidimethylammoniummethosulfate quaternary	VND.
Stearylidimethylethylenammonium ethyl sulfate	SVC.
Tallow amine, ethoxylated, quaternary ammonium salt	JOK.
Tetra-butylammonium hydrogen sulfate	DUP, VND.
Trimethyl-p-methylbenzylammonium chloride	HXL.
Tris(2-hydroxyethyl)-(tallow alkyl)ammonium diacilate	PCI.
Oxygen containing quaternary ammonium salts, all other--	ARC.
	MOA, X.



TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN:	
ACYCLIC:	
*Bis(coconut oil alkyl)dimethylammonium chloride	ARC, ENJ, JTO, ONX, SHX, SVC, WTC.
Bis(coconut oil alkyl)dimethylammonium nitrate	ARC.
*Bis(hydrogenated tallow alkyl)dimethylammonium chloride	ARC, ENO, ONX, SHX, SVC.
Bis(hydrogenated tallow alkyl)- dimethylammonium methyl sulfate	ARC, ONX, SHX.
Bis(tallow alkyl)dimethyl ammonium chloride	SHX.
Cocodimethylammonium ethyl sulfate	SHX.
N-(Coconut oil alkyl)aminobutyric acid, sodium salt	ARC, BRD, JTO, ONX, SHX.
Didecylidimethylammonium chloride	HMT, ONX.
Dimethyl(C <sub>12-18</sub> )ammonium chloride (mixed straight and branched chains)	SHX.
Dimethyldioctadecylammonium chloride	ARC, SHX.
Dimethyldioctadecylammonium methyl sulfate	ARC, SHX.
N,N-Dioctyl-N,N-dimethylammonium chloride	BRD, HMT.
Di-tallow-amidammonium sulfate	CRD.
Dodecyltrimethylammonium chloride	ARC, SHX.
Ethylidimethyl(mixed alkyl)ammonium ethyl sulfate	DEX, JOR.
Ethylhexadecyldimethylammonium bromide	HXL.
Hexadecyltrimethylammonium chloride	ARC, BRD, SHX.
(Hydrogenated tallow alkyl)trimethylammonium chloride	ARC, SHX.
Methyl-1-tallowamidoethyl-2-tallowimidazolium-methyl sulfate	CRD.
Methyl tri(C <sub>10</sub> )ammonium chloride	SHX.
Methyltrioctylammonium chloride	BRD, SCP.
(Mixed alkyl)ammonium chloride	MIL.
Mixed linear alkylidimethylammonium methyl sulfate	STC.
(Mixed linear alkyl)trimethylammonium bromide	DOP.
Mixture of N-octyl, N-decyl, N,N-dimethyl ammonium chloride and benzyl, dimethyl, (mixed alkyl)ammonium chloride	BRD.
Octyl-decyl-dimethyl ammonium chloride	HMT.
N-Octyl, N-decyl, N,N-dimethyl ammonium chloride	BRD, HMT.
*N,N',N',N'-Pentamethyl-N-(tallow alkyl)- trimethylene-bis(ammonium chloride)	ARC, JTO, SHX.
(Stearic acid)-ethylenediamine methylammonium sulfates	STC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN--	
CONTINUED:	
ACYCLIC--CONTINUED	
Tetradecylammonium bromide	EK, HXL, RSA.
1-Tetradecanaminium, N,N-trimethyl-chloride	SHX.
Tetraethanolammonium hydroxide	RSA.
Tetraethylammonium bromide	EK, RSA.
Tetraethylammonium chloride	EK.
Tetraethylammonium bromide	EK.
Tetra methylammonium bromide	RSA.
Tetramethylammonium chloride	RSA.
Tetramethylammonium hydroxide	RSA.
Tetrapropylammonium hydroxide	INA.
Trihydrogenated tallow ammonium chloride	ENO.
Trimethyldodecylammonium chloride	ONK.
Trimethyl(soybean oil alkyl)ammonium chloride	ARC, JTO, SHX.
*Trimethyl(tallow alkyl)ammonium chloride	ARC, ENO, JTO, SHX.
Trimethyltetradecylammonium bromide	HXL.
Quaternary ammonium salts, not containing oxygen, acyclic, all other	DA, MOA, WTC, X.
BENZENOID:	
Benzyl(alkylpyridinium)chloride	X.
*Benzyl(cocconut oil alkyl)dimethylammonium chloride	ENO, CDC, HFT, ONX, SHX, TCC, WTC.
Benzyl-di(hydrogenated tallow alkyl)-methyammonium chloride	ARC.
*Benzyl(dimethyl(mixed alkyl)ammonium chloride	ARC, BRD, CRD, FTX, HNT, JOR, ONX, PCI, SCP, SHX, X.
Benzyl dimethyloctadecylammonium chloride	ONK, SHX, IMI.
Benzyl dimethyl oleyl ammonium chloride	JOR.
Benzyl dimethyl(tallow alkyl)ammonium chloride	ENO, HLI, SHW, WTC.
Benzyl dimethyltetradecylammonium chloride	BRD, HXL.
Benzyl dodecyl dimethylammonium chloride	HXL, ONK.
Benzyl hexadecyl dimethylammonium chloride	BKL, ONK.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride	ARC, ENO, SHX.
Benzyl-methyl-bis(hydrogenated tallow)ammonium chloride	ENO.
Benzylpicolinium chloride	S.
*1-Benzylpyridinium chloride	BRD, CDC, PCI.
Benzyltriethylammonium chloride	RSA.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CATIONIC--CONTINUED</b>	
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN	
CONTINUED	
BENZENOID--CONTINUED	
*Benzyltrimethylammonium chloride	CRT, HIF, PCI, RSA, SHX, TCC.
2,4-Dichlorobenzylmethyl(mixed alkyl)ammonium chloride	X.
(3,4-Dichlorobenzyl)dodecylmethylammonium chloride	ONX.
1-Dodecylpyridinium chloride	CCL, DAN.
(Ethylbenzyl)methyl(mixed alkyl)ammonium chloride	HRT, ONX.
(Mixed alkyl)dibenzyltrimethyl-1,3-propane diammonium chloride	GDC.
$\alpha$ -Naphthyl-dodecyl-dimethylammonium chloride	OMX.
1-Phenethyl-2-picolinium bromide	HL.
Phenethyl pyridinium bromide	HL.
Quaternary ammonium salts not containing oxygen, benzenoid, all other	ICI, X, X.
Cationic surface-active agents, all other	DUP, MIR, MOA, RPC, SCP, WTC.
<b>NONIONIC</b>	
<b>CARBOXYLIC ACID AMIDES:</b>	
DIETHANOLAMINE CONDENSATES (AMINE/ACID RATIO = 2/1):	
Capric acid (Ratio = 2/1)	SCP, TCH.
Castor oil acids (Ratio = 2/1)	GAS, CLI, NSC.
*Coconut oil acids (Ratio = 2/1)	AFD, CCL, CLI, CON, CTL, CYL, DA, EGC, EPH, FTX, GDC, HRT, HET, HTH, JOR, LJR, MCP, MOA, HRV, MZC, ONX, PHT, RBC, SBC, SCP, SHA, SOP, STP, TCH, VAL, WTC.
*Coconut oil and tallow acids (Ratio = 2/1)	BRD, CRT, CTL, ESS, JOR, MOA, SBC, URN, WTC.
Lard oil acids	FER.
Lard oil and tall oil acids	FER.
Lauric acid (Ratio = 2/1)	CED, MOA, MZC, WTC.
*Lauric and myristic acids (Ratio = 2/1)	CED, HRT, MOA, PG, SEC, STP.
Linoleic acid (Ratio = 2/1)	MOA.
Mixed carboxylic acids	SOS.
*Oleic acid (Ratio = 2/1)	CLI, EFH, EHR, MZC, STP.
Palmitic and stearic acids (Ratio = 2/1)	RPC.
Pelargonic acid (Ratio = 2/1)	TCH.
Soybean oil acids (Ratio=2/1)	MZC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONTONIC--CONTINUED	
CARBOXYLIC ACID AMINES--CONTINUED	
DIETHANOLAMINE CONDENSATES (AMINE/ACID RATIO = 2/1)-- CONTINUED	
*Stearic acid (Ratio = 1/1)-----	GLI, EPH, VAL, WVA.
*Tall oil acids (Ratio = 1/1)-----	ECC, MOA, MZC, PNZ, SEC, STC, WTC, WVA.
*Tallow acids (Ratio = 1/1)-----	GLI, ICI, MOA.
Diethanolamine condensates (amine/acid Ratio= 2/1), all other-----	WTC.
DIETHANOLAMINE CONDENSATES (OTHER AMINE/ACID RATIOS):	
Capric acid (Ratio = 1/1)-----	MOA.
*Coconut oil acids (Ratio = 1/1)-----	AAC, ABD, BRD, CLI, CTL, DA, EMK, FTX, HNT, HRT, HIM, JOR, JRG, MOA, MZC, ONK, PEL, PII, S, SEC, SCP, SHH, STP, TCC, WTC, X.
*Lauric acid (Ratio = 1/1)-----	GLI, CYL, MOA, ONK, SEC, TCH, THH.
*Lauric and myristic acid (Ratio = 1/1)-----	BRD, CLI, CYL, HTW, MOA, SEC, WTC.
*Linoleic acid (Ratio = 1/1)-----	GLI, JOR, MOA, SBC, VVD.
Mixed carboxylic acids (Ratio = 1/1)-----	SOS.
Myristic acid (Ratio = 1/1)-----	MOA.
*Oleic acid (Ratio = 1/1)-----	DA, SBC, THH, WTC.
Palmitic and stearic acids (Ratio = 1/1)-----	BRD.
*Soybean oil acids (Ratio = 1/1)-----	MOA, MZC, SBC.
*Stearic acid (Ratio = 1/1)-----	CHP, ECC, ENJ, HIP, MRV.
Tall oil acids (Ratio = 1/1)-----	CHP, WTC.
Tallow acids (Ratio = 1/1)-----	BRD, MOA, VPC.
ALL OTHER CARBOXYLIC ACID AMIDES:	
Castor oil acids--polyalkylene polyamine maleic anhydride condensate-----	X.
Cocaminoamide-----	DA.
Coconut oil acids-----	STP.
*Coconut oil acids (Ratio = 1/1)-----	JOR, MOA, PG, SGP, SOS, VND, WTC.
Coconut oil acids (Ratio = 2/1)-----	MOA, STP, WTC.
Coconut oil acids-----	DA, MOA.
Coconut oil acids--dimethylaminopropylamine condensate (Ratio = 1/1)-----	JRG.
Coconut oil acids--ethanolamine condensate, ethoxylated-----	BRD, STP.
Fatty acid alkenolamide-----	MCB.
Hydrogenated (tallow acids) aminoethylethanolamine condensate (Ratio=1/2)-----	DAN.
Hydrogenated tallow acids, (Ratio = 2/1)-----	AEC.
Hydrogenated tallow acids, aminoethylethanolamide, acetate salt-----	PCI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID AMIDES--CONTINUED:	
ALL OTHER CARBOXYLIC ACID AMIDES--CONTINUED:	
Hydrogenated tallow glycerides diethylenetriamine condensate	HFT.
Isonanoic acid mono and triethanolamine salt	STC.
Isopropanolamine condensates, all other	WTC.
Isostearamic acid, aminoethyl ethanolamide, acetate salt	PCI.
Lauric acid	CLI, HFN, MOA.
Lauric acid - ethanolamine condensate, ethoxylated	MZC.
Lauric and myristic acids	DA.
Lauric and myristic acids (Ratio = 1/1)	MOA.
Myristic acid	CRN.
Oleic acid (Ratio = 1/1)	SBC.
Oleic acid (Ratio = 1/2)	EPH.
Oleic acid aminoethyl ethanolamine-condensate (Ratio 1/1) ethyl sulfate	RPC.
Oleic acid-ethanolamine condensate, ethoxylated	OMX, SHK.
Stearic acid (Ratio = 1/1)	MOA, VND, WTC.
Stearic acid (Ratio = 1/2)	WTC.
Stearic acid (Ratio = 2/1)	CLI, ECG.
Stearic acid aminoethanolamine (Ratio = 1.0/1.65)	CHP.
Stearic acid-aminoethyl ethanolamine (Ratio = 1.75/1.0)	SBC.
Stearic acid-N-aminoethyl ethanolamine condensate	MRV.
Stearic acid diethanolamine (Ratio = 1.0/11.6)	CHP.
Stearic acid-ethylenediamine condensate (Ratio = 1/2)	TCH, WTC.
Tall oil acids-ethylenediamine condensate (Ratio = 1/2)	SCP.
Tall oil fatty acid, diethylene triamine condensate (amine/acid ratio=1/2)	STC.
Tall oil fatty acids (Ratio = 1/2)	EPH.
Tall oil fatty acids (Ratio = 2/1)	EPH.
Tall oil fatty acids-triethanolamine condensate	X.
Tallow alkyl amide, ethoxylated	MCB.
Alkenolamine condensates, all other	CPC, DA, TCH, VND, WTC.
Carboxylic acid - alkanolamine condensates, all other	DA, ROB, WTC.
Carboxylic acid-diamine and polyamine condensate, all other	OMX.
Carboxylic acid amides, all other	BCH, WTC, X.
Diethanolamine condensate, all other	DA.
Ethanolamine condensates, all other	WTC.
Ethanolamine condensates, (Ratio = 1/1), all other	VND.



TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS:	
ANHYDROSORBITOL ESTERS:	
Anhydrosorbitol dioleate-----	ICI.
Anhydrosorbitol monoester of tall oil acids-----	HDG, MZC.
*Anhydrosorbitol monolaurate-----	BRD, GLY, ICI, MZC, TCH.
*Anhydrosorbitol mono-oleate-----	BRD, GLY, HDG, ICI, MZC, SVC, TCH.
Anhydrosorbitol monopalmitate-----	ICI, TCH.
*Anhydrosorbitol monostearate-----	BRD, GLY, HDG, ICI, MZC, TCH.
Anhydrosorbitol sesquiolate-----	GLY, TCH.
Anhydrosorbitol sesquistearate-----	TCH.
*Anhydrosorbitol trioleate-----	BRD, HDG, ICI, MZC, TCH.
Anhydrosorbitol esters, all other-----	GLY.
Anhydrosorbitol esters, all other-----	BAS.
DIETHYLENE GLYCOL ESTERS:	
Diethylene glycol distearate-----	GLY, WTC.
Diethylene glycol monoester of tall oil acids-----	BRM.
*Diethylene glycol monolaurate-----	EGC, GLY, HDG, MZC.
*Diethylene glycol monostearate-----	CLI, EGC, HDG, STP, VND.
Diethylene glycol sesquiolate-----	EGC.
Diethylene glycol sesquistearate-----	GLY.
Diethylene glycol sesquistearate-----	WTC.
Diethylene glycol terephthalate-----	UPF.
Diethylene glycol esters, all other-----	DA.
ETHOXYLATED ANHYDROSORBITOL ESTERS:	
*Ethoxylated anhydrosorbitol monolaurate-----	BRD, ICI, MZC, TCH.
*Ethoxylated anhydrosorbitol mono-oleate-----	BRD, GLY, HDG, ICI, MZC, SVC, TCH.
Ethoxylated anhydrosorbitol monopalmitate-----	HDG, ICI.
*Ethoxylated anhydrosorbitol monostearate-----	GLY, HDG, ICI, MZC, SVC, TCH.
*Ethoxylated anhydrosorbitol monotallate-----	TCH.
*Ethoxylated anhydrosorbitol triester of tall oil acids-----	GLY, ICI, STP(E), WVA(E).
*Ethoxylated anhydrosorbitol trioleate-----	BRD, GLY, HDG, ICI, MZC, TCH.
*Ethoxylated anhydrosorbitol tristearate-----	GLY, HDG, ICI, MZC.
ETHOXYLATED SORBITOL ESTERS:	
Ethoxylated sorbitol beeswax ester-----	ICI.
Ethoxylated sorbitol hexaester of tall oil acids-----	TCH.
Ethoxylated sorbitol hexooleate-----	GLY, ICI, MZC, TCH.
Ethoxylated sorbitol lanolin ester-----	ICI.
Ethoxylated sorbitol mono-oleate-----	ICI.
Ethoxylated sorbitol oleate, acetylated-----	ICI.
Ethoxylated sorbitol pentalaurate-----	MZC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
ETHOXYLATED SORBITOL ESTERS--CONTINUED	
Ethoxylated sorbitol tetraester of lauric and oleic acids	ICI.
Ethoxylated sorbitol tetraester of tall oil acids	WTC.
Ethoxylated sorbitol tetraoleate	ICI.
Ethoxylated sorbitol trioleate	ICI.
Ethoxylated sorbitol trioleate	BAS.
Ethoxylated sorbitol esters, all other	X.
ETHYLENE GLYCOL ESTERS:	
Ethylene glycol distearate	ICI, MZC, STP, WM, WTC.
Ethylene glycol mono-oleate	EFH, EHR, TCH.
*Ethylene glycol monostearate	BRD, CLI, CVL, GLY, HDG, MZC, STP, TCH, VND, WM, WTC.
Ethylene glycol esters, all other	WTC.
GLYCEROL ESTERS:	
COMPLEX GLYCEROL ESTERS:	
Glycerol diacetyltertriate monostearate	EKT.
Glycerol ester ethoxylates	GLI.
Glycerol mono- and diesters of mixed fatty acids	ICI.
Glycerol monoester of hydrogenated tallow fatty acid	PCI.
Glycerol monoester of mixed fatty acids, acetylated	EKT.
Glycerol monoester of mixed fatty acids, succinylated	EKT.
Glycerol mono-oleate, acetylated	WTC.
Glycerol mono-oleate, ethoxylated	SCP.
GLYCEROL ESTERS OF CHEMICALLY DEFINED ACIDS:	
Glycerol dilaurate	VND.
Glycerol dimerate	PCI.
Glycerol dioleate	GLY, STP.
Glycerol monooleate	STP.
Glycerol monooleate	GLI.
*Glycerol mono-oleate	EFH, EHR, GLY, HAL, HDG, MZC, STP, SVC, TCH, WTC.
*Glycerol monoricinoleate	CAS, GLY, HDG, MZC.
*Glycerol monostearate	CCG, CHL, CLD, CFC, CRT, CVL, EHR, GLY, HAL, HDG, HRT, LUR, MCB, MZC, SNW, SOS, STP, TCH, VND, WM, WTC, X.
Glycerol trioleate	SVC.
Glycerol esters of chemically defined acids, all other	DA.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
GLYCEROL ESTERS--CONTINUED:	
GLYCEROL ESTERS OF MIXED ACIDS:	
Glycerol mixed ester of soybean oil-trimethylolpropane-----	ENP.
Glycerol mono-, di-, and triesters of hydrogenated tallow acids-----	WFG.
Glycerol monoester of C <sub>8</sub> -C <sub>10</sub> acids-----	SVC.
Glycerol monoester of coconut oil acids-----	GLY.
Glycerol monoester of cottonseed oil acids-----	EKT.
Glycerol monoester of hydrogenated cottonseed oil acids-----	EKT, WM.
Glycerol monoester of hydrogenated lard acids-----	EKT.
Glycerol monoester of hydrogenated soybean oil acids-----	BFP, EKT, WTC.
Glycerol monoester of lard acids-----	EKT.
Glycerol monoester of mixed fatty acids-----	PCI, SVC.
Glycerol monoester of palm oil acids-----	EKT.
Glycerol monoester of safflower oil acids-----	EKT.
Glycerol monoester of tall oil acids-----	EFH, FER.
Glycerol monoester of tallow acids-----	EKT.
Glycerol sequester of hydrogenated tallow acids-----	WTC.
Glycerol sequester of tall oil acids-----	SLM.
Glycerol triester of mixed fatty acids-----	SVC.
Glycerol triaurate-----	SVC.
Glycerol esters of mixed acids, all other-----	BFP, DA.
NATURAL FATS AND OILS, ETHOXYLATED:	
*Castor oil, ethoxylated-----	BAS, GAS, DA, GAF, GLY, HTN, ICI, MCB, MIL, S, STC, STP(E), SVC, TCH, TWH, WVA(E), X.
Coconut oil, ethoxylated-----	STC.
*Hydrogenated castor oil, ethoxylated-----	STC.
*Lanolin ethoxylated-----	GAS, DA, ICI, MCB, MIL, S, STC, TCH.
Oleic acid, ethoxylated-----	GED, GEN, STC, TCH.
Soybean oil, ethoxylated-----	MIL.
Stearic acid, ethoxylated-----	DA.
Tall oil acids, ethoxylated-----	GAF.
Tall oil acids, ethoxylated and propoxylated-----	X.
Tall oil, refined, ethoxylated-----	TCH, X.
Tallow fatty acids, ethoxylated-----	MCB.
POLYETHYLENE GLYCOL ESTERS:	
POLYETHYLENE GLYCOL ESTERS OF CHEMICALLY-DEFINED ACIDS:	
*Polyethylene glycol dilaurate-----	EFH, GLY, HAL, HDG, MZC, STP, TCH, WM.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>NONIONIC--CONTINUED</b>	
CARBOXYLIC ACID ESTERS--CONTINUED:	
POLYETHYLENE GLYCOL ESTERS--CONTINUED:	
POLYETHYLENE GLYCOL ESTERS OF CHEMICALLY-DEFINED ACIDS--CONTINUED:	
*Polyethylene glycol dioleate	CLD, DA, EFH, GLY, HAL, HIL, SOS, STP, TCH.
*Polyethylene glycol distearate	CHP, GLY, MZC, SBC, STP, TCH.
*Polyethylene glycol hydroxyacetate	CCA.
*Polyethylene glycol monoacrylate	ECC, GLY.
*Polyethylene glycol monolaurate	BAS, CCA, COY, ECC, EFH, GLY, HAL, ICI, MZC, STP, TCH, WH.
*Polyethylene glycol mono-oleate	ARC, BAS, CCA, GLD, CRT, DA, ECC, EFH, GAF, GDC, GLY, HAL, HDG, HRT, MRV, MZC, ONK, SHX, STP, SVC, TCH, WTC.
Polyethylene glycol mono-oleate, ethoxylated	ICI.
Polyethylene glycol monopalmitate	GLY, ICI.
Polyethylene glycol monopergonate	SOS, STC, TCH.
Polyethylene glycol monoricinoleate	ECC, S.
*Polyethylene glycol monostearate	BAS, CCC, CFC, CRT, DA, DEX, EFH, GAF, GDC, GLY, HDG, HRT, ICI, MCP, MZC, SLC, SOS, STP, TCH, VND.
Polyethylene glycol sesquinoate	SOS, TCH, WTC.
Polyethylene glycol terephthalate	PCI.
Polyethylene glycol esters of chemically-defined acids, all ether	BAS, RFG, WTC.
<b>POLYETHYLENE GLYCOL ESTERS OF MIXED ACIDS:</b>	
Polyethylene glycol diester of coconut oil and oleic acids	EFH.
Polyethylene glycol diester of mixed linear acid/oleic acid	PCI.
*Polyethylene glycol diester of tall oil acids	BRD, CCC, EFH, MZC, STP(E), WVA(E), X.
Polyethylene glycol ester of mixed fatty acids	SHK, SOS.
Polyethylene glycol monoester of coconut oil acids	ICI.
*Polyethylene glycol monoester of tall oil acids	ARC, BRM, CCC, EFH, FER, MZC.
Polyethylene glycol (mixed ester) of tall oil acids	ARC.
Polyethylene glycol sesquiester of castor oil acids	DA.
*Polyethylene glycol sesquiester of coconut oil acids	DA, LUR, MRT.
Polyethylene glycol sesquiester of tall oil acids	ICI, SLM, STP(E), WTC, WVA(E).
*Polyethylene glycol sesquiester of tallow acids	RPC, SHK, TCH.
Polyethylene glycol esters of mixed acids, all other:	WTC, STP(E), WVA(E).
<b>POLYGLYCEROL ESTERS:</b>	
Mixed oleic, lauric, stearic, and palmitic hexaglycerol esters	SVC.

TABLE 2. --- SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1965---CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC---CONTINUED	
CARBOXYLIC ACID ESTERS---CONTINUED:	
POLYGLYCEROL ESTERS---CONTINUED:	
Polyglycerol decaoleate	TCH.
Polyglycerol dodecaoleate	GLY.
Polyglycerol distearate	GLY, MZC.
*Polyglycerol mono-oleate	MDC, MZC, WTC.
Polyglycerol monostearate	GLY, HDG.
Polyglycerol esters, all other	WTC.
PROPANEDIOL ESTERS:	
1,2-Propanediol monolaurate	SBC.
1,2-Propanediol mono-oleate	EFH, HAL.
*1,2-Propanediol monostearate	EKI, GLI, HAL, MZC, SBC, TCH, WM, WTC.
Propanediol esters, all other	DA.
OTHER CARBOXYLIC ACID ESTERS:	
Caprylic amphopropionate	MOA.
Di-isobutylene maleate	RH.
Ethoxylated 1,3-butylene glycol stearate	STC
Ethoxylated castor oil, ditridecylmaleate	UPF.
Ethoxylated glycerol mono- and diesters of hydrogenated tallow acids	SVC.
Ethoxylated glycerol and propylene glycol esters of coco fatty acids	SVC.
Ethoxylated 1,2-propanediol monostearate	ICI.
Ethoxylated and propoxylated glycerol mono- and diesters of tallow acids	SVC.
Lauric acid ester of glycerol and ethoxylated nonylphenol	TCC.
Linoleic acid dimers, alkoxyated	X.
Maleic anhydride, polypropylene glycol copolymer	PCL.
Methylglucoside dioleate	CRM.
Methylglucoside laurate	HDG.
Methylglucoside sesquistearate	CRM.
Mixed alkyl stearate	SOS.
Mixed di- and triethylene glycol monoester of tall tail oil acids	MCE, WVA.
Nonylphenol ethoxylate, oleate	EFH.
Pentaerythritol stearate	SCP.
Pentaerythritol, tall oil acid ester, alkoxyated	X.
Polycarboxylic acid, alkylate	X.
Polycarboxylic acid, alkylphenoxyalkoxyate	X.
Polypropylene glycol dioleate	CLD.



TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
OTHER CARBOXYLIC ACID ESTERS--CONTINUED:	
Propylene glycol esters of hydrogenated palm oil	PG, VND.
Propylene glycol esters of hydrogenated soybean oil	PC.
Tridecyl stearate	GV.
Trimethylol propane trioleate	EFH.
Carboxylic acid esters, all other	CHP, CRN, DA, EMR, ROB, SYL, X.
ETHERS:	
BENZENOID ETHERS:	
Alkylphenol-formaldehyde condensates, alkoxylated, all other	WTC, X.
t-Amylphenol, ethoxylated	X.
*Dinonylphenol, ethoxylated	BAS, CPC, DA, GAF, HTN, MCB, MZC, RH, S, TCH.
*Dodecylphenol, ethoxylated	DA, GAF, MCE, MON, SOC, TCH, THH.
Epichlorohydrin bisphenol A, ethoxylated	X.
Furfuryl alcohol, ethoxylated	SVC.
Iso-octylphenol, ethoxylated	AAC, BAS, GAF, MCB, MZC, RH, THH.
(Mixed alkyl)phenol, alkoxylated	X.
(Mixed alkyl)phenol epichlorohydrin-formaldehyde, alkoxylated	X.
(Mixed alkyl)phenol, ethoxylated	BAS, MIL, NTL.
(Mixed alkyl)phenol, ethoxylated, butyl ether	RH.
(Mixed alkyl)phenol-formaldehyde, alkoxylated	MCB, STC, WTC, X.
(Mixed alkyl)phenol-formaldehyde, methoxylated	STC.
Mixed phenylstyrene, phenol, ethoxylated	STC.
Naphthalene sulfonic acid, polymer with formaldehyde-sodium salt	PCI.
β-Naphthol, ethoxylated	X.
*Nonylphenol, ethoxylated	AAC, ARC, BAS, CPC, DA, GAF, HDG, HTN, ICI, MCB, MIL, MON, MZC, OMC, RH, S, STC, STP(E), TCH, THH, TX, UCC, WTC, WVA(E), X, X, X.
*Nonylphenol, ethoxylated and propoxylated	GAF, RH, THH, X.
Nonylphenol, ethoxylated with mixed fatty acids	SOS.
Nonylphenol-formaldehyde, alkoxylated	WTC, X.
Nonylphenol oleate, ethoxylated	SOS.
n-Octylphenol, ethoxylated	AAC, DA, TCH.
Octylphenol, ethoxylated and benzylated	GAF.
tert-Octylphenol-formaldehyde, ethoxylated	SDW.
*Phenol, ethoxylated	DA, GAF, ICI, MCB, MIL.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
ETHERS--CONTINUED:	
BENZENOID ETHERS--CONTINUED:	
Poly(oxy-1,2 ethanediyl), $\alpha$ (phenylmethyl)-omega-hydroxy, ethoxylated nonyl phenol alkyl ethers	PCI.
Soya sterols, ethoxylated	SCP.
Benzenoid ethers all other	BAS, RH, SVC.
NONBENZENOID ETHERS:	
CHEMICALLY-DEFINED LINEAR ALCOHOLS, ALKOXYLATED:	
Butanol, ethoxylated	DA, GAF, MCB, X.
2-Butanol, ethoxylated and propoxylated	SVC, X.
*Decyl alcohol, ethoxylated	AAC, BAS, CPC, GAF, ICI, MCB, S, STC, TCH.
Decyl alcohol, ethoxylated and propoxylated	DA.
Decyloxypoly(ethyleneoxy)ethyl chloride	GAF.
*Dodecyl alcohol, ethoxylated	AAC, HDG, ICI, MIL, WTC, X.
Glycerol, ethoxylated	SVC.
Hexadecyl alcohol, ethoxylated	ICI, MZC, TCH.
N-Hexyl alcohol, ethoxylated	GAF.
Isomyl alcohol, ethoxylated	GAF.
Isostearyl alcohol, ethoxylated	SHX.
Lauryl alcohol, ethoxylated	GAF.
Methyl alcohol, alkoxylated	X.
*9-Octadecenyl alcohol, ethoxylated	AAC, DA, GAF, ICI.
*Octadecyl alcohol, ethoxylated	CRN, DA, GAF, ICI, STC.
*Oleyl alcohol, ethoxylated	CPC, CED, GLY, HTN, MZC, S, SHX, STC.
Stearyl alcohol, propoxylated and ethoxylated	TCH.
Trimethyl propane alkoxylate	BAS.
Chemically defined linear alcohols, alkoxylated, all other	BAS, WTC.
Coconut oil alcohol, ethoxylated	GAF, GLX, HZC, STC, TX.
Decyl and octyl alcohols, ethoxylated	GAF, TX.
Developmental alcohol, ethoxylated	SHC.
Lanolin alcohol, propoxylated	CRN.
Mixed linear alcohols, alkoxylated	X.
*Mixed linear alcohols, ethoxylated	AAC, BAS, DA, DUP, GAF, ICI, MCB, MIL, RH, S, SHC, SHX, STC, STP, TCH, TMH, TNA, TX, UCC, VST, WTC, X.
Mixed linear alcohols, ethoxylated, benzyl ether	X.
*Mixed linear alcohols, ethoxylated and propoxylated	BAS, DA, DUP, GAF, MCB, MIL, OMC, S, STP, SVC, TCH, UCC, WTC, X.
Mixed linear alkylpoly(ethyleneoxy)ethyl chloride	GAF.
Tallow alcohol, ethoxylated	AAC, MZC, SHX, STC, TX.
Wool wax alcohols, ethoxylated	CRN.
Nonbenzenoid ethers all other	CRN, DA, RH, VAL, WTC, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
ETHERS--CONTINUED:	
OTHER ETHERS AND THIOETHERS:	
Bis(alkyl-aryl)alcohols, ethoxylated	DA.
Bis-cumylphenyl-oxethylene titanate	KPL.
Butanediol, ethoxylated	GAF.
Butyl carbitol, ethoxylated and propoxylated	STP, WVA(E).
1,3-Butylene glycol, ethoxylated	STC.
Butynediol, ethoxylated	GAF.
tert-Dodecyl mercaptan, ethoxylated	AAC, GAF, MET.
Glycerin, ethoxylated maleate	X.
Glycerine, ethoxylated	AAC, X.
Isodecyl alcohol, ethoxylated and propoxylated	MCB.
Lignin, ethoxylated	WVA.
*Mixed alcohols, ethoxylated	CRM, MCB, MIL, RH, TCH, X.
polyethylene glycol, propoxylated	MIL.
*Poly(mixed ethylene, propylene)glycol	S, UCC, X, X.
Polypropylene glycol, ethoxylated	BAS, DA, MCB, MZC, WTC, X.
3-Propanonitrate methylphenyl ether	PCI.
Rosin alcohol, ethoxylated	MZC.
2,6,7,9-tetramethyl-5-decyl-4,7-diol, ethoxylated	DA, TCH.
Thiodiglycol, ethoxylated	MCB.
*Tridecyl alcohol, ethoxylated	AAC, CPC, DA, DUP, GAF, HFN, ICI, MCB, MIL, MZC, OMC, S, STC, TCH, WTC, X.
Tridecyl alcohol, propoxylated and ethoxylated	DA, MCB, TX.
Trimethynonyl alcohol, ethoxylated	TCH, UCC.
Trimethylolpropane, alkoxylated	BAS, DA, MCB.
Ethers and thioethers, all other	AAC, RH, WTC, X.
OTHER NONIONIC SURFACE-ACTIVE AGENTS:	
Formaldehyde, dicyandiamide, ethylene sulfate	
polymers	PCI.
(Mixed alkyl)phenol alkylenediaminealkanolamine	
formaldehyde	X.
Mixed fatty acid-ethoxylated nonyl phenol ester	KPC.
Naphthalene sulfonic acid polymer with formaldehyde	
and 4,4 dihydroxy diphenyl phenol, ammonium salt	PCI.
Ocyl phosphate, ethoxylated	DUP.
Tetra-(2,2-dialloylmethylene)-1-butoxy titanium bis-(ditridecyl) phosphite	KPL.
Tetra-isopropoxy titanium (bis-dioctyl) phosphite	KPL.
Tetra-octyloxy titanium (bistridecyl) phosphite	KPL.
Tri(castor oil alkyl)phosphate	GLY.
Nonionic surface-active agents, all other	CRM, DUP, MIL, PG, X, X.



TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of surface-active agents to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
AAC	Alcolac, Inc.	HDG	Hodag Chemical Corp.
ACT	Southland Corp., Chemical Div.	HIP	High Point Chemical Corp.
ACY	American Cyanamid Co.	HK	Occidental Chemical Corp., Industrial & Speciality Chemicals Div.
AGP	Dial, Corp.	HLI	Onyx Chemical Co.
APX	Apex Chemical Co., Inc.	HMP	W. R. Grace & Co., Hampshire Chemicals Div.
ARC	Akzo Chemie America, Armark Chemicals	HNT	Huntington Laboratories, Inc.
ARD	Ardmore Chemical Co. Inc.	HPC	Hercules, Inc.
ARL	Arol Chemical Products Co.	HRT	Hart Products Corp.
ARZ	Arizona Chemical Co.	HST	American Hoechst Corp., Sou-Tex Works
AZS	AZS Corp., AZS Chemical Corp.	HTN	Heterene Chemical Co.
BAS	BASF Corp.	HXL	Hexcel Corp., Hexcel Chemical Products
BFP	Breddo Food Products Corp.	ICI	ICI Americas, Inc., Chemicals Div.
BKM	Buckman Laboratories, Inc.	JLP	J. L. Prescott Co.
BLA	Astor Products, Inc., Blue Arrow Div.	JOR	Jordan Chemical Co.
BRD	Lonza, Inc.	JRG	Andrew Jergens Co.
BSW	Original Bradford Soap Works, Inc.	JTO	Jetco Chemicals, Inc.
CAS	Caschem, Inc.	KPI	Kenrich Petrochemicals, Inc.
CCA	Interstab Chemicals, Inc.	LAS	Los Angeles Soap Co.
CCC	C.N.C. Chemical Corp.	LEV	Lever Brothers Co.
CCL	Cetawba-Charlab, Inc.	LKY	Lake States Div. of Rhinelander Paper Co.
CCW	Morton-Thiokol, Inc., Carstab Div.	LUR	Laurel Products Corp.
CGY	Ciba-Geigy Corp.	MAR	Reed Lignin, Inc.
CHL	Chemol, Inc.	MCB	Borg-Warner Corp., Borg Warner Chemicals
CHP	C. H. Patrick & Co., Inc.	MCP	Moretex Chemical Products, Inc.
CIN	Stockhausen, Inc.	MIL	Milliken & Co., Milliken Chemical Div.
CLD	Colloids, Inc.	MIR	Miranol Chemical Co., Inc.
CLI	Clintwood Chemical Co.	MOA	Mons Industries, Inc.
CLU	CL Industries, Inc.	MOM	Monsanto Co.
CMT	Chemithon Corp.	MRD	Marden-Wild Corp.
CON	Concord Chemicals Co., Inc.	MRT	Morton-Thiokol, Inc., Morton Chemical Co. Div.
CP	Colgate-Palmolive Co.	MRV	Marlowe-Van Loan Corp.
CPC	Grant Industries, Inc.	MZC	Mazer Chemicals, Inc.
CRD	Croda, Inc.	NCC	Niacet Corp.
CRN	CPC International, Inc., Amerchol Corp.	NES	Ruetgers-Nesse Chemical Co.
CRT	Chemos Corp.	NMC	National Milling & Chemical Co.
CTL	Continental Chemical Co.	NOC	Norac Co., Inc., Mathe Div.
CYL	Cyclo Chemical Corp.	NPR	Safeway Stores, Inc.
DA	Diamond Shamrock Corp., Chemicals Co.	NSC	National Starch & Chemical Corp.
DAN	Dan River, Inc., Chemical Products Div.	NTL	NL Industries, Inc.
DEX	Dexter Chemical Corp.	OMC	Olin Corp.
DOW	Dow Chemical Corp.	ONX	Onyx Chemical Co.
DUP	E. I. duPont de Nemours & Co., Inc.	PCI	Piedmont Chemical Industries, Inc.
ECC	Eastern Color & Chemical Co.	PEL	Pelron Corp.
EFH	E. F. Houghton & Co.	PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.
EK	Eastman Kodak Co.	PIL	Pilot Chemical Co.
EKT	Tennessee Eastman Co. Div.	PLX	Desoto, Inc.
EMK	Emkey Chemical Co.	PNX	Murphy-Phoenix Co.
EMR	Emery Chemicals Div. of National Distillers & Chemical Corp.	PSP	Georgia-Pacific Corp., Bellingham Div.
ENJ	Exxon Chemical Americas	QCP	Quaker Chemical Corp.
ENO	Enenco, Inc.	RAY	ITT Rayonier, Inc.
ENP	Insilco Corp. Enterprise Companies Div.	RBC	Fike Chemical Co.
ESS	Essential Chemicals Corp.	RH	Rohm & Haas Co.
FER	Ferro Corp., Kell Chemical Div.	ROB	Robeco Chemicals, Inc.
FPC	Flambeau Paper Corp.	RPC	Millmaster Onyx Group. Lyndall Chemical Co. Div.
FTX	Finetex, Inc.	RSA	R.S.A. Corp.
GAF	GAF Corp., Chemical Group		
GDC	Gresto, Inc.		
GLY	Glyco, Inc.		
GRL	Vestal Laboratories, Inc.		
HAL	C. P. Hall Co.		
HEW	Hewitt Soap Co., Inc.		



## XII -- SURFACE-ACTIVE AGENTS

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TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1985--CONTINUED

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
S	Sandoz, Inc., Colors & Chemicals Div.	TCC	Sybron Chemicals, Inc.
SBC	Scher Chemicals, Inc.	TCH	Emery Industries, Inc., Tylon Div.
SBP	SBS Products Inc.	TCI	Dow Chemical Co., Textize Div.
SCM	SCM Corp., Organic Chemicals Div.	TEN	Tennessee Chemical Co.
SGO	Scholler, Inc.	TMH	Thompson Hayward Chemical Co.
SCP	Henkel Corp.	TNA	Ethyl Corp.
SDC	Sandoz Chemicals Corp.	TNI	Gillette Co., Chemical Div.
SDH	Sterling Drug, Inc.:	TX	Texaco, Inc., Texaco Chemical Co.
	Hilton Davis Chemical Co.		
SDW	Sterling Organics Div.	UCC	Union Carbide Corp.
SEA	Seaboard Chemicals, Inc.	UDI	Petrochemicals/Desoto, Inc.
SFS	Stauffer Chemical Co., Specialty & Intermediates Div.	UNN	United Chemical Corp. of Norwood
		UPF	Jim Walter Resources, Inc., CIC Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SHX	Sherex Chemical Co., Inc.		
SLC	Soluol Chemical Co., Inc.	VAL	United Merchants & Manufacturers, Inc., Valchem Div.
SLM	Salem Oil & Gresse Co.		
SNW	Sun Chemical Corp., Chemicals Div.	VND	Van Dyk, Div. of Mallinckrodt, Inc.
SOC	Chevron Corp., Chevron Chemical Co.	VPC	Mobay Chemical Corp., Dye & Pigment Div.
SOP	Southern Chemical Products Co.	VST	Vista Polymers, Inc.
SOS	SSC Industries, Inc.		
SPA	Scott Paper Co.	WBG	White & Bagley Co.
STC	American Hoechst Corp., Sou-Tex Works	WHW	Whittemore-Wright Co., Inc.
STP	Stepan Chemical Co.	WM	Inolex Chemicals Co.
SVC	Capital City Products Co., Armstrong Chemical Plant	WPG	West Point-Pepperell, Inc., Grifftex Chemical Co. Sub.
SYL	Sylvachem Corp.	WTC	Witco Chemical Corp.
SYP	Plastic Specialties & Technology, Inc., Synthetic Product Co. Div.	WVA	Westvaco Corp.

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

# SYNTHETIC ORGANIC CHEMICALS, 1985

## SECTION XIII -- PESTICIDES AND RELATED PRODUCTS

### STATISTICAL HIGHLIGHTS

Edmund Cappuccilli

202-523-0490

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.

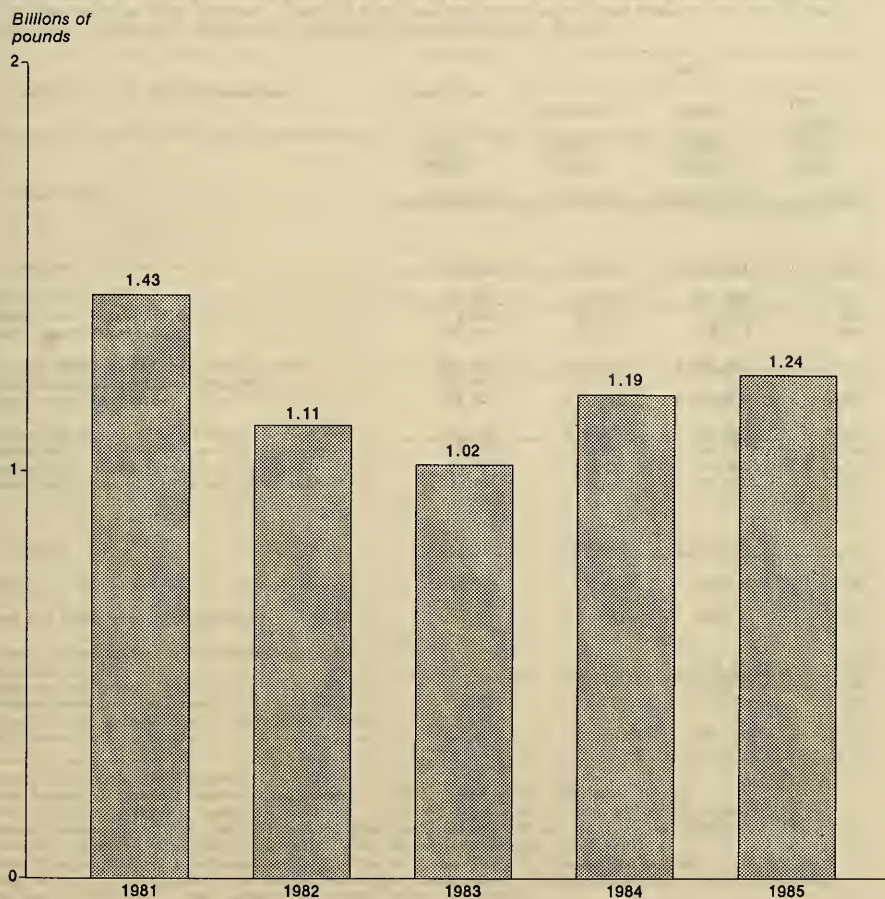
U.S. production of pesticides and related products in 1985 amounted to 1,235 million pounds—3.9 percent greater than the 1,189 million pounds reported for 1984 (table 1).<sup>1</sup> Sales in 1985 were 1,022 million pounds, a decline of 7.8 percent, as compared with 1,108 million pounds reported in 1984; the value of sales was \$4,437 million in 1985, compared with \$4,730 million in 1984—a decline of 6.2 percent. Data for production of pesticides and related products during 1981-85 are shown in figure 1.

The output of cyclic pesticides and related products amounted to 876 million pounds in 1985—4.0 percent greater than the 843 million pounds produced in 1984. Sales in 1985 were 713 million pounds, valued at \$3,266 million, compared with 809 million pounds, valued at \$3,557 million, in 1984.

Production of acyclic pesticides and related products in 1985 amounted to 359 million pounds, compared with 347 million pounds reported for 1984. Sales in 1985 were 309 million pounds, compared with 299 million pounds reported for 1984; the value of sales were \$1,171 million in 1985, compared with \$1,174 million in 1984.

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<sup>1</sup> See also table 2, which list these products and identifies the manufacturers by codes. These codes are given in table :

**Figure 1.—Pesticides and related products.**

Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.

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Figure 1. Comparison of the heights of the five bars.



TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1985

[Listed below are all pesticides and related products for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported). Table 2 lists all pesticides and related products for which data on production and/or sales were reported and identifies the manufacturers of each]

PESTICIDES AND RELATED PRODUCTS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000	1,000	1,000	Per
	pounds	pounds	dollars	pound
Grand total-----	1,234,914	1,021,715	4,436,835	\$4.34
CYCLIC				
Total-----	876,212	712,722	3,266,051	4.58
Fungicides, total-----	96,282	74,500	220,228	2.96
Naphthenic acid, copper salt-----	3,516	2,122	2,071	.98
All other cyclic fungicides <sup>2</sup> -----	92,766	72,378	218,157	3.01
Herbicides and plant growth regulators, total-----	631,224	519,886	2,288,826	4.40
3',4'-Dichloropropionanilide (Propanil)-----	12,993	...	...	...
All other cyclic herbicides <sup>3</sup> -----	618,231	519,886	2,288,826	4.40
Insecticides and rodenticides, total-----	148,706	118,336	756,997	6.40
Cypermethrin-----	3,291	2,249	62,395	27.74
Organophosphorus insecticides <sup>4</sup> -----	74,960	52,012	258,265	4.97
All other cyclic insecticides and rodenticides <sup>5</sup> -----	70,455	64,075	436,337	6.81
ACYCLIC				
Total-----	358,702	308,993	1,170,784	3.79
Fungicides <sup>6</sup> -----	12,756	19,602	42,267	2.16
Herbicides and plant growth regulators <sup>7</sup> -----	124,620	115,691	594,733	5.14
Insecticides, rodenticides, soil conditioners, and fumigants, total-----	221,326	173,700	533,784	3.07
Organophosphorus insecticides <sup>8</sup> -----	82,525	51,763	245,552	4.74
Trichloronitromethane (chloropicrin)-----	10,885	6,388	6,274	.98
All other acyclic insecticides, rodenticides, soil conditioners, and fumigants <sup>9</sup> -----	127,916	115,549	281,958	2.44

<sup>1</sup>Calculated from unrounded figures.

<sup>2</sup>Includes benomyl, captafol, captan, chlorothalonil, DMTT, folpet, PCP, PHA, and others.

<sup>3</sup>Includes alachlor, atrazine, benefin, bensulide, 2,4-D and other 2,4-D esters and salts, dicamba, dinitrophenol compounds, diuron, DNBP, isopropyl phenylcarbamates (IPC and CIPC), maleic hydrazide, molinate, NFA, picloram, triazines, trifluralin, uracils, plant growth regulators, and others.

<sup>4</sup>Includes diazinon, methyl parathion, and other phosphorothioates and phosphorodithioates.

<sup>5</sup>Includes carbaryl, chlorinated insecticides (chlordan, heptachlor, and others), insect attractants, DEET and other insect repellents, small amounts of rodenticides, and others.

<sup>6</sup>Includes dithiocarbamates.

<sup>7</sup>Includes butylate, dalapon, EPTC, methanearsonic acid salts, thiocarbamates, and organophosphorus herbicides, and others.

<sup>8</sup>Includes acephate, disulfoton, ethion, malathion, phorate, and other organophosphorus insecticides.

<sup>9</sup>Includes sldcarb, methomyl, 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.



TABLE 2. --PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT]

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC	
*FUNGICIDES:	
2-Bromo-4'-hydroxyacetophenone	BKM.
1-(4-Chlorophenoxy)-3,3-dimethyl-1-(1,2,4-triazol-1-yl)-butan-2-one	CHG.
$\alpha$ -(2-Chlorophenyl)- $\alpha$ -(4-chlorophenyl)-5-pyrimidinemethanol	LIL.
$\alpha$ -(2-Chlorophenyl)- $\alpha$ -(4-fluorophenyl)-5-pyrimidinemethanol	LIL.
2,4-Dichloro-6-(o-chlorosulino)-s-triazine	CHG.
1,4-bischloro-2,5-dimethoxybenzene (Chloronab)	GHF.
Dl(Phenylmercuric)dodecenylic succinate	TRQ.
Hexahydro-1,3,5-triethyl-s-triazine	VNC.
Hexahydro-1,3,5-tri(2-hydroxyethyl)-s-triazine	X.
2-Mercaptothiazazole, sodium salt	NOD.
Mercury fungicides, zinc salt	NOD.
Mercury fungicides, cyclic, all other	NOD.
Methyl-1-(butylcarbamoyl)-2-benzimidazolecarbamate (Benomyl)	DUP, USR.
2,2'-Methylenebis(4-chlorophenol) (dichlorophene)	GIV.
3-(2-Methylpiperidino)propyl-3,4-dichlorobenzoate (Piperalin)	GIV.
5-Methyl-1,2,4-triazolo[3,4-b]benzothiazole (Tricyclazole)	LIL.
*Naphthemic acid, copper salt	LIL.
2-n-Octyl-4-isothiazolin-3-one	CCA, MCI, NOD, TRQ.
Pentachlorophenol (PCP)	FER, RH.
Pentachlorophenol, sodium salt	RCI.
Phenylmercuric acetate (PMA)	FRQ.
Phenylmercuric ammonium acetate	GOS.
Phenylmercuric oleate	GOS, TRQ.
8-Quinololinol, copper salt	GOS, TRQ.
8-Quinololinol, magnesium salt	GOS, TRQ.
8-Quinololinol, sulfate salt	NOD, SOL.
cis-N-(1,1,2-Tetrachloroethyl)thio-1-cyclohexene-1,2-dicarboximide (Captafol)	FMT.
2,4,5,6-Tetrachloroisophthalonitrile	SOL.
	SOC.
	SDS.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*FUNGICIDES--CONTINUED:	
Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (DMT)	MRK, USR, VCC.
2-(Thiocyanomethylthio)benzothiazole	MRK.
N-[(Trichloromethyl)thio]-4-cyclohexene-1,2-dicarboximide (Captan)	BKH.
N-(Trichloromethylthio)phthalimide (Folpet)	SEA, SFC, VNC.
1,3,5-Tri(2-isopropenyl)-s-triazine	SEA, SFC, VNC.
Cyclic fungicides, all other----	EFH.
*HERBICIDES AND PLANT GROWTH REGULATORS:	NOD.
3-Amino-2,5-dichlorobenzoic acid, ammonium salt	GAF, UCC.
(2,5-Dichloro-3-aminobenzoic acid, ammonium salt)	
4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5-(4H)-one	GHG, DUP.
4-Amino-3,5,6-trichloropicolinic acid (Picloram)	DOM.
4,6-Bis(isopropylamino)-2-methoxy-s-triazine (Prometon)	CGY.
2,4-Bis(isopropylamino)-6-(methylthio)-s-triazine (Prometryn)	CGY.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	DUP.
2-(tert-Butylamino)-4-ethylamino-6-(methylthio)-s-triazine	GGY.
3-tert-Butyl-5-chloro-6-methyluracil	DUP.
N-Butyl-N-ethyl- $\alpha$ , $\alpha$ -trifluoro-2,6-dinitro-p-toluidine (Benefin)	LIL.
Butyl 2-[ $\alpha$ -[[5-(trifluoromethyl)-2-pyridinyloxy]phenoxyl]propanoate	X.
N-(Chloroacetyl)-N-(2,6-diethylphenyl)glycine, ethyl ethyl ester	FSN.
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)	CGY.
2-Chloro-4,6-bis(isopropylamino)-s-triazine (Propazine)	CGY.
2-Chloro-2',6'-diethyl-N-(n-butoxymethyl)acetanilide (Butachlor)	MON.
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (Alachlor)	MON.
2-Chloro-N-ethoxymethyl-N-(2-ethyl-6-methylphenyl)-acetamide (Acetochlor)	MON.
2-Chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene (Oxyfluorfen)	RH.
2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine (Atrazine)	CGY, SHC.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED:	
2-[4-Chloro-6-(ethylamino)-2-triazin-2-ylamino]-2-methylpropionitrile (Cyanazine)	SHC.
N-(2-Chloroethyl)- $\alpha$ , $\alpha$ , $\alpha$ -trifluoro-2,6-dinitro-N-propyl-p-toluidine (Fluochloralin)	SOL.
2-Chloro-N-isopropylacetanilide (Propachlor)	MON.
2-Chloro-N-[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino-carbonylbenzenesulfonamide	DUP.
2-(4-Chloro-2-methylphenoxy)propionic acid, dimethylamine salt	RIV.
3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4-(1H,3H)-dione	DUP.
3,5-Dibromo-4-hydroxybenzoximtrile (Bromoxynil)	ROA.
3,6-Dichloro-2-amino acid (Dicamba)	VEL.
2,6-Dichlorobenzonitrile	USP.
2-(2,4-Dichlorophenoxy)propionic acid, isooctyl ester	RIV.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Dluron)	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Lituron)	DUP.
*3',4'-Dichloropropanamide (Propanil)	CYI, RH, VTC.
S-(O,0-Diisopropyl phosphorodithioate) ester of N-( $\alpha$ -mercaptoethyl)benzenesulfonamide (Bensulfide)	SFA.
1,1'-Dimethyl-4,4'-bipyridinium dichloride	X.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamid)	CMW.
N-(1,1-Dimethyl-2-propenyl)-3,5-dichlorobenzamide (Pronamide)	RH.
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)	SDS.
N-[5-1,1-Dimethyl-1,3,4-thiadiazol-2-yl]-N,N-dimethylurea (Tebuthiuron)	LIL.
1,1-Dimethyl-3-( $\alpha$ , $\alpha$ , $\alpha$ -trifluoro-m-tolyl)urea (Fluometuron)	FRI.
Dinitrobutylphenol (DNBP)	CEB, USR.
Dinitrobutylphenol, ammonium salt	CEB.
Dinitrobutylphenol, triethanolamine salt	CEB.
2,6-Dinitro-N,N-dipropyl cumidine	LIL.
3,5-Dinitro-N,N-dipropylsulfanilamide	X.
2-(Ethylamino)-4-(isopropylamino)-6-(methylthio)-s-triazine (Ametryn)	CGY.
5-Ethyl cyclohexylethylthiocarbamate	SFA.
S-Ethyl-hexahydro-1H-azepine-1-carbothioate (Molinate)	SFA.

TABLE 2. -- PESTICIDES AND RELATED PRODUCTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED:	
N-[3-(1-Ethyl-1-methylpropyl)-5-isoxazolyl]-2,6-dimethoxybenzamide (flaxidor)	LIL
N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzamine	ACY
2-(Ethylthio)-4,6-bis(isopropylamino)-s-triazine	COY
3-(Hexahydro-4,7-methanoindan-5-yl)-1,1-dimethylurea (Norea)	AMV
3-Isopropyl-1H-2,1,3-benzothiadiazin-4(3H)-one 2,2-dioxide	BAS
Isopropyl N-(3-chlorophenyl)carbamate (GIFC)	PPG, RBC
Isopropyl N-phenylcarbamate (IPC)	PPG, RBC
2-(2-Methyl-4-chlorophenoxy)propionic acid, diethanolamine salt	RIV
2-(2-Methyl-4-chlorophenoxy)propionic acid, iso-octyl ester	RIV
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	ADC, DUP
Methyl 5-(2,4'-dichlorophenoxy)-2-nitrobenzoate	EDA
Methyl 2-[[[(4,6-dimethyl-2-pyrimidinyl)amino]-carbonyl]amino]sulfonylbenzoate	DUP
1-Methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(H)-pyridone (Fluridone)	LIL
N-1-Naphthylphthalamic acid (NEA)	DRX, USR
7-Oxabicyclo-[2.2.1]-heptane-2,3-dicarboxylic acid, disodium salt (Endothall)	PAS
PHENOXYACETIC ACID DERIVATIVES:	
4-Chloro-2-methylphenoxyacetic acid, iso-octyl ester	RIV
2,4-DICHLOROPHENOXYACETIC ACID, ESTERS AND SALTS:	
2,4-Dichlorophenoxyacetic acid (2,4-D)	DOM, UCC, VTC
2,4-Dichlorophenoxyacetic acid, butoxyethanol ester	DOM
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	DOM
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	DOM, PBI, RIV
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salts	DOM
2,4-Dichlorophenoxyacetic acid, iso-octyl ester	DOM, RIV
2,4-Dichlorophenoxyacetic acid, isopropyl ester	AMV
2,4-Dichlorophenoxyacetic acid, esters and salts, all other	UCC, VEL
PLANT GROWTH REGULATORS:	
N-[(Acetylamino)methyl]-2-chloro-N-(2,6-diethylphenyl)acetamide	MON
2-Chloro-N-(2,6-dinitro-4-(trifluoromethyl)phenyl)-N-ethyl-6-fluorobenzenemethanamine	COY

TABLE 2.—PESTICIDES AND RELATED PRODUCTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985—CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CYCLIC—CONTINUED</b>	
*HERBICIDES AND PLANT GROWTH REGULATORS—CONTINUED:	
PLANT GROWTH REGULATORS—CONTINUED:	
β-(4-Chlorophenyl)methyl-α-(1,1-dimethylethyl)-1,2,4-triazole-1-ethanol	X.
2-Chloro-6-(trichloromethyl)pyridine	DOM.
α-Cyclopropyl-α-(p-methoxyphenyl)-5-pyrimidine methanol (Acyomidol)	L.L.
1,2-Bihydro-3,6-pyridazinedione (Maleic hydrazide)	L.L.
(MH)	DEK, USR.
1,1-Dimethylpiperidinium chloride	BAS.
N-(2,4-dimethyl-5-[(trifluoromethyl)sulfonyl]-amino)phenylacetamide, diethanolamine salt	MHE.
Gibberellic acid	ABB.
3-Indolebutyric acid	MRK.
1-Naphthaleneacetic acid (NAA)	GNW.
1-Naphthaleneacetic acid, sodium salt	GNW.
Sodium 5-2-chloro-4-(trifluoromethyl)phenoxy-2-nitrobenzoate	RH.
3,5,6-Trichloro-2-pyridinyloxyacetic acid	DOM.
α,α-Trifluoro-2,6-dinitro-N-ethyl-N-(2-methyl-2-propenyl)-p-toluidine (Ethylfluralin)	L.L.
α,α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin)	L.L.
Cyclic herbicides, all other	HEX, SFS.
<b>INSECT ATTRACTANTS AND REPELLENTS:</b>	
tert-Butyl 4(or 5)-chloro-2-methylcyclohexane-carboxylate (Trimedurex)	OSX.
N,N-Diethyltoluamide (DEET)	MEF, TMA, VCC.
Insect attractants, all other	X.
<b>INSECTICIDES:</b>	
Bacillus thuringiensis	ABB, CLF, ZOC.
(5-Benzyl-3-furyl)methyl-2,2-dimethyl-3-(2-methylpropenyl)cyclopropane carboxylate (Resmethrin)	PFM.
2,3,4,5-Butylenetetrahydrofurfural	PLC.
2-(p-tert-Butylphenoxy)cyclohexyl-2-propynyl sulfite	ACV, USR.
2-(2-Chlorophenyl)methyl-4,4-dimethyl-3-isoxazolidinone	NES.
Cyano(4-fluoro-3-phenoxyphenyl)methyl-3-(2,2-dichloro-ethenyl)-2,2-dimethylcyclopropanecarboxylate	NES.
Cyano-3-phenoxybenzyl-cis, trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxylate	X.
*Cypermethrin	PFM, NES, SHC, VTC.



TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
INSECTICIDES--CONTINUED	
2, 3-Dihydro-2, 2-dimethyl-7-benzofuranyl[(dibutylamino)-thio]methylcarbamate	FMN
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate	FMN
2,2-Dimethyl-1,3-benzodioxol-4-yl N-methylcarbamate	FMN
Di-n-propylisocincheronate	FSN
Distannane, hexakis(2-methyl-2-phenylpropyl)	MKG
Isopropyl-11-methoxy-3,7,11-trimethylododeca-2,4-dienoate	SHC
Methyl 3-(2,2-dichloroethenyl)-2,2-dimethyl-3-cyano-3-phenoxyphenylcyclopropanecarboxylate	X
1-Naphthyl-N-methylcarbamate (Carbaryl)	FMN
3-(Phenoxyphenyl)methyl-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethyl cyclopropane-cyclopropanecarboxylate	UCC
Tetrahydro-5,5-dimethyl-2(1H)-pyrimidinone[3-[4-(trifluoromethyl)phenyl]-1-[2-[4-(trifluoromethyl)phenyl]ethenyl]-2-propenylidene]hydrozone	FMN, VTC, X
Tricyclohexylin hydroxide	ACY
2,3,5-Trimeethylphenol	DOM, X, X
CHLORINATED INSECTICIDES:	X
2-Chloro-N-[[[4-(trifluoromethoxy)phenyl]amino]-carbonyl]benzamide	CHG
Ethyl 4,4'-dichlorobenzilate (Chlorobenzilate)	CGY
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor)	VEL
Hexachloroepoxyoctahydro-endo, endo-dimethanonaphthalene (Endrin)	VEL
Octachlorohexahydro-4,7-methanoindene (Chlordan)	VEL
Toxaphene (Chlorinated camphene)	FSM
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor)	CHF
*ORGANOPHOSPHORUS INSECTICIDES:	
S-[1(p-Chlorophenyl)thio]methyl 0,0-diethyl phosphorodithioate (Carbofenothion)	SFA
0-(2,4-Dichlorophenyl) 0-ethyl S-propyl phosphorodithioate	CHG
0,0-Diethyl 0-(2-diethylamino-6-methyl-4-pyrimidinyl) phosphorothioate	X
0,0-Diethyl 0-(2-isopropyl-4-methyl-6-pyrimidinyl)-phosphorothioate (Diazinon)	CGY, VEL

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
INSECTICIDES--CONTINUED	
*ORGANOPHOSPHORUS INSECTICIDES--CONTINUED	
0,0-Diethyl 0-[4-(methylsulfinyl)phenyl]-phosphorothioate	CHG.
0,0-Diethyl 0-(p-nitrophenyl)phosphorothioate (parathion)	MON.
0,0-Diethyl 0-3,5,6-trichloro-2-pyridylphosphorothioate	DOM.
0,0-Dimethyl 0-[4-(methylthio)-m-tolyl]phosphorothioate (Fenthion)	CHG.
0,0-Dimethyl 0-(p-nitrophenyl)phosphorothioate (Methyl parathion)	MON.
0,0-Dimethyl S-[(4-oxo-1,2,3-benzotriazin-3(3H)-yl)methyl]phosphorodithioate (Azinphos-methyl)	CHG.
2,3-P-dioxanedithiol S,S-bis-(0,0-diethylphosphorodithioate (Dioxathion)	FSM.
0-Ethyl 0-[4-(methylthio)phenyl] S-propylphosphorodithioate	CHG.
0-Ethyl 0-(p-nitrophenyl)phenylphosphorothioate (EPN)	DUP, SFS.
0-Ethyl-S-phenylethylphosphorodithioate	SFA.
N-(Mecaptomethyl)phthalimide S-(0,0-dimethylphosphorodithioate)	SFA, X.
Organophosphorus insecticides, cyclic, all other	SFS, SHC.
Cyclic insecticides, all other	FMN.
RODENTICIDES:	
3-( $\alpha$ -Acetylbenzyl)-4-hydroxycoumarin (Warfarin)	HOT.
3-[3-(4'-Bromo[1,1'-biphenyl]-4-yl)-1,2,3,4-tetrahydro-1-naaphthalenyl]-4-hydroxy-2H-1-benzopyran-2-one	LLI, X.
2-Biphenylacetyl-1,3-indandione and sodium salt	HOT, RBC.
2-Isovaleryl-1,3-indandione	HOT.
2-Frivaloyl-1,3-indandione (Pindone)	HOT.
CYCLIC PESTICIDES, ALL OTHER:	
Benzyl-2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	MON.
$\alpha$ -[2-(2-n-Butoxyethoxy)ethoxy]-4,5-methylene-dioxy-2-propyltoluene, (Piperonyl butoxide)	ALP, TNA.
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-dicarboximide	MGK.
1-Methyl-3,5,7-triaza-1-azonia tricyclodecane chloride	BKM.

TABLE 2. --PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*FUNGICIDES:	
Bis-1,4-bromoacetoxy-2-butene	VIN.
Bis(tributyltin) oxide	X.
Chloromethoxypropylmercuric acetate	FRO.
1,2-Dibromo-2,4-dicyanobutane	BKM.
Sodium cyanodithioimidocarbonata	BKM.
n-Dodecylguanidine acetate (Dodine)	ACI.
Dodecylguanidine hydrochloride	BKM.
Methylenebis(thiocyanate)	BKM., VIN.
Poly(oxyethylene(dimethylamino)ethylene- (dimethylamino)ethylene dichloride)	BKM.
Poly(N,N,N',N'-tetramethylethylenediamine) with (chloromethyl)oxirane	BKM.
Tributyltin chloride	X.
DITHIOCARBAMIC ACID FUNGICIDES:	
Dimethyldithiocarbamic acid, potassium salt	ALC., BKM.
Ethylene bis(dithiocarbamic acid), disodium salt (Wabam)	ALC., VCC.
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb)	RH.
Ethylene bis(dithiocarbamic acid), manganese salt with zinc ions	RH.
Hydroxymethyl(methyl)dithiocarbamic acid, potassium salt	BKM.
N-Methyldithiocarbamic acid, potassium salt	BKM.
Dithiocarbamic acid fungicides, acyclic, all other	VCC.
Acyclic fungicides, all other	VCC.
*HERBICIDES AND PLANT GROWTH REGULATORS:	
N,N-Bis(phosphonomethyl)glycine	MON.
2-Chloro-N-diallylacetamide (ODAA)	MON.
S-(2,3-Dichloroallyl) diisopropylthiocarbamate (Diallate)	MON.
2,2-pichloropropionic acid, sodium salt (Dalapon)	DMW.
N-5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl-N, N'-dimethylurea (Tebuthiuron)	HEI.
S-Ethyl diisopropylthiocarbamate (Butylate)	PPG., SFA.
S-Ethyl dipropylthiocarbamate (EPTC)	PPG., SFA.
Ethyl xanthogen disulfide	REC.
Methanearsonic acid, disodium salt (DSMA)	VIN.
Methanearsonic acid, monosodium salt (MSMA)	SDS.
Methylthiosulfonic acid, S-(2-hydroxypropyl) ester	BKM.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED:	
N-(Phosphonomethyl)glycine, isopropylamine salt	MON.
S-Propyl butylethylthiocarbamate (Febulate)	SFA.
S-Propyl dipropylthiocarbamate (Vernolate)	SFA.
Thiocyanic acid, methylene ester	BKM.
S,S-Tributyl phosphorodithioate	CHG.
Tributyl phosphorotriphosphate (Marphos)	RDA.
S-(1,2,3-trichloroallyl)diisopropylthiocarbamate (triallate)	MON.
PLANT GROWTH REGULATORS:	
2-(Chloroethyl)phosphonic acid	UCC.
N-(Phosphonomethyl)glycine, sodium sesqui salt	MON.
Plant growth regulators, acyclic, all other	USR.
Acyclic herbicides, all other	DUP, SHC.
INSECTICIDES:	
Ethyl 3,7,11-trimethyldodeca-2,4-dienoate	DOW, X.
Isopropyl-11-methoxy-3,7,11-trimethyldodeca-2,4-dienoate	X.
Methyl N',N'-dimethyl-N-(methylcarbamoyloxy)-1-thiooxamate	DUP.
S-Methyl-N-(methylcarbamoyloxy)thioacetimidate (Methonyl)	DUP, SHC.
2-Hethyl-2-(methylthio)propionaldehyde O-(methylcarbamoyloxime (Aldicarb))	UCC.
*ORGANOPHOSPHORUS INSECTICIDES:	
S-1,2-Bis(ethoxycarbonyl)ethylo-O-dimethyl phosphorodithioate (Malathion)	ACY.
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate	AMV, SHC.
1,2-Dibromo-2-dichloroethyl dimethyl phosphate (Valed)	AMV, SHC.
O,O-Diethyl S-[2-(ethylthio)ethyl]phosphorodithioate (Disulfoton)	CHG.
O,O-Diethyl O-[2-(ethylthio)ethyl]phosphorothioate (Demeton O)	CHG.
O,O-Diethyl S-[(ethylthio)methyl]phosphorodithioate (Phorate)	ACY.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide	SHC.
O,S-Dimethylacetylphosphoramidothioate (Acephate)	SOC.
O,O-Dimethyl-O-2-dichlorovinyl phosphate (DDVP)	AMV, SHC.
S-[(1,1-Dimethylethyl)chloromethyl]O,O-diethyl phosphorodithioate (Turbufos)	ACY.

TABLE 2. -- PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ORGANOPHOSPHORUS INSECTICIDES--CONTINUED:	
Dimethyl phosphate of 3-hydroxy-N-methyl-cis-crotonamide-----	SHC.
O,S-dimethyl phosphorodithioate-----	CHG.
O,O',O'-Tetraethyl S'-methylenebisphosphorodithioate (Ethion)-----	FMN.
RODENTICIDES:	
2-Hydroxyethyl n-octyl sulfide-----	PLC.
Sodium fluoroacetate-----	REG, TUL.
Rodenticides, acyclic, all other-----	REG.
SOIL CONDITIONERS:	
Polysacrylonitrile, hydrolyzed, sodium salt-----	ACY.
SOIL FUMIGANTS:	
1,3-Dichloropropene-----	DOW.
O-Ethyl S,S-dipropyl phosphorodithioate-----	EDA.
Methyl bromide (Bromomethane)-----	GTL.
N-Methylthiocarbamic acid, sodium salt (Metham)-----	BKH, SFA.
Methyl isothiocyanate and 1,3-dichloropropene-----	MFT.
*Trichloronitromethane (Chloropicrin)-----	LCP, NLO, TNA.
ACYCLIC PESTICIDES, ALL OTHER:	
3-Alkoxy-2-hydroxypropyl trimethyl ammonium chloride-----	X.
Bromoacetic acid-----	VIN.
N-Cocoalkyl-1,3-propylenediamine acetate-----	X.
N-Cocoalkyl trimethylenediamine adipate-----	X.
2-[(Hydroxymethyl)amino]-2-methylpropanol-----	TPO.
2-[(Hydroxymethyl)ethanol]-----	TRO.
3-Iodo-2-propynyl butylcarbamate-----	TRO.
Pesticides and related products, acyclic, all other-----	SFS, USR, X.





## XIII -- PESTICIDES AND RELATED PRODUCTS

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TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of pesticides and related products to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
ABB	Abbott Laboratories	MON	Monsanto Co.
ACY	American Cyanamid Co.	MOT	Motomco, Ltd.
ADC	Anderson Development Co.	MRF	Morflex Corp.
ALC	Alco Chemical Corp.	MRK	Merck & Co., Inc.
ALP	Alpha Laboratories, Inc.	MRT	Morton-Thiokol, Inc., Morton Chemical Co. Div.
AMV	Amvac Chemical Corp.		
		NES	Ruetgers-Nease Chemical Co.
BAS	BASF Wyandotte Corp.	NLO	Miklor Chemical Co., Inc.
BKM	Buckman Laboratories, Inc.	NOD	Nuodex, Inc.
CCA	Interstab Chemicals, Inc.	PAS	Pennwalt Corp.
CED	Cedar Chemical Co.	PBI	PBI-Gordon Corp.
CGY	Ciba-Geigy Corp., Agricultural Div.	PEN	CPC International, Inc., Penick Div.
CHF	Kincaid Enterprises, Inc.	PLC	Phillips Petroleum Co.
CHG	Mobay Chemical Corp., Agricultural Chemicals Div.	PPG	PPG Industries, Inc.
CLP	Cell Products, Inc.		
COS	Cosan Chemical Corp.	RBC	Fike Chemicals, Inc.
CWN	Upjohn Co., Fine Chemicals	RCI	Reichhold Chemicals, Inc.
CYT	Cumberland International Corp.	RDA	Rhone-Poulenc, Inc.
		RH	Rohm & Haas Co.
		RIV	Riverdale Chemical Co.
DOW	Dow Chemical Co.		
DRX	Drexel Chemical Co.	SDS	S.D.S. Biotech Corp.
DUP	E. I. duPont de Nemours & Co., Inc.		Stauffer Chemical Co.
		SFA	Agricultural Products Div.
EFH	E. F. Houghton & Co.	SFC	Calbio Chemicals, Inc.
		SFS	Specialty & Intermediates Div.
FER	Ferro Corp., Ferro Chemical Div.	SHC	Shell Oil Co., Shell Chemical Co. Div.
FMN	FMC Corp., Agricultural Chemical Group	SOC	Chevron Corp., Chevron Chemical Co.
FMT	Fairmount Chemical Co., Inc.	SOL	Southland Corp., Fine Chemicals Div.
FRI	Farmland Industries, Inc.		
FRO	Vulcan Materials Co., Chemicals Div.	TNA	Ethyl Corp.
FSN	Nor-Am Chemical Co.	TRO	Troy Chemical Corp.
		TUL	Tull Chemical Co., Inc.
GAF	GAF Corp., Chemical Group		
GIV	Givaudan Corp.	UCC	Union Carbide Corp.
GNW	Greenwood Chemical Co.	USR	Uniroyal, Inc., Uniroyal Chemical Group
GTL	Great Lakes Chemical Corp.		
		VCC	Vinings Chemical Co.
HEX	Hexagon Laboratories, Inc.	VEL	Velsicol Chemical Corp.
LCP	LCP Chemicals-Maine	VGC	Virginia Chemicals, Inc.
LIL	Eli Lilly & Co.	VIN	Vineland Chemical Co., Inc.
		VNC	Vanderbilt Chemical Corp.
MCI	Mooney Chemical, Inc.	VTC	Vertac Chemical Corp.
MGK	McLaughlin Gormley King Co.		
MMM	Minnesota Mining & Manufacturing Co.	ZOC	Zoecon Corp.

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

SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION XIV -- MISCELLANEOUS END-USE CHEMICALS  
AND CHEMICAL PRODUCTS

STATISTICAL HIGHLIGHTS

David G. Michels

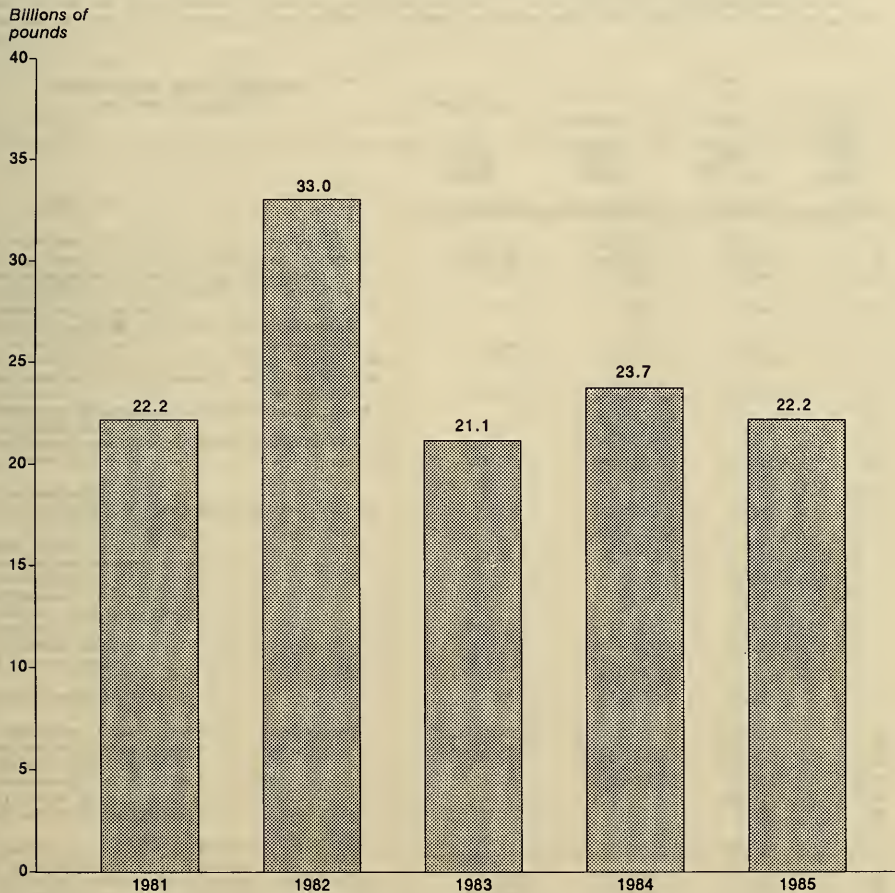
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This section incorporates those end-use groups which are not readily classifiable within the prior sections of this report. Both cyclic and acyclic chemicals fall within this section. With the exception of enzymes and fuel additives, both production and sales of all other end-use groups contained within this section have increased for the first time since 1981.

In 1985, the production of miscellaneous end-use chemicals exceeded 22,214 million pounds, a decrease of 6 percent from the more than 23,731 million pounds of production reported for 1984. Except for a sharp rise in 1982, production of these chemicals has remained nearly level throughout the period 1981-85 (figure 1). Sales in 1985 totaled 16,217 million pounds, valued at \$6,178 million. The sales quantity increased 9 percent from that of 1984 with the value of sales increasing by 61 percent. Polymers for fibers and urea collectively accounted for 79 percent of the 1985 production of these miscellaneous end-use chemicals. Urea accounted for 56 percent of the 1985 sales quantity of these chemicals.

In 1985, the production of lubricating oil and grease additives totaled 1,418 million pounds, an increase of 31 percent, compared with 1984. Total sales quantity for 1985 was 998 million pounds, 18.2 percent less than the 1984 sales quantity of 1,226 million pounds, while the value of sales decreased by 20 percent to \$710 million.

Production of fuel additives for 1985 totaled 2,226 million pounds, an increase of 16 percent from the previous year. Total sales quantity for 1985 was 1,817 million pounds, up 48 percent from the 1984 sales quantity of 1,222 million pounds, with the sales value increasing 13 percent to \$569 million.

**Figure 1.—Miscellaneous end-use chemicals and chemical products.**

Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.





TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION AND SALES, 1985

[Listed below are all miscellaneous end-use chemicals and chemical products for which any reported data on production or sales may be published. (Leaders (...) are used where the reported data are accepted in confidence any may not be published or where no data were reported.) Table 2 lists all miscellaneous end-use chemicals and chemical products for which data on production and/or sales were reported and identifies the manufacturers of each]

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
Grand total-----	22,214,251	16,217,149	6,177,680	\$0.38
Amino acids and their salts-----	124,609	122,323	133,913	1.09
Chelating agents, nitrilocids and salts, total-----	360,284	239,665	108,649	.45
(Ethylenedinitrilo)tetraacetic acid (EDTA)-----	9,889	9,145	8,500	.93
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate-----	370	490	368	.75
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate-----	4,869	4,811	2,914	.61
(Ethylenedinitrilo)tetraacetic acid, disodium salt-----	1,867	1,674	2,519	1.51
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt-----	150,110	73,300	25,323	.35
(N-Hydroxyethylethylenedinitrilo)trisacetic acid, trisodium salt-----	...	10,093	3,690	.37
Nitrilo-tris-methylene triphosphonic acid-----	4,141	...	...	...
All other-----	189,038	140,152	65,335	.47
Chemical indicators-----	17	11	909	85.99
Chemical reagents and fine chemicals-----	215	197	29,645	150.27
Enzymes, total-----	( <sup>2</sup> )	( <sup>2</sup> )	82,624	( <sup>2</sup> )
Bacterial amylase-----	( <sup>2</sup> )	( <sup>2</sup> )	17,781	( <sup>2</sup> )
Glucoamylase-----	( <sup>2</sup> )	( <sup>2</sup> )	20,786	( <sup>2</sup> )
Pectinase-----	( <sup>2</sup> )	( <sup>2</sup> )	3,044	( <sup>2</sup> )
Proteases, total-----	( <sup>2</sup> )	( <sup>2</sup> )	28,632	( <sup>2</sup> )
Rennin-----	( <sup>2</sup> )	( <sup>2</sup> )	17,449	( <sup>2</sup> )
All other proteases-----	( <sup>2</sup> )	( <sup>2</sup> )	11,183	( <sup>2</sup> )
All other enzymes-----	( <sup>2</sup> )	( <sup>2</sup> )	12,381	( <sup>2</sup> )
Flotation reagents-----	24,866	27,465	12,606	.46
Fuel additives, total <sup>3</sup> -----	2,225,585	1,817,177	568,962	.31
Gasoline additives, total-----	2,127,563	1,779,459	536,375	.25
Methyl-t-butyl ether <sup>4</sup> -----	1,891,147	1,550,560	243,746	.16
Tetra(methyl-ethyl) lead, (TEL-TML, reacted)-----	27,054	21,430	35,956	1.68
All other gasoline additives-----	209,362	207,469	256,673	1.24
Fuel additives, all other-----	98,022	37,718	32,587	.86
Lubricating oil and grease additives, total-----	1,418,333	998,241	709,603	.71
Oil soluble petroleum sulfonates:				
Oil soluble petroleum sulfonate, barium salt-----	2,282	2,275	2,382	1.05
Oil soluble petroleum sulfonate, calcium salt-----	298,350	276,406	159,379	.58
Oil soluble petroleum sulfonate, sodium salt-----	83,268	43,152	23,273	.54
All other lubricating oil and grease additives-----	1,034,433	676,408	524,569	.78
Paint driers, naphthenic acid salts, total <sup>5 6</sup> -----	10,311	8,665	13,810	1.59
Calcium naphthenate-----	483	470	476	1.01
Cobalt naphthenate-----	3,620	3,078	8,910	2.89
Iron naphthenate-----	33	...	...	...
Manganese naphthenate-----	610	538	484	.90
Paint driers, naphthenic acid salts, all other-----	5,565	4,579	3,940	.85

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
		1,000 pounds	1,000 pounds	1,000 dollars
Photographic chemicals, total-----	...	5,125	22,857	\$4.46
p-Diethylaminobenzendiazonium chloride-----	89	92	458	4.97
All other photographic chemicals-----	...	5,033	22,399	4.45
Polymers for fibers, total-----	6,361,789	...	...	...
Nylon 6 and 6/6 <sup>b</sup> -----	1,825,708	...	...	...
Polyacrylonitrile and acrylonitrile copolymers <sup>b</sup> -----	738,221	...	...	...
Polyethylene terephthalate <sup>b</sup> -----	2,547,392	...	...	...
All other polymers for fibers-----	1,250,468	...	...	...
Polymers, water soluble, total-----	402,464	323,672	652,064	2.01
Acrylamide polymers and co-polymers-----	110,507	72,525	75,916	1.05
Cellulose esters and ether-----	164,736	155,374	454,996	2.93
Polyacrylic acid salts, total-----	60,313	45,268	35,427	.78
Ammonium polyacrylate-----	2,924	...	...	...
Polyacrylate methacrylate copolymer-----	11,654	...	...	...
Sodium Ammonium polyacrylate and copolymers-----	17,320	12,944	10,702	.83
Sodium polyacrylate-----	2,274	467	1,908	4.09
All other polyacrylic acid salts-----	26,141	31,857	22,817	.72
All other water soluble polymers-----	66,908	50,505	85,725	1.16
Tanning materials, synthetic-----	23,535	24,408	15,549	.64
Textile chemicals, other than surface-active agents, total-----	41,086	39,651	19,745	.50
Dimethylolhydroxyethylene urea-----	20,523	18,948	7,479	.39
Urea polymers with formaldehyde and methanol-----	499	492	310	.63
All other textile chemicals, other than surface- active agents-----	20,064	20,211	11,956	.59
Urea in compounds or mixtures, total-----	11,136,899	9,099,807	664,199	.07
In feed compounds-----	255,644	218,522	17,483	.08
In liquid fertilizer-----	2,822,693	2,157,692	192,291	.09
In solid fertilizer-----	7,389,948	6,227,109	418,861	.07
Urea in compounds or mixtures, all other-----	668,614	496,484	35,564	.07
All other miscellaneous end-use chemicals and chem- ical products <sup>7</sup> -----	84,169	3,510,742	3,142,545	.89

<sup>1</sup>Calculated from unrounded figures.<sup>2</sup>Not available.<sup>3</sup>Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given with the section on "Plasticizers."<sup>4</sup>The difference between the production reported here and that shown on the Preliminary Report on U.S. Production of Selected of Selected Organic Chemicals (including Synthetic Plastics and Resins Materials, 1985) results from a combination of incorrect reporting by some companies, and end-of-year inventory adjustment, and rounding.<sup>5</sup>Quantities are given on the basis of solid naphthenate.<sup>6</sup>Statistics exclude production and sales of copper naphthenate. Statistics for copper naphthenate are given in the section on "Pesticides and Related Products."<sup>7</sup>Includes all other items listed in table 2 which are not individually publishable as groups.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT.]

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*AMINO ACIDS AND THEIR SALTS:	
Aspartic acid	ESK, PFF.
N-Bis(2,2-acetamido)glycine	PEC
N,N-Dimethylglycine	MCK
N,N-Dimethylglycine hydrochloride	MCK
Glutamic acid hydrochloride	LEM
Glycine (Aminoacetic acid), non-medical	CHI, HMP.
METHIONINE AND ITS SALTS:	
Methionine (animal feed grade)	DCC.
Methionine, hydroxy analogue, calcium salt	MON
Phenyl alanine	CLP
Potassium glutamate	LEM
Protein hydrolysates	BRS
Sarcosine	HMP.
Amino acids and salts, acyclic, all other	IMC, RSA, WAY.
Amino acids and salts, cyclic, all other	AJI, HCC.
BIOLOGICAL STAINS:	
Biological stains	ALD, EK, HMC.
*CHEATING AGENTS, NITROACIDS AND SALTS:	
N-alkylamine bismethylenephosphonic acid	DUP.
N-alkylaminobismethylene phosphonic acid	WAY, X.
Aminotrimethyl phosphonic acid	SCP.
(Diethylenetri-nitri-lo)pentaacetic acid	GGY, HMP.
(Diethylenetri-nitri-lo)pentaacetic acid, monosodium	GGY.
(Diethylenetri-nitri-lo)pentaacetic acid, pentasodium salt	GGY, HMP.
(Diethylenetri-nitri-lo)pentaacetic acid, sodium salt	DOM, WAY.
(Ethylene-bis-nitri-lo)dimethylene phosphonic acid, potassium salt	HMP.
(Ethylenedinitri-lo)tetraacetic acid	WAY.
(Ethylenediaminetetraacetic acid)	GGY, DOM, HMP.
(Ethylenediaminetetraacetic acid) (EDTA)	GGY, DAN, DOM.
(Ethylenedinitri-lo)tetraacetic acid, disodium salt	GGY, DOM.
(Ethylenedinitri-lo)tetraacetic acid, disodium copper salt, dihydrate	GGY, DOM, HMP.

TABLE 2.—MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985—CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CHELATING AGENTS, NITRILOACIDS AND SALTS—CONTINUED	
*[Ethylenedinitrilo]tetraacetic acid, disodium salt	CCY, DOM, HMP.
*[Ethylenedinitrilo]tetraacetic acid, disodium zinc salt, dihydrate	CCY, DOM, HMP.
[Ethylenedinitrilo]tetraacetic acid, monosodium iron salt	CCY, HMP.
[Ethylenedinitrilo]tetraacetic acid, tetraammonium salt	CCY, DOM.
[Ethylenedinitrilo]tetraacetic acid, tetrapotassium salt	CCY, HMP.
*[Ethylenedinitrilo]tetraacetic acid, trisodium salt	CCY, DOM, HMP.
*[Ethylenedinitrilo]tetraacetic acid, trisodium salt	CCY, TX.
Glucobiphenic acid, $\beta$ -isomer, sodium salt	BLZ.
Glucobiphenic acid, sodium salt	BLZ, PFN.
Hexamethylenediaminetetra(methylene phosphonic acid), potassium salt	WAY.
Hydroxyethane-1-diphosphonic acid	HMP, MYO.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, iron salt	CCY, DOM, HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, magnesium salt	TX.
*[N-Hydroxyethylethylenedinitrilo]triacetic acid, trisodium salt	CCY, DAM, DOM, HMP.
Hydroxyethylidene diphosphonic acid, potassium salt	X.
Hydroxyethylidene diphosphonic acid, sodium salt	WAY, X.
Nitrilotriacetic acid	HMP.
Nitrilotriacetic acid, trisodium salt	HMP, MOM.
*Nitrilo-tris-methylene triphosphonic acid	BKM, MYO, WAY, X.
Nitrilo-tris-methylene triphosphonic acid, potassium salt	X.
Nitrilo-tris-methylene triphosphonic acid, sodium salt	MYO, WAY, X, X.
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	X.
Polyamine polymethane phosphonic acid	SCP, X, X.
Polyamine polymethane phosphonic acid, magnesium salt	RPC.
Cheating agents, nitriлоacids and salts, all other	BKM, CGY, HMP, X.
*CHEMICAL INDICATORS:	
*Chemical indicators	ALD, EK, CFS, MMC.
*CHEMICAL REAGENTS AND FINE CHEMICALS:	
*Chemical reagents and fine chemicals	ALD, COC, CO, EK, ESA, CFS, HWY, PAH, PFN, PIC, PLB, RSA, UPJ, X.



TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ENZYMES:	
HYDROLYTIC ENZYMES:	
AMYLASES:	
*Bacterial amylase	GBF, GNR, MLS, NBI, PMP.
*Glucumylase	GBF, MLS, NBI.
*Maltese	PFZ, TX.
Amylase, all other	GBF, TX.
*PROTEASES:	
Pepsin	
Pepsin	GBF, PFZ.
Protease (bacterial)	CHH, SPR.
*Rennin	MLS, PMP.
*Proteases, all other	CHH, MLS, PFZ.
OTHER HYDROLYTIC ENZYMES:	
Cholesterol esterase	GBF, GNR, PIC, SPR.
Glucose isomerase	BCK.
Hydrolytic enzyme mixtures	MLS.
Lipase	JFR.
*Pectinase	GBF, GNR.
Other hydrolytic enzymes	GBF, GNR, MLS.
NON-HYDROLYTIC ENZYMES:	GNR, MLS, PMP, X.
Cholesterol oxidase	BCK.
Glucose oxidase	BCK, MLS.
Glucose-6-phosphate dehydrogenase	BCK.
Glycerol Kinase	BCK.
Uricase	BCK.
*FLOTATION REAGENTS:	
PHOSPHOROTHIOATES, USED AS FLOTATION REAGENTS:	
Dicresylphosphorodithioic acid	ACY.
Dicresylphosphorodithioic acid, ammonium salt	ACY.
PHOSPHOROTHIOATES, USED AS FLOTATION REAGENTS--CONTINUED	
Dicresylphosphorodithioic acid, sodium salt	KCU.
Phosphorodithioates used as flotation reagents, all other	ELC.
Rosin amines	HPC.
Thiocarbamide (Diphenylthiourea)	ACY, RBC.
XANTHATES AND SULFIDES, USED AS FLOTATION REAGENTS:	
Sodium n-butylxanthate	USR.
Sodium sec-butylxanthate	ESX.
Xanthates and sulfides	PLC.
Flotation reagents, all other	DOW, PLC, RBC, SHX.



TABLE 2.---MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>*FUEL ADDITIVES:</b>	
<b>DIESEL FUEL ADDITIVES:</b>	
Diesel fuel additives, acyclic, all other	TNA.
Hexyl nitrate	DUP, TMA.
Diesel fuel additives, cyclic, all other	TNA.
<b>FUEL OIL ADDITIVES:</b>	
Adipic acid-diethylenetriamine-epichlorohydrin polymer	X.
N-sec-Butyl-N-phenylenediamine	UPM.
N,N-Dimethyl-1,3-propanediamine polymer with epichlorohydrin, sulfate	X.
N,N'-Disalicylidene-1,2-propanediamine	DUP, FER, SM.
Ethoxylated hydantoin glycol diacetate	GLY.
Formaldehyde polymer with ethylenediamine and nonyl phenol derivatives	X.
Imidazoline from tall oil fatty acids and diethylenetriamine	X.
4,4'-Methylenebis(2,6-di-tert-butylphenol)	GTL, TMA.
Methylene-bis(dimethyl)hydantoin and derivatives	GLY.
Mixed aryl diimides	SM.
Phenyl acid phosphate	HDC.
Poly(dimethylimane(2-hydroxytrimethylene)chloride) butyne	X.
Polyethylenepolyamine polymer with 1,4-dihydroxy-2-butene	X.
Rust preventing additives	ALX.
Sulfurized fatty acid amides, esters, or ester-amides	CKI.
Tetrahydropyrimidine from tall oil fatty acids and propylenediamine	X.
Fuel oil additives, acyclic, all other	CKI, DUP, SM.
Fuel oil additives, cyclic, all other	DUP, PAH.
<b>*GASOLINE ADDITIVES:</b>	
N,N'-Di-sec-butyl-p-phenylenediamine	UPM.
N,N'-Diisopropyl-p-phenylenediamine	DUP.
Ethylene dibromide	GTL, TMA.
Methyl-t-butyl ether	ATR, ENJ, TPC, TUS.
Methylcyclopentadienylnonamose tricarboxyl	TNA.
Tetraethyl lead	DUP, TMA, X.
*tetramethyl-ethyl)lead, (Tel-tml,reacted)	DUP, TMA, X.
Tetramethyl lead	DUP, TMA, X.
Gasoline additives, acyclic all other	SOC.
<b>*LUBRICATING OIL AND GREASE ADDITIVES:</b>	
Butadiene styrene copolymer	TNA.

TABLE 2.---MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985---CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*LUBRICATING OIL AND GREASE ADDITIVES---CONTINUED	
CHLOROSULFURIZED AND SULFURIZED COMPOUNDS:	
Chlorosulfurized lard oil	CCM, WBG.
Chlorosulfurized sperm oil	ELC.
Hydrocarbon carboxylic acid derivatives	X, X.
Hydrocarbon phosphoric acid, barium salt	X.
Methylene-bridged polyalkyl phenols	TMA, TX.
Sulfurized lard oil	CCM, FER, WBG.
Sulfurized sperm oil substitutes	CCM, ELC.
OIL-SOLUBLE PETROLEUM SULFONATES:	
Oil-soluble petroleum sulfonate, ammonium salt	NPL.
*Oil-soluble petroleum sulfonate, barium salt	PAR, TMA, WTC, X.
Oil-soluble petroleum sulfonate, calcium salt	PAR, SOC, TMA, TX, WTC, X.
*Oil-soluble petroleum sulfonate, magnesium salt	WTC, X.
Oil-soluble petroleum sulfonate, sodium salt	MOR, PAR, SHC, WTC, X.
Oil-soluble petroleum sulfonate, all other	DUP, MON, SHC, SOC, WTC.
Oxidized hydrocarbon mixtures	ALX.
PHENOL SALTS:	
Alkyl phenols	X.
Dodecylphenol, ethylenediamine, formaldehyde polymer, calcium salt	SOC, TX.
Monylphenol, barium salt	CCA, FER, WTC.
Phenol, magnesium salt	WTC.
PHOSPHORODITHIOATES (DITHIOPHOSPHATES):	
Bis(1,3-Dimethylbutyl)phosphorodithioate oleyl amine salt	ELC.
Di-2-ethylhexylphosphorodithioic acid	ELC.
Di-n-propylphosphorodithioic acid	ELC.
Zinc dialkylidithiophosphate	ELC, SOC, TMA.
Zinc dialkylphenol dithiophosphate	SOC.
Zinc dibutyl phosphorodithioate	ELC.
Zinc diisodecyl phosphorodithioate	ELC.
Zinc hydrocarbon dithiophosphate	X.
Phosphorodithioates used as lubricating oil and grease additives, all other	TX, X.
SUCCINIMIDES:	
Alkanyl succinimide	SOC, TMA, WTC.
Dodecyl-oleyl succinimide	SM.
Dodecyl-acetic succinimide	SM.
All other specify	TNA.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>*LUBRICATING OIL AND GREASE ADDITIVES--CONTINUED</b>	
<b>SULFUR COMPOUNDS:</b>	
Aliphatic hydrocarbon sulfides	ELC, FER, SOC, TNA, X.
Chlorosulfurized cresylic acids	CCW.
Diisobutylene polysulfide	TNA, TX.
Di-tertiary nonylpolysulfide	FAS.
Triisobutylene polysulfide	TX.
Sulfur compounds, all other	WTC, X.
<b>ALL OTHER LUBRICATING OIL AND GREASE ADDITIVES:</b>	
Alkene thiophosphate	TX.
Alkyl succinic anhydride	SM.
Alkyl terephthalamate	SOC.
Bornyl phenylamine	SOC.
Di-2-ethylhexylphosphorothioic acid	ELC.
Diisopropyl hydrogen phosphite	SM.
Dimer acid esters and polyesters	EMR.
Dodecyl succinic acid, benzotriazole salt	SM.
Dodecylphenyl- $\alpha$ -naphthylamine	SM.
Dodecylphenyl- $\alpha$ -naphthylamine, dioctyl diphenylamine	SM.
Co-polymer	SM.
Fatty acid polyamine condensate	SOC.
Lubricating oil and grease additives, acyclic, all other	CRT, CXI, DUP, MON, SM, TNA, VTC, X.
Mixed polyesters	HCC.
Pentaerythritol esters	HCC.
1,3,4-Thiadiazole, 2,5-bis(dialkylthio) derivatives	ELC.
Lubricating oil and grease additives, cyclic, all other	CCY, DUP SM, TNA, UPM, X.
<b>*PAINT DRIERS, NAPHTHIC ACID SALTS:</b>	
Cadmium naphthenate	CCA.
*Calcium naphthenate	CCA, MCI, NOD, TRO.
Chromium naphthenate	MCI.
*Cobalt naphthenate	CCA, MCI, NOD, SHP, TRO.
Copper naphthenate	NOD.
*Iron naphthenate	CCA, MCI, NOD.
Lead naphthenate	CCA, MCI, MOD, SHP, TRO.
Lithium naphthenate	CCA.
*Manganese naphthenate	CCA, MCI, MOD, SHP, TRO.
Naphthenate driers, mixed salts	MCI.
Rare earths naphthenate	CCA, NOD.
Strontium naphthenate	CCA.
Zinc naphthenate	CCA, MCI, MOD, SHP, TRO.
Paint driers, naphthenic acid salts, all other	SHP.

TABLE 2.----- MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*PHOTOGRAPHIC CHEMICALS:	
2-Amino-5-mercapto-1,3,4-thiadiazole	FMT.
5-Aminotetrazole	FMT.
Aryl alkyl polyether alcohol	DIX.
5-Chlorobenzotriazole	FMT.
3-Chloro-4-diethylaminobenzenediazonium chloride	ESA.
(p-Diazo-2-chloro-N,N-diethylaniline zinc chloride)	ESA.
Chlorohydroquinone	ALL, ESA.
4-Diazo-2,5-dithoxymorpholinobenzene	ALL, ESA.
2,5-Dithoxy-4-morpholinobenzenediazonium chloride	ALL, ESA.
2,5-Dithoxy-4-morpholinobenzenediazonium sulfate	ALL.
*p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline zinc chloride)	ALL, ESA, FMT.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride	X.
p-Dimethylaminobenzenediazonium chloride] (p-Diazo-N,N-dimethylaniline zinc chloride)	ALL, ESA.
p-Diphenylaminediazonium sulfate	FMT.
p-(N-Ethylbenzimidio)benzenediazonium chloride	ESA.
(p-Diazo-N-benzyl-N-ethylaniline)-zinc chloride	ESA.
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride (p-Diazo-N-ethyl-N-hydroxyethylaniline zinc chloride)	ESA.
(N-Ethyl-N-(2-hydroxyethyl)-3-methyldehydrogen sulfate)p-phenylenediamine	X.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	WAY.
N-Ethyl-N-(β-methane sulfonamidoethyl)toluene-2,5-diaminesulfate	X.
Hydroquinone (Hydroquinol)	EKT.
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline)-zinc chloride	ESA.
4-Hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidone	X.
2-Hydroxynaphthoic ethylamide	FMT.
4-Methoxy-1-naphthol	X.
p-Methylaminophenol sulfate (Metol)	EK.
2-Methylbenzoxazole	FMT.
5-Methyl-1,7-dihydroxy-1,3,4-triazaindoleizine	FMT.
4,4-Methylidene bis-3-(p-sulfofenyl)3-methylpyrazolone	FMT.
4-((3-Methyl-5-oxo-1-(4-sulfofenyl)-2-pyrazolin-4-ylidene)methylene)-3-methyl-1-(4-sulfofenyl)-2-pyrazolin-5-one	DUP.
2-Methylthiazoline	FMT.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>*PHOTOGRAPHIC CHEMICALS--CONTINUED</b>	
p-Morpholinyl-2,5-dibutoxybenzene diazonium chloride	ALL
6-Nitrobenzimidazole	PMF
5-Nitrobenzimidazole nitrate	EK
1-Phenyl-3-pyrazolidone	CMN, EK
Poly(vinyl-0-sulfobenzal)	DUP
4-N-(1-Pyrrolidyl)-m-toluenediazonium chloride	ALL, ESA
Photographic chemicals, all other	EK, ESA, FMT, X
<b>*POLYMERS FOR FIBERS:</b>	
Cellulose acetate	CEL, EKT, MIL
Ceres/nylon polymer	MON
Copolyurethane urea	DUP
Linear saturated polyester	EKT
<b>*NYLON 6 AMD 6/6:</b>	
Nylon 6 (Polymer for fiber, only)	AGS
Nylon 6/6	DUP, MON
*Polyacrylonitrile and acrylonitrile copolymers	ACY, DUP, MON, SFS
*Polyethylene terephthalate	CEL, DUP, EKT, FFF, GYR
Poly-m-phenylene isophthalamide	DUP
Poly-p-phenylene terephthalamide	DUP
Polymers for fibers, all other	HST
<b>*POLYMERS, WATER SOLUBLE:</b>	
<b>ACRYLAMIDE POLYMERS AND CO-POLYMERS:</b>	
Acrylamide-2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	DOM, MRK, X
Acrylamide-acrylic acid copolymer	CHP
Acrylamide-acrylic acid copolymer, sodium salt	BKH, SNW
Acrylamide N-dimethylaminomethylacrylamide copolymer	BKH
Adipic acid-crosslinked polyacrylamide	S
Polyacrylamide	ACY, ENJ, SNW, X
Polyacrylamide dimethylammonium ethyl methacrylate	SNW
Polyacrylamide copolymers, all other	X
<b>*CELLULOSE ESTERS AND ETHERS:</b>	
Cationic cellulosic ether	UGC
Hydroxyethylcellulose	DOM, UCC, X
Methylcellulose	DOM
Sodium carboxymethylcellulose (100%)	CEC, LCS, MAK, X
Cellulose ethers and esters, all other	S, SIT, X
Dimethylamine epichlorohydrin ethylenediamine copolymer	GFS, X
Dimethyl diallyl ammonium chloride polymers	SHK, X
Ethyl acrylate methacrylic acid copolymer	ALC
Hydroxypropyl guar gum	RFC



TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CELLULOSE ESTERS AND ETHERS--CONTINUED	
*POLYACRYLIC ACID SALTS:	
*ammonium polyacrylate	ENJ, RH, X, X, X.
*polyacrylate methacrylate copolymers	BFG, CEM, RH, X, X.
*sodium ammonium polyacrylate and copolymers	DA, X, X.
*sodium polyacrylate	BKH, CIN, ENJ, SVT, X, X.
Polyacrylic acid salts, all other	ACY, X, X.
Polyacrylonitrile, hydrolyzed	DIX, RH.
Polyacrylonitrile, starch hydrolyzed polymer	GPC.
Polyamines	ENJ, X.
Polydextrose	PFZ.
Poly(diallyldimethylammonium) chloride	CPS, HKK, X.
Polyethylene glycol, mono(nonylphenol) sulfate, ammonium salt	BAK.
Polymaleic anhydride	X.
Polymethacrylic acid, sodium salt	ALC, CPS.
Poly(1,1'-(methylene)bis(3-chloro-2-propanol)-tetramethylethylenediamine	BRH.
Sodium carboxymethyl amylose	CCL.
Vinyl acetate maleic copolymer, sodium salt	X.
1-Vinyl-2-pyrrolidinone, polymers	CCL, DAN, GAF, UCC, X.
Xanthan gum	PFZ.
Polymers, water soluble, all other	RH, REC, S, STC, SVT, X, X, X, X, X.
POLYALPHAOLEFINS:	
Poly-d-olefins	SM, TWA.
Poly-d-olefins, sulfurized	SM.
RARE SUGARS:	
1-Arabinose	PFN.
D-Galactose	PFN.
D-Maltose	PFN.
SILICONE GREASES:	
Silicone greases	DCG, SPD, SWS.
*TANNING MATERIALS, SYNTHETIC:	
Cresol-phenol-formaldehyde condensate and salt	DA.
2-Naphthalenesulfonic acid, formaldehyde condensate and salt	GRD, RH.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated)	RH.
Polyoxyalkylated cyclic amines	MIL.
*TEXTILE CHEMICALS, OTHER THAN SURFACE-ACTIVE AGENTS:	
4,4'-bis-(2-Benzoxazolyl)stilbene	EKT.
N,N'-bis-(2-Hydroxyethyl)octadecanamide	CCG.
N,N'-Dibenzylhydroxylamines	CCC.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985.--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*TEXTILE CHEMICALS, OTHER THAN SURFACE-ACTIVE AGENTS-- CONTINUED	
Dicyandiamide formaldehyde ammonium chloride polymer	CCC, DAN.
Diethylenetriamine,triethylphosphate, urea polymer, stearate	CCC.
*Dimethyloldihydroxyethylene urea	ACY, CCC, CHP, DAN, RPC, SYT.
Formaldehyde polymer with carbamate esters	SYT.
Hydrogenated tallow fatty acid aminoethylethanolamine condensation products	CCC.
Melamine formaldehyde methanol polymer	ACY, CCC.
Melamine formaldehyde triethanolamine mixed fatty alcohols polymer	RPC.
Melamine stearyl alcohol polymer	SYT.
Product from the reaction of stearyl nitrile, candelilla wax, paraformaldehyde, phosphorous trichloride, and picoline	CCC.
Propoxylated starches	SYT.
Urea, 2-(2-aminoethyl)aminoethanol polymer, stearate	CCC.
*Urea polymers with formaldehyde and methanol	ACY, CCC, CRT, SYT.
Urea, polymer with tetrakis(hydroxymethyl)phosphonium sulfate	CHP.
Textile chemicals, other than surface active agents, all other	ACR, CCC, CRT, DAN, ENJ, RPC, SYT, X.
UREA, BY END-USE MARKETS:	
Urea, primary solution (Report on 100% urea-content basis)	APD, ARM, BNP, BOR, CAC, CFI, CHN, CMC, FRI, GCC, HKY, MSC, OMC, PLC, SHP, SOC, SOH, TER, TRI, TVA, UOC, WLC, WYC, X.
*UREA IN COMPOUNDS OR MIXTURES (100% BASIS):	
*Urea in feed compounds (100% Basis)	APD, BNP, CAC, SOH, TER, TRI, WYC.
*Urea in liquid fertilizer (100% Basis)	ARM, BNP, CFA, CFI, CHN, CMC, FRI, HKY, MSC, PLC, SHP, SOC, SOH, TER, TRI, TVA, WYC, X.
Urea in plastics (100% Basis)	BOR, OMC, SOH, TRI.
*Urea in solid fertilizer (100% Basis)	APD, CAC, CFI, CMC, FRI, GCC, OMC, SOH, TER, TRI, TVA, UOC, WLC, WYC, X.



## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 3.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY OF MANUFACTURERS, 1985

## ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of miscellaneous end-use chemicals to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
:	:	:	:
:	:	:	:
ACR :	CPC International, Inc., Acme Resin Corp.	FER :	Ferro Corp. :
ACS :	Allied Corp., Chemicals Sector	:	Ferro Chemical Div.
ACY :	American Cyanamid Co.	:	Keil Chemical Div.
AJI :	Ajinomoto USA, Inc.	FMT :	Fairmount Chemical Co., Inc.
ALC :	Alco Chemical Corp.	FRF :	Firestone Tire & Rubber Co., Firestone
ALD :	Aldrich Chemical Co., Inc.	:	Fibers & Textiles Co.
ALL :	Alliance Chemical, Inc.	FRI :	Farmland Industries, Inc.
ALX :	Alox Corp.	:	:
APD :	Atlas Powder Co. Sub. of Tyler Corp.	GAF :	GAF Corp., Chemical Group
ARM :	U.S. Steel Corp., USS Agri-Chemicals Div.	GBF :	Gist-Brocades U.S.A Inc.
ATR :	Atlentic Richfield Co., Arco Chemical Co.	GCC :	W. R. Grace & Co., Agricultural Chemicals Group
:	:	GFS :	G. Frederick Smith Chemical Co.
BCK :	Beckman Instruments, Inc.	GLY :	Glyco, Inc.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical	GNR :	Genencor, Inc.
:	Group	GPC :	Grain Processing Corp.
BKM :	Buckman Laboratories, Inc.	GRD :	W. R. Grace & Co., Polymers & Chemical Div.
BLZ :	Belzak Corp.	GTL :	Great Lakes Chemical Corp.
BOR :	Borden, Inc., Borden Chemical Div.	GYR :	Goodyear Tire & Rubber Co.
BNP :	Bison Nitrogen Products Co.	:	:
BRS :	Bristol-Myers Co.	HCC :	Hatco Chemical Corp.
:	:	HDC :	Hodag Chemical Corp.
CAC :	Cominco American, Inc.	HKY :	Hawkeye Chemical Co.
CBC :	Carbose Corp.	HMP :	W. R. Grace & Co., Hampshire Chemical Div.
CCA :	Interstab Chemicals, Inc.	HMV :	Humphrey Chemical Co.
CCG :	C.N.C. Chemical Corp.	HPC :	Hercules, Inc.
CCL :	Catawbs-Charlab, Inc.	HST :	American Hoechst Corp., Hoechst Fiber
CGW :	Morton-Thiokol, Inc., Carstab Div.	:	Industries Div.
CEL :	Celanese Corp., Celanese Fibers	:	:
:	Operations	IMC :	International Minerals & Chemicals Corp.,
CFI :	CF Industries, Inc.	:	Industrial Chemicals Div.
CGY :	Ciba-Geigy Corp.	:	:
CHN :	CHR. Hansen's Laboratory, Inc.	JFR :	George A. Jeffreys & Co., Inc.
CHM :	N-REN Corp., Cherokee Nitrogen Div.	:	:
CHP :	C. H. Patrick & Co., Inc.	KCU :	Kennecott Minerals Co., Utah Copper Div.
CHT :	Chattem, Inc.	:	:
CIN :	Stockhausen, Inc.	LCS :	Louisiana Chemical Specialties, Inc.
CLP :	Cell Products, Inc.	LEM :	Napp Chemicals, Inc.
CNC :	Columbia Nitrogen Corp.	:	:
CO :	Conoco Specialty Products, Inc.	MAK :	MAK Chemical Corp.
COC :	Columbia Organic Chemicals Co., Inc.	MCI :	Mooney Chemicals, Inc.
CDS :	CPS Chemical Co., Inc.	MCK :	MacKenzie Chemical Works, Inc.
CRN :	CPC International, Inc., Amerchol Corp.	MIL :	Milliken & Co., Milliken Chemical Co.
CRT :	Chemos Corp.	MLS :	Miles Laboratories, Inc., Biotechnology Group
CWN :	Upjohn Co., Fine Chemicals	MMC :	EM Industries, Inc., EM Science Div.
CXI :	Chemical Exchange Industries, Inc.	:	:
:	:	MON :	Monsanto Co.
DAN :	Dan River, Inc., Chemical Products Div.	MOR :	Pennzoil Co., Pennzoil Moro Co.
DCC :	Dow Corning Corp.	MRK :	Marck & Co., Inc.
DGC :	Degussa Corp.	MSC :	Mississippi Chemical Corp.
DIX :	Dixie Chemical Co., Inc.	MYO :	Mayo Chemical Co.
DOW :	Dow Chemical Co.	:	:
DUP :	E. I. duPont de Nemours & Co., Inc.	NBI :	Novo Biochemical Industries, Inc.
:	:	NOD :	Nuodex, Inc.
EK :	Eastman Kodak Co. :	NTL :	NL Industries, Inc.
EKT :	Tennessee Eastman Co. Div.	:	:
ELC :	Elco Corp. Sub. of Detrex Chemical	OMC :	Olin Corp.
:	Industries, Inc.	PAH :	Parish Chemical Co.
EHR :	Emery Chemicals Div. of National Distillers &	PAR :	Pennzoil Co., Panreco Div.
:	Chemical Corp.	PAS :	Pennwalt Corp.
ENJ :	Exxon Chemical Americas	PFN :	Pfanstiehl Laboratories, Inc.
ESA :	East Shore Chemical Co.	PFZ :	Pfizer, Inc.
ESX :	Essex Chemical Corp., Essex Industrial	PIC :	Pierce Chemical Co.
:	Chemicals, Inc.	:	:
:	:	:	:

XIV -- MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS

TABLE 3--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY OF MANUFACTURERS, 1985--CONTINUED

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
PLB	Pharmacia P-L Biochemicals, Inc.	STC	American Hoechst Corp., Sou-Tex Works
PLC	Phillips Petroleum Co.	SWS	Stauffer Chemical Co., Stauffer-Wacker
PMP	PMP Fermentation Products, Inc.		Silicone Div.
PTT	Petro-Tex Chemical Corp.	SYT	Synthron, Inc.
QCP	Quaker Chemical Corp.	TER	Terra International, Inc.
		TER	Terra Nitrogen, Inc.
RBC	Fike Chemicals, Inc.	TNA	Ethyl Corp.
RH	Rohm & Haas Co.	TPC	Texas Petrochemical Corp.
RPC	Millmaster Onyx Group, Inc., Lyndall	TRI	Triad Chemical
	Chemical Co. Div.	TRO	Troy Chemical Corp.
RSA	R.S.A. Corp.	TUS	Texaco Butadiene Co.
		TVA	Tennessee Valley Authority
S	Sandoz, Inc., Colors & Chemicals Div.	TX	Texaco, Inc., Texaco Chemical Co.
SCP	Henkel Corp.		
SFS	Stauffer Chemical Co., Specialty &	UCG	Union Carbide Corp.
	Intermediates Div.	UMP	UOP, Inc., UOP Process Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.	UOC	Union Oil Co. of California
SHP	Shepherd Chemical Co.	UPJ	Upjohn Co.
SHX	Sherex Chemical Co., Inc.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SM	Mobil Oil Corp., Mobil Chemical Co.,		
	Chemical Products Div.	WAY	Philip A. Hunt Chemical Corp., Organic
SMP	J. R. Simplot Co.		Chemical Div.
SMW	Sun Chemical Corp., Chemical Div.	WBG	White & Bagley Co.
SOC	Chevron Corp., Chevron Chemical Co.	WLC	Agrico Chemical Co.
SOH	Standard Oil Chemical Co.	WTC	Witco Chemical Corp.
SPD	General Electric Co., Silicone Products Dept.	WYC	Wycon Chemical Co.
SPR	Scientific Protein Laboratories		

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



SYNTHETIC ORGANIC CHEMICALS, 1985  
SECTION XV -- MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS

## STATISTICAL HIGHLIGHTS

Aimison Jonnard and David G. Michels

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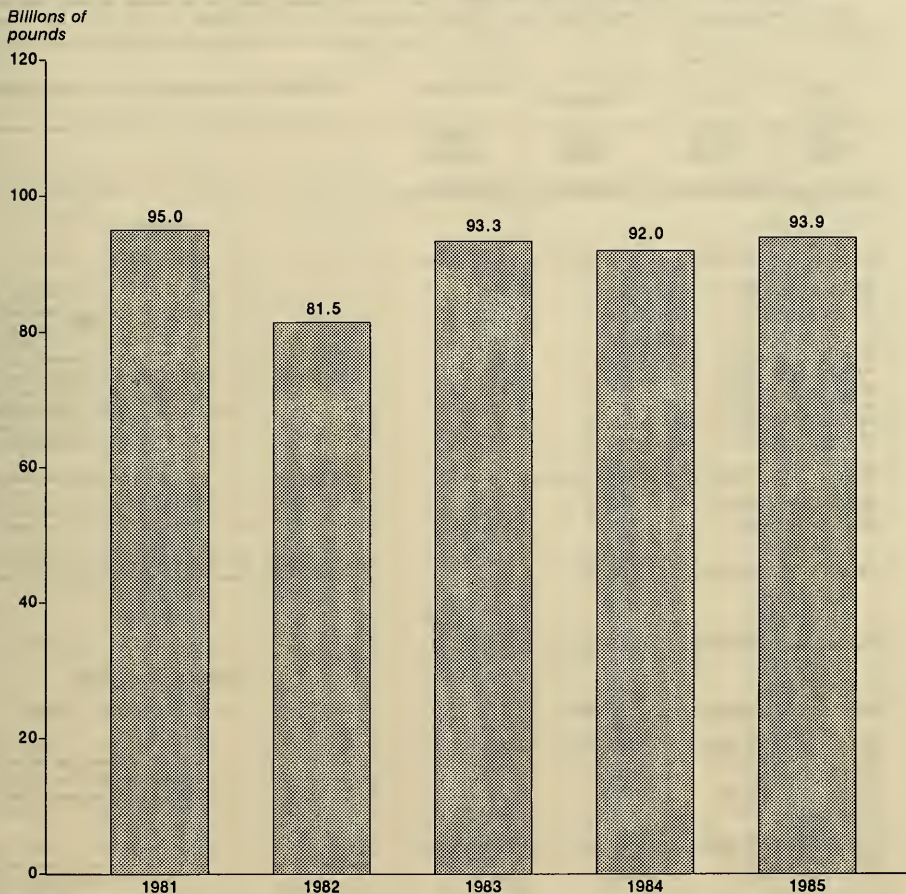
The term "miscellaneous chemicals" as it is used here comprises those synthetic organic products that are not included in the use groups covered by sections I-XIV of this report. They include products that are employed in a great variety of uses. The number of chemicals used extensively for only one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

U.S. production of miscellaneous cyclic and acyclic chemicals in 1985 amounted to 93.9 billion pounds, an increase of 2.0 percent compared with production in 1984. Production of miscellaneous cyclic chemicals comprised only 2.9 percent of this section's total production.

Figure 1 shows the trend of production of miscellaneous chemicals during 1981-85, and shows there has been a considerable increase since the low point in 1982. However, the 1985 production of 93.9 billion pounds was slightly less than the 95.0 billion pounds produced in 1981, and was considerably smaller than the all-time peak of 98.8 billion pounds produced in 1979. 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 1985, sales of miscellaneous chemicals were 36.4 billion pounds, valued at \$11.2 billion, compared with 40.4 billion pounds, valued at \$12.0 billion, in 1984. This decrease in sales in 1985 was 10.0 percent in quantity and 6.5 percent in value. Oxygenated hydrocarbons accounted for 60 percent of the production of all acyclic miscellaneous chemicals. Production of oxygenated hydrocarbons, which include organic acids, alcohols (the largest group), ketones, esters, ethers, aldehydes, epoxides, and other chemicals, decreased from 59.0 billion pounds in 1984 to 54.6 billion pounds in 1985, or by 7.0 percent. With the exception of polyhydric alcohols, which benefited from a 1-billion-pound increase in production of ethylene glycol in 1985, all types of oxygenated hydrocarbons shared in the decrease. Production of methanol, a monohydric alcohol, decreased about 3 billion pounds in 1985 compared with its production in 1984.

The largest individual group of miscellaneous acyclic chemicals is the halogenated hydrocarbons. Production of halogenated hydrocarbons increased from 19.4 billion pounds in 1984 to 26.8 billion pounds in 1985, or by 38 percent. Production of chlorinated hydrocarbons, by far the largest segment of this group, increased 41.0 percent in 1985, to 25.8 billion pounds, from 18.3 billion pounds in 1984. Virtually all of the increase in production was accounted for by ethylene dichloride, up almost 5 billion pounds in 1985, and vinyl chloride monomer, up more than 3 billion pounds. Ethylene dichloride is the raw material for vinyl chloride, which in turn is the raw material for polyvinyl chloride plastics.

Figure 1.—Miscellaneous cyclic and acyclic chemicals.



Source: U.S. International Trade Commission, *Synthetic Organic Chemicals: United States Production and Sales*.



XV -- MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985

[Listed below are all miscellaneous cyclic and acyclic chemicals for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all miscellaneous cyclic and acyclic chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
		1,000 pounds	1,000 dollars	Per pound
Grand total-----	93,927,389	36,431,156	11,179,826	\$0.31
<b>CYCLIC</b>				
Total-----	2,691,986	1,253,280	1,096,092	.87
Benzoyl peroxide-----	8,546	8,466	20,771	2.45
Butyl benzoate-----	536	484	277	.57
tert-Butyl peroxybenzoate-----	3,878	3,807	8,261	2.17
Caprolactam <sup>2</sup> -----	1,089,497	...	...	...
Cumene hydroperoxide-----	1,132	1,219	1,863	1.53
2,6-Di-tert-butyl-p-cresol (BHT), tech. grade-----	2,515	4,484	5,118	1.14
Dodecenylsuccinic anhydride-----	5,476	4,479	3,865	.86
Hexamethylenetetramine, tech. grade-----	80,253	48,791	16,438	.34
Lactones-----	86,630	16,062	17,059	1.06
Maleic anhydride <sup>2</sup> -----	393,529	330,993	145,507	.44
Pinene and derivatives, total-----	237,091	70,955	23,476	.33
β-Pinene-----	41,523	...	...	...
Pine oil, synthetic-----	39,165	40,536	16,805	.41
All other-----	156,403	30,419	6,671	.22
1,3,5-Trichloro-5-triazine-2,4,6-(1H, 3H, 5H)trione-----	101,643	...	...	...
All other miscellaneous cyclic chemicals-----	681,260	763,540	853,457	1.11
<b>ACYCLIC</b>				
Total-----	91,235,403	35,177,876	10,083,734	.29
<b>NITROGENOUS COMPOUNDS</b>				
Total-----	7,212,270	3,069,639	1,309,614	.43
Amides, total-----	252,746	170,293	118,876	.70
Acrylamide monomer-----	...	63,105	24,574	.39
N,N'-Ethylene bis (oleamide)-----	393	421	494	1.17
N,N'-Ethylenebis(stearamide)-----	...	27,574	18,458	.67
All other-----	252,353	79,193	75,350	.95
Amines, total <sup>3</sup> -----	1,448,959	499,954	379,656	.76
Butylamines-----	29,079	25,329	20,716	.82
Di-n-butylamine-----	4,141	4,717	3,628	.77
Ethylamines:-----	...	...	...	...
Diethylamine-----	19,696	6,279	4,661	.74
Ethylamine, mono-----	59,303	...	...	...

See footnotes at end of table.



TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
NITROGENOUS COMPOUNDS--Continued				
Amines <sup>2</sup> --Continued				
Triethylamine-----	17,277	17,787	15,429	\$0.87
Ethylenediamine-----	63,881	47,049	36,293	.77
Isopropylamine, mono-----	54,198	51,446	23,316	.45
Methylamines:				
Dimethylamine-----	65,904	57,247	24,796	.43
Methylamine, mono-----	52,317	...	...	...
Trimethylamine-----	29,384	17,921	5,921	.33
All other-----	1,057,920	276,896	248,524	.90
1,3-Diethyl-2-thiourea-----	...	330	680	2.06
Dimethylaminoethyl methacrylate-----	2,796	1,394	2,470	1.77
Ethanolamines, total <sup>2</sup> -----	537,287	505,596	124,068	.25
2,2'-Aminodiethanol (Diethanolamine)-----	166,479	157,388	41,596	.26
2-Aminoethanol (Monoethanolamine)-----	215,342	154,297	41,464	.27
2,2',2''-Nitrilotriethanol (Triethanolamine)-----	155,466	193,911	41,008	.21
Nitriles, total-----	4,103,526	1,699,999	481,706	.28
Acetonitrile-----	22,268	...	...	...
Acrylonitrile-----	2,348,871	1,370,803	420,225	.31
2-Methylacetonitrile (Acetone cyanohydrin)-----	1,008,424	...	...	...
All other-----	723,963	329,196	61,481	.19
All other nitrogenous compounds-----	866,956	192,073	202,158	1.05
ACIDS, ACYL HALIDES AND ANHYDRIDES				
Total-----	11,162,295	2,298,521	794,435	.35
Acetic acid, synthetic, 100% <sup>2</sup> -----	2,897,465	1,027,636	141,730	.14
Acrylic acid <sup>2</sup> -----	795,015	142,677	63,506	.45
Fatty acids, hydrogenated and nonhydrogenated-----	...	122,929	39,423	.32
Fumaric acid-----	48,643	29,133	17,813	.61
Propionic acid-----	99,748	66,348	14,634	.22
All other acid, acyl halides, and anhydrides-----	7,321,424	909,798	517,329	.57
SALTS OF ORGANIC ACIDS				
Total-----	315,491	292,379	239,277	.82
Acetic acid salts, total-----	19,095	18,559	13,612	.74
Ammonium acetate-----	165	173	255	1.48

See footnotes at end of table.



TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
SALTS OF ORGANIC ACIDS--Continued				
Acetic acid salts--Continued				
Potassium acetate-----	506	1,721	1,295	\$0.75
Sodium acetate-----	13,195	...	...	...
Zinc acetate-----	408	426	531	1.25
All other-----	4,821	16,239	11,531	.71
2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid) salts, total-----	20,863	17,641	30,300	1.72
Cadmium 2-ethylhexanoate-----	219	...	...	...
Calcium 2-ethylhexanoate-----	2,146	2,146	2,234	1.04
Cobalt 2-ethylhexanoate-----	4,409	3,493	9,273	2.65
Lead 2-ethylhexanoate-----	939	962	1,064	1.11
Manganese 2-ethylhexanoate-----	1,085	1,086	1,033	.95
Nickel 2-ethylhexanoate-----	1,826	1,227	1,792	1.46
Zinc 2-ethylhexanoate-----	956	909	1,036	1.14
Zirconium 2-ethylhexanoate-----	3,529	2,833	5,164	1.82
All other-----	5,754	4,985	8,704	1.74
Calcium neodecanoate-----	90	93	120	1.30
Calcium propionate-----	19,438	15,700	7,176	.46
Oxalic acid salts:				
Ammonium oxalate-----	88	75	164	2.18
Potassium oxalate-----	60	53	127	2.40
Stearic acid salts, total <sup>4</sup> -----	126,312	114,581	87,681	.77
Aluminum stearates-----	3,215	3,470	4,438	1.28
Barium stearate-----	876	673	689	1.02
Cadmium stearate-----	90	97	212	2.18
Calcium stearate-----	69,147	65,923	42,767	.65
Cobalt stearate-----	511	519	1,428	2.75
Magnesium stearate-----	22,629	16,079	11,519	.72
Zinc stearate-----	27,925	26,363	24,315	.92
All other-----	1,919	1,457	2,313	1.59
All other salts of organic acids-----	129,545	125,677	100,097	.80
ALDEHYDES				
Total-----	8,228,498	2,086,288	201,459	.10
Butyraldehyde-----	1,286,229	38,258	6,381	.17
Formaldehyde (37% by weight) <sup>2</sup> -----	5,606,140	1,742,409	108,780	.06
Propionaldehyde-----	219,391	8,319	1,972	.24
All other aldehydes-----	1,116,738	297,302	84,326	.28

See footnotes at end of table.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
KETONES				
Total-----	2,621,992	2,341,920	527,648	\$0.23
Acetone: <sup>2</sup>				
From cumene-----	1,148,980	1,051,870	184,509	.18
From isopropyl alcohol-----	638,820	482,108	82,147	.17
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	36,925	30,637	12,468	.41
Methyl ethyl ketone (2-Butanone) <sup>2</sup> -----	537,101	559,589	140,713	.25
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	130,907	135,122	51,110	.38
All other ketones-----	129,259	82,594	56,701	.69
ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED				
Total-----	11,934,525	6,690,328	1,212,347	.18
Alcohols, C <sub>11</sub> or lower, unmixed, total-----	11,044,256	6,181,900	971,212	.16
Butyl alcohols, total-----	2,843,431	...	...	...
n-Butyl alcohol (n-Propylcarbinol) <sup>2</sup> -----	716,242	459,628	100,958	.22
Isobutyl alcohol (Isopropylcarbinol) <sup>2</sup> -----	174,968	119,966	20,564	.17
All other-----	1,952,221	...	...	...
Ethyl alcohol, synthetic <sup>2 5</sup> -----	648,784	...	...	...
2-Ethyl-1-hexanol <sup>2</sup> -----	536,310	384,836	103,290	.27
Isopropyl alcohol <sup>2</sup> -----	1,234,553	852,630	203,830	.24
Methanol, synthetic <sup>2</sup> -----	5,002,918	2,656,904	192,377	.07
Propyl alcohol (Propanol)-----	145,283	84,875	27,769	.33
All other-----	632,977	1,623,061	322,424	.20
Alcohols, C <sub>12</sub> and higher, unmixed, total-----	165,411	69,911	42,329	.61
Mixtures of alcohols:				
Containing C <sub>11</sub> or lower only-----	184,726	124,454	56,295	.45
Other mixtures-----	540,132	314,063	142,511	.46
ESTERS OF MONOHYDRIC ALCOHOL				
Total-----	4,927,305	2,834,342	1,117,394	.39
Allyl methacrylate-----	668	662	1,290	1.95
Butyl acetates:				
n-Butyl acetate-----	179,140	112,601	48,479	.43
Isobutyl acetate-----	76,732	57,033	17,122	.30
Butyl acrylate-----	423,620	210,771	98,188	.47
tert-Butyl peroxy-2-ethylhexanoate-----	1,952	1,947	6,458	3.32
tert-Butyl peroxyvalerate-----	2,402	2,522	8,576	3.40
Dibutyl maleate-----	2,904	2,826	1,554	.55
Diethyl maleate-----	4,055	3,776	2,834	.75
2-Ethoxyethyl acetate-----	103,038	101,557	43,776	.43
Ethyl acetate (100% basis) <sup>2</sup> -----	191,981	178,403	44,573	.25
Ethyl acrylate-----	303,100	209,874	84,394	.40
2-Ethyl-1-hexyl acrylate-----	79,240	58,561	32,225	.55

See footnote at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
ESTERS OF MONOHYDRIC ALCOHOLS--Continued				
Fatty acid esters, not included with plasticizers or surface-active agents, total	18,814	18,441	11,576	\$0.63
Myristyl myristate	307	282	450	1.59
Tridecyl stearate	1,893	1,835	1,495	.81
All other	16,614	16,324	9,631	.59
Methyl methacrylate <sup>2</sup>	858,147	...	...	...
Phosphorus acid esters, not elsewhere specified	102,848	89,609	101,896	1.14
Propyl acetate	60,873	55,775	24,439	.44
Vinyl acetate	2,112,433	1,309,338	278,455	.21
All other esters of monohydric alcohols	405,358	420,646	311,559	.74
POLYHYDRIC ALCOHOLS				
Total <sup>5</sup>	5,743,412	3,941,386	982,095	.25
1,4-Butanediol	353,482	86,024	59,090	.69
Ethylene glycol <sup>2</sup>	4,178,310	2,896,757	500,862	.17
Pentaerythritol <sup>2</sup>	93,726	116,551	59,072	.51
Propylene glycol <sup>2</sup>	499,529	466,913	148,352	.32
Sorbitol (70% by weight)	179,087	133,998	49,885	.37
All other polyhydric alcohols	439,278	241,143	164,834	.68
POLYHYDRIC ALCOHOL ESTERS <sup>6</sup>				
Total	210,305	210,065	126,049	.60
POLYHYDRIC ALCOHOL ETHERS				
Total	1,766,656	1,420,131	493,361	.35
2-Butoxyethanol <sup>2</sup>	276,814	267,184	79,491	.30
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	69,736	64,919	24,378	.38
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)	10,148	4,839	2,475	.51
Diethylene glycol	440,549	336,662	53,953	.16
Dipropylene glycol	52,877	...	...	...
2-Ethoxyethanol	123,879	60,913	21,031	.35
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	25,743	23,974	8,745	.36
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	12,061	...	...	...
2-Methoxyethanol (Ethylene glycol monomethyl ether)	83,493	77,768	21,850	.28
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	40,167	32,775	10,640	.32
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (triethylene glycol monomethyl ether)	28,501	...	...	...
Polyethylene glycol	73,327	54,371	29,394	.54

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
POLYHYDRIC ALCOHOL ETHERS--Continued				
Polyglycols, ethylene glycol and glycol ether, mixed	5,605	...	...	...
Polypropylene glycol	16,065	10,440	6,493	\$0.62
Tetraethylene glycol	24,159	16,001	6,640	.41
Triethylene glycol	149,691	143,596	40,047	.28
All other polyhydric alcohol ethers	333,841	326,689	188,224	.58
HALOGENATED HYDROCARBONS				
Total	26,836,764	6,916,903	1,785,085	.26
Chlorinated hydrocarbons, total	25,804,474	6,121,016	1,136,214	.19
Carbon tetrachloride <sup>2</sup>	645,618	360,328	58,220	.16
Chlorinated paraffins (C <sub>10</sub> -C <sub>30</sub> ):				
35%-64% chlorine	79,904	81,962	31,104	.38
Chloroform	275,255	383,723	54,508	.14
Chloromethane (Methyl chloride)	...	174,097	36,560	.21
Dichloromethane (Methylene chloride) <sup>2</sup>	467,118	502,503	94,519	.19
Ethyl chloride (Chloroethylene) <sup>2</sup>	170,503	82,606	13,287	.16
Ethylene dichloride (1,2-Dichloroethane) <sup>2</sup>	12,100,888	409,990	38,776	.09
Tetrachloroethylene (Perchloroethylene) <sup>2</sup>	677,819	437,996	81,043	.19
1,1,1-Trichloroethane (Methyl chloroform) <sup>2</sup>	868,776	580,088	182,689	.31
Vinyl chloride, monomer (Chloroethylene) <sup>2</sup>	9,462,979	2,868,762	459,810	.16
All other	1,055,614	238,961	85,698	.36
Fluorinated (including other fluorohalogenated) hydrocarbons, total	1,019,486	783,796	633,712	.80
Chlorodifluoromethane (F-22) <sup>2</sup>	235,350	141,255	158,033	1.12
Dichlorodifluoromethane (F-12) <sup>2</sup>	301,893	284,044	182,317	.64
Trichlorofluoromethane (F-11) <sup>2</sup>	175,781	171,168	81,104	.47
All other	306,462	187,329	212,258	1.13
Iodinated (not otherwise halogenated) hydrocarbons	64	60	553	9.22
All other halogenated hydrocarbons	12,740	12,031	14,606	1.22
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS				
Total	9,897,607	2,874,231	1,253,878	.44
Acyclic peroxides:				
2-Butanone peroxide	9,751	10,240	16,026	1.56
Epoxides, ethers, and acetals, total	8,033,541	2,148,042	616,791	.29
Ethylene oxide <sup>2</sup>	5,430,359	615,170	130,971	.21
Glycidyl ethers, total	6,157	6,218	12,477	2.01
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	536	546	1,037	1.90
All other	2,597,025	1,526,654	473,343	.31



TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS--Continued				
Phosgene (Carbonyl chloride)-----	514,095	...	...	...
Silicone fluids-----	134,116	88,769	168,715	\$1.90
All other miscellaneous acyclic chemicals-----	1,206,104	627,180	452,346	.73
MIXTURES NOT SPECIFICALLY ITEMIZED				
Total-----	378,283	201,743	41,092	.20
Glycol residues-----	13,414	9,066	1,763	.19

<sup>1</sup>Calculated from unrounded figures.

<sup>2</sup>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, 1985, results from a combination of incorrect reporting by some companies, end-of-year inventory adjustments, and rounding.

<sup>3</sup>Statistics exclude production and sales of fatty amines. Statistics on fatty amines. Statistics on fatty amines are included in the section "Surface-Active Agents."

<sup>4</sup>Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section "Surface-Active Agents."

<sup>5</sup>Statistics for production of specially denatured alcohol, 209,876,665 wine gallons, and completely denatured alcohol, 297,955,185 wine gallons, for calendar year 1985 are compiled from data supplied by the Bureau of Alcohol, Tobacco, and Firearms. Withdrawals of completely denatured alcohol for fuel use was 222,893,158 wine gallons; nearly all specially denatured alcohol is considered to be used for fuel.

<sup>6</sup>Some polyols which are used as intermediates for urethanes have been included in the section "Plastics and Resin Materials."



TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

(CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED BELOW WITH AN ASTERISK (\*); CHEMICALS NOT SO MARKED DO NOT APPEAR IN TABLE 1 BECAUSE THE REPORTED DATA ARE ACCEPTED IN CONFIDENCE AND MAY NOT BE PUBLISHED. MANUFACTURERS' IDENTIFICATION CODES SHOWN BELOW ARE TAKEN FROM TABLE 3. AN "X" SIGNIFIES THAT THE MANUFACTURER DID NOT CONSENT TO HIS IDENTIFICATION WITH THE DESIGNATED PRODUCT)

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC	
6-Acetoxy-2,4-dimethyl-1,3-dioxane	GIV, NEV.
Acetylcyclohexane sulfonyl peroxide	WFL.
Alkylphenol formaldehyde condensate, alkoxylated	X.
Alkylphenol formaldehyde copolymer	X.
1-(2-Aminoethyl)piperazine	CYL, DOW.
1-(3-Aminopropyl)morpholine	TK.
Amyl p-dimethylaminobenzoate	VND.
Amyl and dimethylaminobenzoate	VND.
BENZOIC ACID SALTS:	
Ammonium benzoate	WTK.
Cadmium benzoate	VNC.
Potassium benzoate	KLM, PFZ.
Sodium benzoate, U.S.P.	HCP, JRC, KLM, PFZ.
Sodium benzoate, tech.	PFZ.
Benzoic acid salts, all other	FER, WTC.
Benzenephosphinic acid	SFS.
1,4-Benzquinone (p-quinone)	EXI.
Benzothiazole	RCI, X.
2,2-Benzotriazole, substituted	CGY, X.
*Benzoyl peroxide	AZT, CAD, NOC, PLC, WTC, WTL.
Benzyl alcohol	KLM, SFS.
Benzyl chloroformate	ESK, YCH.
Benzyl cocaoalkyl dimethyl ammonium chloride	X.
Bis(p-chlorobenzoyl)peroxide	CAD.
Bis(2,4-dichlorobenzoyl)peroxide	CAD, WTL.
Bis(α,α-dimethylbenzyl)peroxide	WTL.
2,2-Bis(ferrocenyl)propane	ABA.
Bis(hydroxymethyl)oleyl oxazoline	ANG.
Bis(1,1,3,3-methyl-butyl-phenyl)ether	HEX.
1,1-Bis(3,3,5-trimethyl)dicyclohexane	WTL.
Bis(triphenylsilyl)chromate	X.
Boron fluoride-phenol complex	ACS.
Bromochloro-5,5'-dimethyl hydantoin	GLY.
β-Bromo-β-nitrostyrene	GIV.
2-Butoxyethyl benzoate	X.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*Butyl benzoate-----	HRF, PCI, TCC.
4-tert-Butylcyclohexyl peroxydicarbonata	CAD.
tert-Butylhydroquinone-----	EKT.
Butyl and isopropyl phthalimides	RPC.
2 (and 3)-tert-Butyl-4-methoxyphenol (BHA)	EKT.
*tert-Butyl peroxybenzoate-----	AZT, FRE, WTC, WTL.
tert-Butyl peroxy-3,5,5-trimethyl cyclohexane	CAD.
4-tert-Butylpyrocatechol-----	CFZ.
Camphane-----	SCM, X.
*Caprolactam (2-Oxohexamethylensimine)	ACS, CNP, DBC, X.
Caprolactam magnesium bromide-----	X.
Callulosa acetate hexahydrophthalate-----	X.
Callulosa acetate phthalate-----	EK, UCC.
1-(3-Chloroallyl)-3,5,7-triszo-1-azoniaadamantane chloride-----	DOM.
P-(Chloromethyl)phenyl trimethoxysilane	SCM.
Chlorochisaxanthone-----	PSG.
Cresosulfonic acid, formaldehyde condensate	STC.
*Cumene hydroperoxide-----	WTL, CLK, FRE, USS, WTC.
Cyanuric acid-----	WTL.
1,4-Cyclohexylenedimethanol-----	FMC, MON.
Cyclochloracetate-----	EKT.
Cyclopropane-----	AAC.
Decabromodiphenyl ether (DBDP)-----	DOM.
Decahydronaphthalene (Decalin)-----	TVA.
Dehydroacetic acid or sodium salt-----	DUP.
1,4-Diazobicyclo(2,2,2)octane-----	GAN.
Diazodinitrophenol-----	TX, X.
2,5-Di (benzoyl peroxy)-2,5-dimethylhexane	HPC.
Di-t-butyl diperoxyphthalate-----	AZT, WTL.
2,5-Di-tert-butylhydroquinone-----	WTL.
1,5-Dichloro-5,5-dimethylhydantoin-----	EKT.
Dichloro-s-triazine-2,4,6 (1H,3H,5H)trione (Dichloroisocyanuric acids and salts)	GLY.
4,4'-Dichloro-3-(trifluoromethyl)carbanilide	CGY.
1,1-Dicyclohexane-----	FMC.
Dicyclohexylammonium nitrite-----	WTL.
Dicyclopentadienyldichromium-----	SHC.
Dicyclopentadienyliiron-----	X.
N,N'-Diethyl-N,N'-diphenylurea	ABA.
-----	VDM.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Di(2-ethylhexyl) chlorendate	VEL.
1,5-Diethyl-2-thio-4,6-pyrimidinedione	TML.
2,5-Dihydrothiophene-1,1-dioxide (Sulfolene)	PLC.
3,5-Dihydroxy-3,5-dimethyl-1,2-peroxydicyclopentane	WTC, WTL.
Diodomethyl-p-tolyl sulphone	ABB.
Diisopropylbenzene hydroperoxide	HPC.
Diketene	BRD, EKT.
Dimer acid esters with polyethylene glycol hydrogen phthalate and castor oil	X.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL.
N,N'-Dimethyl-N,N'-diphenylurea	VDM.
4,4-Dimethyl oxazolidine	EFH.
4,4-Dimethyl oxazoline	AMG.
4,4-Dinitrocarbamillide-4,6-dimethyl-2-pyrimidinol	MBK, NOC.
Dioxane (1,4-Diethylene oxide)	FER, MIL.
1,3-Dioxolane	FER.
Di-p-para-xylene	NCC.
Dipropylene glycol salicylate	SBC.
α-Dodecylsuccinic anhydride	BCC, DLX, HRY, MIL.
Dodecyl pyridinium chloride	EKT.
6-Ethoxy-12-dihydro-2,2,4-trimethyl quinoline	TLC.
Ethoxylated methylglucoside	MON.
5-Ethyl-1-aza-3,7-dioxabicyclo[3,3,0]octane	GRN.
Ethyl chrysanthematate	AMG.
2,6-DI-tert-BUTYL-P-CRESOL (BHT):	SFS.
*2,6-Di-tert-butyl-p-cresol, (BHT), Food grade	KPT, USR.
*2,6-Di-tert-butyl-p-cresol, (BHT), Technical grade	KPT, UCC, USR.
2-Ethylhexyl benzoate	TCC.
2-Ethylhexyl-p-dimethylaminobenzoate	VND.
Ethyl hydroxymethyl oleyl oxazoline	AMG.
Ethylidene norbornene	UCC.
4-Ethylmorpholine	TX.
Terrocene polymer with 2-propanone, in chlorinated wax	ARA.
FURAN DERIVATIVES:	
2-Furaldehyde (furfural)	CYL, QKO, X.
[5-(Phenylmethyl)]-3-furfuryl alcohol	PEN.
Tetrahydrofurfuryl alcohol	QKO.
Galic acid, tech.	MAL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>CYCLIC--CONTINUED</b>	
Glyceryl p-aminobenzoate	VND.
Hexabromocyclodecane	TNA.
*Hexamethylenetetramine, tech.	BOB, CYL, HRP, MOD, OMC, PLS, WCL.
Homomethyl salicylate	MFC.
Hydrindantin	FIG.
Hydroquinone, di(8-hydroxyethyl) ether	FKT.
p-Hydroxybenzoic acid, benzyl ester	LEH.
p-Hydroxybenzoic acid, butyl ester	CNN, KLM REC.
p-Hydroxybenzoic acid, ethyl ester	KLM.
p-Hydroxybenzoic acid, methyl ester	KLM, LEH.
m-(Hydroxyethyl)piperazine	KLM, LEH.
Hydroxymethyl-5,3-hydantoin	TCH.
2-Hydroxy-2-methylphenyl propanone	GLY.
α-p-Hydroxyphenylglycine methyl ester K	MMC.
1,2,3-Indantrione monohydrate (Winhydrin)	BOC.
*LACTONES:	FIG.
Butyrolactone	BAS, GAF.
Caprolactone	UCG.
Glucono- $\delta$ -lactone	PFZ.
Lactones, all other	FFN.
Lanolin acetate	GRN.
Lanolin acid	GRN.
Lanolin acid, isopropyl ester	GRN.
Lanolin alcohol acetate	GRN.
*Maleic anhydride	AMO, ASH, DKA, MON, USS.
p-Menthane	HPC.
8-p-Menthyl hydroperoxide	HPC.
4-Hexoxyphenol	ASP, EXT.
Methylaziridine	ARS.
2,2'-Methylenebis(3,4,6-trichlorophenol)	VEL.
(Hexachlorophane)	TK.
4-Methylmorpholine	BAS, GAF.
1-Methyl-2-pyrrolidone monomer	ALP, TK.
Morpholine	AMB.
Morpholine salt of p-toluene sulfonic acid	TNA.
Octabromodiphenyl oxide	MIL.
Octadecyl succinic anhydride	COY, TNA.
Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate	

TABLE 2.---MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC---CONTINUED	
Octenylsuccinic anhydride	HMV, MIL.
Oxalyl bis(benzylidene hydrazide)	EKT.
Pentaerythritol tribenzoate	VEL.
Phenethyl bromide	WCC.
Phenothiazine	WAG.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether)	EKT.
$\alpha$ -D-Phenylglycine methyl ester K	BOC.
Phenyl xylyl ethane	HCC, TCC.
Phthalic acid, lead salt, (Dibasic)	ALL.
Picramic acid, sodium salt	SDC.
*PINENE AND DERIVATIVES:	
Pinane	SCM.
Pinane hydroperoxide	SCM.
2-Pinanol (cis and trans)	SCM.
$\alpha$ -Pinene	ARZ, SCH.
*8-Pinene	ARZ, HFC, NCI, SCM.
pinene, sulfate	ARZ, HFC, NCI.
pine oil, natural sulfate	NCI.
pine oil, synthetic	ARZ, NCI, SCM.
Polypropylene glycol glycerol triether and epichlorohydrin bisphenol epoxy resin	X.
Polypropylene glycol glyceryl triether (epichlorohydrin-bisphenol A) epoxy resin copolymer, ethoxylated	X.
Propoxylated methylglucoside	GMN.
Propylene glycol dibenzoate	VEL.
Propyl gallate	EKT.
2,4(LH,3H)Pyrimidinedione	SCM.
Resorcinol monobenzoate	EKT.
Rosin acid salts	SD.
Salicylic acid magnesium salt	KLM.
Sodium benzene phosphinate	SFS.
Stannous octyl phthalate	X.
Styrene oxide	UCC.
Succinic anhydride	BCC.
Sucrosa benzoate	VEL.
Tall oil, chemically modified	CCC, FOC, EFH, GAF, WVA, X, X.



TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*TALL OIL SALTS (LINOLEIC-ROSIN ACID SALTS):	
Calcium manganese tellate	MCI, SHP.
Calcium tellate	CCA, X.
Cobalt manganese tellate	MCI.
Cobalt tellate	MCI, SHP.
Lead manganese tellate	SHP.
Lead tellate	CCA, MCI.
Manganese tellate	MCI, SHP.
Zinc tellate	MCI.
Tall oil salts, all other (linoleic-rosin acid salts)	CCA, SHP, X.
Tannic acid, N.F.	MAL.
Terpene hydrocarbons, monocyclic (Solvenol)	HPG, MCI, SCH, WTK.
Terpene polymers	ARZ.
Tetrabromobiphenol A	GTL, TNA, X.
n-Tetradecenylo succinic anhydride	DIX.
1,2,3,4-Tetrahydronaphthalene (tetralin)	DUP.
Tetrahydrothiophene	PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)	PLC.
Tetraphenyltin chloride	ALM.
Thiophene	PAS.
Triallyl cyanurate	ACV.
Tributyltin benzoate	CSG.
3,4,4'-Trichlorocarbamide	MON.
*1,3,5-Trichloro-s-triazine-2,4,6-(1H,3H,5H)trione (trichloroisocyanuric acid)	FMC, MON, OMC, SHC.
3,3,5-Trimethylcyclohexanol (m-homenthol)	ARS.
3,5,5-Trimethyl-2-cyclohexene-1-one (isophorone)	ENJ, UCC.
2,4,6-Trinitroresorcinol and lead derivative	REM.
5-Trioxene	ALM.
2,4,6-Triphenoxy-s-triazine	ALM.
Triphenyltin hydroxide	X.
1-Vinyl-2-pyrrolidione--other copolymers	GAF.
1-Vinyl-2-pyrrolidione-methylacrylic acid, dimethylamine ethyl ester, copolymer	GAF.
1-Vinyl-2-pyrrolidione, monomer	GAF.
Cyclic chemicals, all other	ALP, ALH, CWN, DA, DOM, GAF, KF, NES, ORT, PAC, PLC, PLG, REG, REM, RH, RSA, SFS, SK, STC, TCC, TNA, TX, UCC, VTC, WLN, WTK, WTC, X, X, X, X.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
CYCLIC--CONTINUED	
ACYCLIC	
*NITROGENOUS COMPOUNDS:	
Acetamidine hydrochloride	WTC.
Acetamidoethanol (N-Acetyl-ethanolamine)	GAF, SBC.
Alkyl C <sub>12</sub> C <sub>14</sub> amine hydrochloride	COS.
*AMIDES:	
Acetamide	ACS, WTK.
*Acrylamide monomer	ACY, CYL, X, X.
Amido amine salts as curing agents	CEL, PAC, X.
1,1'-Azobisformamide	OMC, USR.
Bis[2-(octadecylamido)ethyl]-N-(2-cyanoethyl)-N-ethyl ammonium ethyl sulfate	SEC.
Coconut oil amide	ARC, CAD, FTX.
N,N-Diethyl dodecanamide	EK.
N,N-Dimethylacetamide	DUP.
N,N-Dimethylacetacetamide	EKT.
Dimethylaminopropyl methacrylamide	TX.
Dimethyl caprylamide capramide	HAL.
N,N-Dimethylformamide	DUP, HAL.
Ercamide	ARC, WTC.
*N,N'-Ethylenebis-oleamide (Oleic acid-ethylene diamine condensate (Amine/acid ratio = 1/2))	COM, GLY, WTC.
*N,N'-Ethylenebis(stearamide)	CGM, DA, GLY, WTC.
Fish oil fatty acid amide	WTC.
Formaldehyde adduct condensation-	
N-(Hydroxymethyl)-formamide	COS.
Methacrylamide	DUP.
N-Methylacetamide	ARS, EKT.
Oleamide (Octadecene amide)	ARC, WTC.
Oleoylpalmitamide	HLL.
Oxamide	HLL, TLI.
Stearamide (Octadecane amide)	ARC, WTC.
Stearylterucamide	HLL, WTC.
Tallow amide, hydrogenated	ARC, CAD.
Amides, all other	ARS, BRD, DOM, EFF, SOL, WTC.
*AMINES:	
Allylamines	SHC, VGC.
Bis-hexamethylenetriamine amines	DUP, MON.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMINES--CONTINUED	
*BUTYLAMINES:	
n-Butylamine, mono-----	AIP, PAS.
sec-Butylamine, mono-----	PAS.
tert-Butylamine, mono-----	MON.
*Di-n-butylamine-----	AIP, PAS, VGC.
Diisobutylamine-----	AIP, VGC.
Tri-n-butylamine-----	AIP, PAS.
n-Butylethylamine-----	AIP.
Di-tert-butylethylamine-----	VGC.
Diethylaminoethanethiol HCl-----	EVN.
Diethylenetriamine-----	AIP, DOM, TX, UCC.
Diisopropylamine-----	AIP, PAS, UCC.
Dimethylaminopropylamine-----	TK.
Dimethylaminopropylamine, propoxylated-----	TK.
N,N-Dimethylbutylamine-----	VGC.
1,3-Dimethylbutylamine-----	FLC.
Dipropylethylamine-----	PHI.
ETHYLAMINES:	
*Diethylamine-----	AIP, PAS, UCC.
*Ethylamine, mono-----	AIP, PAS, SNC, UCC.
*Triethylamine-----	AIP, PAS, UCC, VGC.
*Ethylenediamine-----	DOM, TX, UCC.
(2-Ethylhexyl)amine, mono-----	VGC.
N-Ethyl-2-methylallylamine-----	VGC.
1,6-Hexanediamine (Hexamethylenediamine)-----	DUP, MON.
n-Hexylamine-----	CKI, PAS.
*Isopropylamine, mono-----	AIP, UCC, VGC.
METHYLAMINES:	
*Dimethylamine-----	AIP, DUP, GAF, IMG.
*Methylamine, mono-----	AIP, DUP, GAF, IMG.
*Trimethylamine-----	AIP, DUP, GAF, IMG.
Mixed primary t-alkylamines-----	BH.
Nitrotolracetonitrile-----	FHP, VGC.
tert-Octylamine-----	BH.
Pentaethylenhexamine-----	DOM, UCC.
PENTYLAMINES (AMYLAMINES):	
Dipentylamine-----	PAS, VGC.
Pentylamine, mono-----	PAS.
Tripentylamine-----	PAS.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMINES--CONTINUED	
Poly(oxypropylene)diamine	TX.
PROPYLAMINES:	
Dipropylamine	PAS, VGC.
Propylamine, mono	PAS.
Tripropylamine	PAS.
Tetraethylenepentamine	DOM, UCC.
N, N, N'-Tetramethyl-1,3-butanediamine	MON.
Tetramethylethylenediamine	BKH.
Triethylenetetramine	DOM.
Amines, all other	BUC, CKI, EK, MON, PAC, USR, VEL, X.
2-Aminoethanol hydrochloride	DOM, UCC.
2-Aminoethanol (Monoethanol amine) sulfite	HCP, OMC.
Aminoethoxyethanol	EVN, OMC.
2-(2-Aminoethylamino)ethanol	TX.
(Aminoethylamino)ethanol	
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate)	DOM, HDG, UCC.
2-Amino-2-ethyl-1,3-propanediol	EVN.
Aminoguanidine hydrochloride	ANG.
3-Amino-3-methyl-1-butene	REM.
2-Amino-2-methyl-1,3-propanediol	BH.
2-Amino-2-methyl-1-propanol	ANG.
2-Amino-2-methyl-1-propanol hydrochloride	CCC.
tert-Butylaminoethanol	PAS.
tert-Butylaminoethyl methacrylate	AAC, CFS.
tert-Butyldiethanolamine	PAS, UCC.
1-Butyl-3-ethyl-2-thiourea	PAS.
Butyl isocyanate	UPJ.
2-Chloro-N,N-dimethylethylamine hydrochloride	SOL.
ethyl chloride hydrochloride	
2-Chloro-N,N-dimethylethylamine (Dimethylamine hydrochloride)	SOL.
2-Chloro-N,N-dimethylpropylamine hydrochloride	SOL.
3-Chloro-N,N-dimethylpropylamine hydrochloride	X.
3-Chloro-2-hydroxypropyltrimethyl ammonium chloride	DOM.
Choline	HFT, RH.
N-cocamidopropyl-N,N-dimethyl-N-sodium acetate, ammonium salt	X.
1-(2-Cyanoethyl)ethyl urea	GAF.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
Di-amine derivatives of dimer acids-----	SCP.
2-Dibutylaminoethanol-----	PAS.
Dibutylaminomethanol-----	X.
1,3-Dibutyl-3-thiourea-----	RBC, VNC.
2-Diethylaminoethanol (N,N-Diethylethanolamine)-----	PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol-----	PAS, UCC.
2-Diethylaminoethyl acrylate-----	AAC, X.
Diethylaminoethylacrylate, dimethyl sulfate, quaternary salt-----	CPS.
2-Diethylaminoethyl methacrylate-----	CPS, DUP.
Diethylcarbamoyl chloride-----	GAF.
Diethylhydroxylamine-----	PAS.
N,N-Diethyl-N-methyl-2(1-oxo-2-propenyl)oxy ethaniminium sulfate-----	X.
*1,3-Diethyl-2-thiourea-----	PAS, RBC, VNC.
2-Diisopropylaminoethanol (N,N- Diisopropylethanolamine)-----	PAS, UCC.
Di-(methoxyethyl)hydroxylamine-----	SCP.
Dimethylamine epichlorohydrin copolymer-----	X.
Dimethylamine sulfate-----	ALW, RH.
2-Dimethylaminoethanol hydrochloride-----	EVN.
2-Dimethylaminoethanol (N,N-Dimethylethanolamine)-----	PAS, PEL, TX, UCC.
Dimethylaminoethyl acrylate-----	FKE.
Dimethylaminoethylacrylate, methyl chloride, quaternary salt-----	CPS, X.
Dimethylaminoethyl methacrylate-----	AAC, CPS, PAS.
Dimethylaminomethylmethacrylate, dimethyl sulfate, quaternary salt-----	AAC, CFS.
Dimethylaminoethylmethacrylate, methyl chloride, quaternary salt-----	AAC, CFS.
Dimethylaminomethanol-----	X.
2-Dimethylamino-2-methyl-1-propanol hydrochloride-----	WPC.
1-(Dimethylamino)-2-propanol-----	ANG, PAS, PEL.
1,1-Dimethylhydrazine-----	USR.
2,5-Dithiobiurea-----	FHT, GAF.



TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>MISCELLANEOUS CHEMICALS</b>	
<b>ACYCLIC--CONTINUED</b>	
<b>*NITROGENOUS COMPOUNDS--CONTINUED</b>	
<b>*ETHANOLAMINES:</b>	
*Diethanolamine-----	DOW, ICI, OMC, TX, UCC.
*Monoethanolamine-----	CAL, DOW, ICI, OMC, TX, UCC.
*Triethanolamine-----	DOW, ICI, OMC, TX, UCC.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS.
Ethylenediamine dihydrochloride	RSK.
1,1-Ethylene diures-----	EK.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	SDM.
N-Ethyl-N-hydroxyethyl-1,4-pentanediamine	SDM.
2-Ethyl-2-nitro-1,3-propanediol	ANG.
Hexamethylenediamine adipate (Nylon salt)	DUP, MON, X.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-	
(hydroxymethyl)nitromethane)	ANG.
Iminodiacetic acid-----	HMP.
<b>ISOPROPYLAMINES:</b>	
Monoisopropylamine-----	DOW.
Diisopropylamine-----	DOW, X.
Triisopropylamine-----	DOW.
2-Isopropylaminoethanol	PAS.
Isopropyl ethylthiocarbamate	ESX.
Ketamine, tetrafunctional	FAC.
2-Methoxyethyl carbamate	VAL.
3-Methoxypropylamine-----	TX.
2-Methylaminoethanol (N-Methylethanolamine)	PAS, UCC.
Methyl carbamate-----	NSC.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)	DOW, PAS.
Methyl isocyanate-----	UCC.
2-Methyl-2-nitro-1,3-propanediol	ANG.
2-Methyl-2-nitro-1-propanol	ANG.
Nitrotated lard oil-----	SM.
<b>*NITRILES:</b>	
*Acetonitrile-----	EKC, DUP, SOH, X.
*Acrylonitrile, monomer-----	ACY, DUP, MON, SOH.
Adiponitrile-----	DUP.
2,2'-Azobis[2-methylpropanonitrile]	DUP.
(Azobisisobutyronitrile)	
n-Butyronitrile-----	ECK, WYT.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*NITRILES--CONTINUED	
Cocoonitrile-----	ARC.
Crotononitrile-----	RBC.
Cynosectic acid-----	KF.
3-Ethoxypropionitrile-----	DIK.
Ethyl cyanoacetate-----	KF.
Hexadecanenitrile-----	ARC.
Isobutyronitrile-----	EKK.
Lactonitrile-----	MON.
Lauronitrile (Dodecyl nitrile)-----	ARC.
3-Methoxypropionitrile-----	X.
Methyl cyanoacetate-----	KF.
Methylisobutyl ketone aminonitrile-----	HMP.
*2-Methylacetonitrile (Acetone cyanohydrin)-----	CYR, DUP, MON, RH, SOH.
Oleonnitrile (Octadecene nitrile)-----	ARC.
Pentenenitrile-----	DUP.
Propionitrile-----	MON.
Stearonitrile (Octadecene nitrile)-----	ARC.
Tallow nitrile-----	ARC.
3,3'-Thiodipropionitrile-----	EVN.
Vinylacetonitrile-----	ARC, RBC.
Nitriles, all other-----	ARC, DUP, EVN, OMC, RSA.
Nitroethane-----	ANG.
Nitromethane-----	ANG.
1-Nitropropane-----	ANG.
2-Nitropropane-----	ANG.
Octadecyl isocyanate-----	MOB.
2-Oximino-3-pentanone-----	PD.
Pentacrythritol tetranitrate-----	DUP, HFC.
Polyvinyl octadecyl carbamate-----	ESA.
n-Propylaminoethanol-----	X.
Semicarbazide hydrochloride-----	OMC.
Tetranitromethane-----	HEL.
Thiosemicarbazide-----	FMT.
Trimethylamine hydrochloride-----	X.
Nitrogenous compounds, acyclic, all other-----	ADG, BUC, EKE, NES, OMC, PD, FIG, PRU, RSA, SHG, SHH, STC, TMA, UCC, WTC, X, X, X.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACTIDS, ACID ANHYDRIDES, AND ACYL HALIDES:	
ACETIC ACID, 100%:	
Acetic acid, recovered (100%)	AIP, CEL, EKT, MON, RDA, SD.
*Acetic acid, synthetic (100%)	CEL, EKT, MON, UCC, USI.
ACETIC ANHYDRIDE, 100%:	
Acetic anhydride from acetaldehyde (100%)	EKT.
Acetic anhydride from acetic acid, other than recovered, by the vapor-phase process (100%)	CEL.
Acetic anhydride from acetic acid, recovered, by vapor-phase process	CEL, PFZ.
Acetyl chloride	WCC.
*Acrylic acid	CEL, DBC, RH, UCC.
Adipic acid	DUF, MON.
Azelaic acid	EMR.
2,2-bis(hydroxy-methyl)-propionic acid	IMG.
Bromosuccinic acid	WCC.
Bromobutyric acid	GTL.
tert-Butylperoxy maleic acid	WTC, WTL.
Butyric acid	CEL, EKT.
Butyric anhydride	EKT.
Butyryl chloride	TLC, WCC.
Chloroacetic acid, mono	PFZ, VTC.
Citric acid	MLS, PFZ.
Crotonic acid (2-Butenoic acid)	EKT.
Decanoyl chloride	WTL.
2,2-dichloroacetyl chloride	RDA.
Dimer acid (C-36 Aliphatic dibasic acid)	EMR, SYL.
Dimethylpropionic acid	EMJ.
Dithiodipropionic acid	EVN.
Dodecanedioic acid	DUF.
1,2-ethanedithiolonic acid	SK.
2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid)	EKT, UCC.
*2-Ethylhexanoyl chloride	PPG, WTL.
Fatty acids, hydrogenated	DRL, GLY.
Fatty acids, non-hydrogenated	CAS, DRL, GLY, WVA.
Formic acid, 90%	CEL, UCC.
*Fumaric acid	AGC, DEK, KLM, MON, PFZ.
Gluconic acid, technical	PFZ, PHP.
Glutaric anhydride	UCC.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS ACID ANHYDRIDES, AND HALIDES--CONTINUED	
Glycolic acid (Hydroxyacetic acid)-----	CEL, DUP.
Heptanoyl chloride-----	WCC.
n-Hexadecenylo succinic anhydride-----	DIX, HMY.
n-Hexanoic acid-----	HMY.
1-Hydroxyethylidene-1,1-diphosphonic acid-----	CEL.
Isothionic acid (2-Hydroxyethanesulfonic acid)	CYL, WTC.
Isoascorbic acid (Erythorbic acid)-----	PFZ.
Isobutyric acid-----	EKK.
Isobutyric anhydride-----	EKT, FER.
Isononanoyl chloride-----	STC.
Iso-octadecenoic acid-----	SYL.
Iso-octadecenylo succinic anhydride-----	HMY.
Iso-pentanoic acid-----	UCC.
Itaconic acid (Methylenesuccinic acid)-----	PFZ.
Lactic acid, edible, 100%-----	MON.
Lauroyl chloride-----	WTL.
Maleic acid-----	PFN.
Malic acid-----	ACC, CYL, DKA.
Mercaptoacetic acid (Thioglycolic acid)-----	EVN.
3-Mercaptoproprionic acid-----	EVN.
Mercaptosuccinic acid (Thiomalic acid)-----	EVN.
Methacrylic acid-----	DUP, RH.
Methanesulfonic acid-----	PAS.
Methanesulfonyl chloride-----	PAS.
Neodecanoic acid-----	ENJ.
Nonanoic acid (Palargonic acid)-----	CEL, EHR.
Nonanoyl chloride-----	WCC.
Nonenylo succinic anhydride-----	HMY.
Octanoyl chloride-----	WCC.
Oleic acid-----	DRL, GLY.
Oleoyl chloride-----	DRL, GLY, STC.
Oxalic acid-----	ACS.
Oxidized Fischer Tropch wax-----	SNW.
Palmitoyl chloride-----	STC, X.
Peroxyacetic acid-----	PFB, UCC.
Pivaloyl chloride-----	PPG, WCC.
Polyacrylic acid-----	BEG, BCM, BH, SNW.
*Propionic acid-----	CEL, EKT, UCC.
Propionic anhydride-----	EKT.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES--CONTINUED	
Propionyl chloride-----	MGC.
Sebacic acid-----	WTH.
Sebacoyl chloride-----	EK, WTL.
Sorbic acid (2,4-Hexadienoic acid)-----	MON.
Stearoyl chloride-----	DA.
Succinic acid-----	ACS.
Thioacetic acid-----	EVN.
3,3'-Thiodipropionic acid-----	EVN.
Thiolactic acid-----	EVN.
Trifluoroacetic acid-----	HOC.
Trifluoroacetic anhydride-----	HOC.
Valeric acid-----	UCC.
Acids, acid anhydrides, and acyl halides, all other-----	AAC, BKM, DRL, EK, FMC, KF.
*SALTS OF ORGANIC ACIDS:	
*ACETIC ACID SALTS:	
Aluminum acetate-----	MGC.
Aluminum tridecamate-----	KGH.
Ammonium acetate-----	AGS, BKG, WTK.
Barium acetate-----	BKG.
Calcium acetate-----	AGS, HFT.
Chromium acetate-----	SHF.
Cobalt acetate-----	SHF.
Cobalt manganese acetate-----	SHF.
Copper acetate-----	BKG.
Lead acetate-----	ALP, BKC.
Lead subacetate-----	ALP, BKC.
Magnesium acetate-----	BKG, SHP.
Manganese acetate-----	SHP.
Nickel acetate-----	BKG, SHP.
*potassium acetate-----	AGS, BKG, HCP, MGC.
*Sodium acetate-----	AGS, ATL, BKG, EXT, HCP, MGC, X.
Sodium diacetate-----	HCP, MGC.
Zinc acetate-----	AGS, BKG, DIX, SHP, WTK.
Zirconium acetate-----	CCC, FZC.
Acetic acid salts, all other-----	X.
Adipic acid, ammonium salt-----	AGS, SOL.
Allylsulfonic acid, sodium salt-----	IOC.



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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>MISCELLANEOUS CHEMICALS</b>	
<b>ACYCLIC--CONTINUED</b>	
<b>*SALES OF ORGANIC ACIDS--CONTINUED</b>	
<b>CITRIC ACID SALTS:</b>	
Ammonium citrate	PFZ, WTK.
Calcium citrate	PFZ.
Diethanolamine citrate	X.
Potassium citrate	HXL, PFZ.
Sodium citrate	HXL, PFZ, X.
Citric acid salts, all other	WTK.
<b>*2-ETHYLHEXANOIC ACID (ALPHA-ETHYLHEXANOIC ACID) SALTS</b>	
Aluminum 2-ethylhexanoate	NOD, WTC.
Barium 2-ethylhexanoate	NOD.
*Cadmium 2-ethylhexanoate	CCA, FER, VNG, WTC.
*Calcium 2-ethylhexanoate	CCA, COS, MCI, NOD, TRO.
Chromium 2-ethylhexanoate	MCI.
*Cobalt 2-ethylhexanoate	CCA, MCI, NOD, SHP, TRO, WTC.
Copper 2-ethylhexanoate	MCI.
2-Ethylhexanoic acid salts, all other	CCA, MCI, NOD, SHP, TRO, WTC.
Dibutyltin di-2-ethylhexanoate	MCI, NOD.
Iron 2-ethylhexanoate	CCA, NOD.
*Lead 2-ethylhexanoate	CCA, COS, NOD, SHP, TRO, WTC.
*Manganese 2-ethylhexanoate	CCA, COS, MCI, NOD, SHP, TRO.
*Nickel 2-ethylhexanoate	CYL, MCI, NOD, SHP, WTC.
Potassium 2-ethylhexanoate	CCA, MCI, PEL.
Rare earths 2-ethylhexanoate	CCA, MCI, NOD.
Stannous 2-ethylhexanoate	CCA, MCI, NOD.
*Zinc 2-ethylhexanoate	FER, WTC.
*Zirconium 2-ethylhexanoate	CCA, COS, FER, MCI, NOD, OHC, SHP, VNG, WTC.
<b>FORMIC ACID SALTS:</b>	
Potassium formate	FER, LIL, NOD, SHP.
Sodium formate, refined	HCP.
Sodium formate, technical	BKG, WTK.
Formic acid salts, all other	INC, PST, WTK.
Fumaric acid, lead salt	RSA, WTK.
<b>GLUONIC ACID SALTS:</b>	
Potassium glycolate	ALI.
Sodium gluconate	HCP, X.
Glycolic acid, sodium salt	PFN, PFZ, X.
2-Hydroxy-3-(2-propenyloxy)-1-propanesulfonic acid, sodium salt	HCP.
	AAC.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
TERTIARY-ALPHA-ALKYLCARBOXYLIC ACID SALTS	
(ISOCARBOXYLIC ACID SALTS):	
Calcium t- $\alpha$ -alkylcarboxylate	MCI.
Cobalt t- $\alpha$ -alkylcarboxylate	MCI, MCK.
Copper t- $\alpha$ -alkylcarboxylate	MCI
Iron t- $\alpha$ -alkylcarboxylate	MCI
Lead t- $\alpha$ -alkylcarboxylate	MCI
Manganese t- $\alpha$ -alkylcarboxylate	MCI
Mixed t- $\alpha$ -alkylcarboxylic acid salts	MCI
Zinc t- $\alpha$ -alkylcarboxylate	MCI
Zirconium t- $\alpha$ -alkylcarboxylate	MCI
Isononanoic acid, lead salt	CCA.
Isooctanoic acid, calcium salt	CCA.
Isothionic acid, sodium salt	MGB
Isosorbic acid, sodium salt (Sodium erythorbate)	PFZ.
LACTIC ACID SALTS:	
Sodium lactate (Nalac)	PFU.
Lactic acid salts, all other	PFU.
LAURIC ACID SALTS:	
Barium cadmium laurate	FER.
Dibutyltin dilaurate	FER, X.
Lauric acid salts, all other	WTC.
Lead salts of menhaden fish oil, C- <sub>1</sub> to C- <sub>22</sub> (lead fishate)	ELC, MCI.
LINOLEIC ACID SALTS:	
Calcium linoleate	CCA.
Cobalt linoleate	CYL.
Lead linoleate	INC.
MALEIC ACID SALTS:	
Tribasic lead maleate	ALI.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC--CONTINUED</b>	
<b>*SALTS OF ORGANIC ACIDS--CONTINUED</b>	
<b>HEXAFTHOIC ACID (THIOGLYCOLIC ACID) SALTS:</b>	
Ammonium mercaptoacetate	EVN.
Calcium mercaptoacetate	EVN.
Sodium mercaptoacetate	EVN, X.
Mercaptoacetic acid (Thioglycolic acid) salts, all other	CGA.
Mercaptopropionic acid, dibutyltin salt	WTC.
<b>NEODECANOIC ACID SALTS:</b>	
*Calcium neodecanoate	CGA, MCI, SHP.
Cobalt neodecanoate	MCI, SHP.
Lead-cobalt neodecanoate	MCI.
Lithium neodecanoate	MCI.
Manganese neodecanoate	MCI, SHP.
Rare earths neodecanoate	MCI, SHP.
Zinc/calcium/cobalt neodecanoate	MCI.
Zinc neodecanoate	SHP.
Zirconium neodecanoate	MCI, SHP.
Neodecanoic acid salts, all other	AIP.
<b>OCTANOID-ACID (CAPRYLIC ACID) SALTS:</b>	
Aluminum octanoate	SYP.
Stannous octanoate	SYP.
Octanoic acid (Caprylic acid) salts, all other	WTC.
<b>OLEIC ACID SALTS:</b>	
Calcium oleate	X.
Copper oleate	MCI.
<b>OXALIC ACID SALTS:</b>	
*Ammonium oxalate	ACS, BKG, HHL, WTK.
*Potassium oxalate	ACS, BKG, HHL, WTK.
Sodium oxalate	BKG, HHL, WTK.
<b>PALMITIC ACID SALTS:</b>	
Aluminum palmitate	SYP.
<b>PHOSPHORODITHIOIC ACID SALTS (DITHIOPHOSPHATES):</b>	
Potassium dihexyl phosphorodithioate	ACY.
Sodium di-sec-butyl/diethyl phosphorodithioate	ACY.
Sodium di-sec-butyl phosphorodithioate	ACY.
Sodium dihexyl phosphorodithioate	ACY.
Sodium diisopropyl phosphorodithioate	ACY.
Phosphorodithioic acid salts (dithiophosphates), all other	ESI.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
PROPIONIC ACID SALTS:	
*Calcium propionate	HFT, KMI, MCC.
Cobalt propionate	MCI.
Sodium propionate	HFT, MCC, X.
Propionic acid salts, all other	X.
Silver trifluoroacetate	EK.
Sodium di-2-ethylhexyl sulfosuccinate	WPG.
RICINOLEIC ACID SALTS:	
Calcium ricinoleate	CAS.
Sodium formaldehyde bisulfite	EK.
Sodium formaldehyde sulfoxylate	DA.
Sodium-N-methyl-N-octyl laurate	WPG.
Ricinoleic acid salts, all other	CAS, WTC.
*STEARIC ACID SALTS:	
*ALUMINUM STEARATES:	
Aluminum distearate	HAL, NCC, NOD, SYP, WTC.
Aluminum monostearate	HAL, NOD, SYP.
Aluminum tristearate	HAL, NCC, NOD, SYP, WTC, X.
Ammonium stearate	DA, WPG.
*Barium stearate	ALI, FER, NOD, SYP, VNC, WTC.
*Gadolinium stearate	SYP, VNC, WTC.
*Calcium stearate	ALI, DA, FER, HAL, NCC, NOD, SNW, SYP, WTC.
*Cobalt stearate	MCI, SHP, WTC.
Ferric stearate	WTC.
Lead stearate	WTC.
Lithium stearate	ALI, NCC, SYP, WTC.
*Magnesium stearate	ALI, HAL, NCC, NOD, SYP, WTC.
Irioxo aluminum tristearate	KGH.
*Zinc stearate	CCC, DA, HAL, NCC, MOD, PLS, SYP, VNC, WTC.
Stearic acid salts, all other	WTC.
TARTARIC ACID SALTS:	
Potassium sodium tartrate	PFZ.
Zinc formaldehyde sulfoxylate	DA.
Salts of organic acids, all other	DA, EK, EKX, RSA, SK, TCH, WTC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC--CONTINUED</b>	
<b>*ALDEHYDES:</b>	
Acetaldehyde	CEL, EKK, UCC.
Acrolein (Acrylaldehyde)	UCC.
*Butyraldehyde	CEL, DBC, EKK, UCC.
Crotonaldehyde	EKT.
2-Ethylhexanal ( $\alpha$ -Ethylisopropaldehyde)	EKK, UCC.
*Formaldehyde (37% HCHO by weight)	BDR, CBD, CEL, DUF, GAF, GP, HEC, IMC, MON, NOD, PKI, RCI, MCL.
Glutaraldehyde	UCC.
Glyoxal	ACY.
Isobutyraldehyde	CEL, DBC, EKK, IU, UCC.
Isopentaldehyde, mixed isomers	UCC.
Methacrolein (methacrylaldehyde)	RDA.
*Propionaldehyde	CEL, EKK, UCC.
Succinaldehyde-sodium bisulfite complex	EK.
Valeraldehyde (Pentanal)	UCC.
Aldehydes, acyclic, all other	ASL, UCC.
<b>*KETONES:</b>	
<b>*ACETONE:</b>	
*Acetone from cumene	ACS, BIL, CLK, DOW, GE, GGC, GVR, TX.
*Acetone from isopropyl alcohol	EKT, ENJ, SHC, UCC, VSS.
Acetone, crude	ATR.
5-Chloro-2-pentanone	SDW.
1-Chloroprop-2-one	CHG.
Chloro-2-propanone (Chloroacetone)	AIP, MRK.
Diisooamyl ketone	EKT.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	EKK.
2-Heptanone (Methyl amyl ketone)	EKT.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	CEL, SHC, UCC.
Isovalerone (Diisobutyl ketone)	EKT, UCC.
*Methyl ethyl ketone	ATR, CEL, ENJ, SHC.
5-Methyl-2-hexanone (Methyl isooamyl ketone)	EKT.
4-Methyl-3-pentan-2-one (Mesityl oxide)	UCC.
Methylsulfonones	MCI.
2-Octanone (hexyl methyl ketone)	WTH.
2,4-Pentanedione (Acetylacetone)	UCC.
3-Pentanone (Diethyl ketone)	EKT, HEX, ORI, UCC.
Pseudoionone	RCI, SCH.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	UCC.
Ketones, all other	HEX.



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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC--CONTINUED</b>	
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED:	
*ALCOHOLS, C <sub>11</sub> OR LOWER, UNMIXED (95% OR MORE PURE):	
Allyl alcohol	FGC.
AMYL ALCOHOLS:	
2-Methyl-1-butanol	UCC.
1-Pentanol	UCC.
*BUTYL ALCOHOLS:	
*n-Butyl alcohol (n-Propylcarbinol)	CEL, DBC, EKK, GAF, SHG, UCC, VST.
sec-Butyl alcohol (Methylethylcarbinol)	EMJ, SHC.
tert-Butyl alcohol (Trimethylcarbinol)	ATR, SHC.
*Isobutyl alcohol (Isopropylcarbinol)	CEL, CFS, DBC, EKK, SHG, UCC.
1-Decanol	TWA, VST.
*Ethyl alcohol, synthetic only	CEL, DOW, EKK, SHG, UCC, USI, VST.
*2-Ethyl-1-hexanol	DBC, EKK, SHC, TU, UCC.
n-Heptyl alcohol	EKK.
n-Hexyl alcohol	TWA, VST.
Isodecyl alcohol	TWA, VST.
Isohexyl alcohol	EMJ.
Isohexyl alcohol (2,2-Dimethylbutanol)	EMJ, SHC.
Isononyl alcohol	EMJ, SHC.
Iso-octadecyl alcohol	SHK.
Iso-octyl alcohol	EMJ.
*Isopropyl alcohol	ACS, ATR, EMJ, SHG, UCC.
*Methanol, synthetic only	ATP, ATR, BOR, CEL, DUP, EKT, GGC, HST, LYP, MON, TX.
2-Methyl-1-pentanol	UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	UCC.
1-Octanol	TWA, VST.
2-Octanol (sec-Capryl alcohol)	WTH.
*Propyl alcohol (Propanol)	CEL, EKK, UCC.
2-Propyn-1-ol (Propargyl alcohol)	CEL, EKK, UCC.
Alcohols, unmixed C or lower, all other	GAF.
*ALCOHOLS C <sub>12</sub> OR HIGHER, UNMIXED (95% OR MORE PURE):	
Dodecyl alcohol (Lauryl alcohol)	SHG, UCC.
1-Hexadecanol (Cetyl alcohol)	TWA, VST.
2-Hexyl-1-decanol	CFM, PG, VST.
1-Octadecanol (Stearyl alcohol)	CFM, PG, TWA, VST.
cis-9-Octadecen-1-ol (Oleyl alcohol)	SHK.
1-Tetradecanol (Myristyl alcohol)	VST.
1-Tridecanol	EMJ.
2,6,8-Trimethyl-4-nonanol	UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC--CONTINUED</b>	
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED--CONTINUED	
MIXTURES OF ALCOHOLS:	
*Alcohol mixtures, C-11 or lower only	EKK, ENJ, NCI, PG, SHC, TMA, UCC, VST.
*Alcohol mixtures, C-19 and C-20 only	TNA.
*Alcohol mixtures, C-12 through C-18 only	SHC, SHX, TNA, VST, WTH.
*Alcohol mixtures, other	CO, ENJ, SCP, TMA, VST.
*ESTERS OF MONOHYDRIC ALCOHOLS:	
Acrylic monomers, mixed	AAC
*Allyl methacrylate	AAC, OPS, GLY.
AMYL ACETATES:	
Amyl acetate (n-Pentyl acetate)	UCC.
Amyl acetates, all other	WTL.
*BUTYL ACETATES:	
*n-Butyl acetate	CEL, DBC, EKT, UCC.
*Butyl acrylate	CEL, DBC, EKT, EKK, UCC.
n-Butyl chloroformate	CEL, DBC, RH, UCC.
sec-Butyl chloroformate	MAL.
Butyl lactate	PPG.
Butyl maleate	CPS.
Butyl mercaptopropionate	TCH.
Butyl methacrylate	EVN.
Butyl oleate	DUP, RH.
tert-Butyl peroxyacetate	ELG.
tert-Butyl peroxy-2-ethylhexanoate	AZT, WTL.
tert-Butyl peroxyisobutyrate	AZT, WTC, WTL.
tert-Butyl peroxyisopropylcarbonate	AZT, WTL.
tert-Butyl peroxyneodecimate	CAD, PFG, WTL.
*tert-Butyl peroxyvalerate	WTC, WTL.
*tert-Butyl peroxyvalerate	AZT, WTC, WTL.
Butyl stearate	CRN.
Cetylacetosyl methacrylate	RH.
Cetyl lactate	WVD.
Diallyl maleate	AAC.
Dibutyl fumarate	RCI.
*Dibutyl maleate	NOD, RCI, USS.
Di(sec-butyl)peroxydicarbonates	WTL.
Diethyl carbonate (Ethyl carbonate)	PPG.
Diethyl dipropylmalonate	ABB.
Di(2-ethyl-1-hexyl) maleate	CCC, CHP, RPC, STC.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Di(2-ethyl-1-hexyl) peroxydicarbonate	WTL.
Diethyl maleate	ACY.
Diethyl oxalate (Ethyl oxalate)	TLI, X.
Dilauryl-3,3'-thiodipropionate	CCW, EVN.
Dimethyl carbonate	PPG.
Dimethyl maleate	AAC.
Dimethyl-3,3'-thiodipropionate	CCW.
*Diocetyl maleate	FTX, NOD, RCI, USS.
Dioctyl-1,3,3'-thiodipropionate	CCW, EVN.
Dithobis(stearyl propionate)	EVN.
Ditridecyl maleate	EPI.
Di(tridecyl)-3,3'-thiodipropionate	EVN.
Dodecyl succinic lactate	RH.
Dodecyl succinic lactate	SH.
*2-Ethoxyethyl acetate	EKT, ICI, UCC.
*Ethyl acetate (100% basis)	CEL, EKI, EKK, MON, UCC.
Ethyl acetoacetate	BRD, EKI.
*Ethyl acrylate	CEL, RH, UCC.
Ethyl chloroacetate	DA, SK.
Ethyl chloroformate	ESK, PPG.
Ethyl chloroformate	SFA.
Ethylene carbonate	TX.
2-Ethyl-1-hexyl acetate	EKT, MRF.
*2-Ethyl-1-hexyl acrylate	CEL, DBC, UCC.
2-Ethylhexyl chloroformate	PPG, VCM.
2-Ethyl-1-hexyl methacrylate	DUP.
Ethyl sulfate (Diethyl sulfate)	UCC.
*FATTY ACID ESTERS, NOT INCLUDED WITH PLASTICIZERS OR SURFACE ACTIVE AGENTS:	
Dialkyl dimerate	WTC.
Dimethyl brassylate	EMR.
Docosanyl docosenoate	SBC.
Dodecanyl succinic 12-hydroxystearate	TX.
Heptyl acetate	EMJ.
Isocetyl stearate	SCF.
Isopropyl lanolinate	VND.
Isopropyl linoleate	VND.
Methyl esters of coconut oil	FTX, PG, WTC.
Methyl esters of lard	PER.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
*FATTY ACID ESTERS, NOT INCLUDED WITH PLASTICIZERS OR SURFACE ACTIVE AGENTS--CONTINUED:	
Methyl esters of tallow	CHL, FER.
Methyl 12-hydroxystearate	GAS, WTH.
Methyl iso-octadecenoate	SYL.
Methyl linoleate	HKT.
Methyl stearate	CHL, WTC.
*Mristyl myristate	CYL, SBC, VND.
*Mristyl stearate	DA, RFG, SCP, STC, WH, WTC.
Fatty acid esters, not included with plasticizers surface-active agents, all other	ALI, DA, SBC. ENJ, UCC.
Hexyl acetate	AAC, CFS.
Hexyl acrylate	DBC.
Isobutyl acrylate	PPG, VCH.
Isobutyl chloroformate	EKX.
Isobutyl isobutyrate	RH.
Isobutyl methacrylate	CFS.
Isodecyl acrylate	RH.
Isodecyl methacrylate	CCW, EVN.
Iso-octyl mercaptoacetate	EVN.
Iso-octyl-3-mercaptopropionate	EKT, UCC.
Isopropyl acetate	ADC.
Isopropyl borate	PPG, VCH.
Isopropyl chloroformate	SBC, VND.
Isostearyl neopentanoate	CFS.
Lauryl acrylate	VND.
Lauryl lactate	AAC, CFS, RH, TX.
Lauryl methacrylate	
Maleic esters and copolymers	GAF.
Menthallylidene diacetate	RDA.
2-Methoxyethyl acrylate	CPS.
Methyl acetate	EKT, MON.
Methyl acetoacetate	BRU, EKT.
Methyl acrylate, monomer	CEL.
Methyl chloroacetate	DA.
Methyl chloroformate	PPG.
Methyl formate	CEL.
*Methyl methacrylate, monomer	CYL, DUP, RH.
Octadecyl-3-mercaptopropionate	DUP, EVN.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC--CONTINUED</b>	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
*PHOSPHORUS ACID ESTERS:	
Amyl hydrogen phosphate-----	HK.
Bis (2-chloroethyl)-2-chloroethylphosphonate-----	ALM.
Bis(2-ethylhexyl) hydrogen phosphate-----	ALM.
Butyl hydrogen phosphate-----	ALM, HK.
Butyl butylphosphonate-----	ALM.
Dibutyl hydrogen phosphate-----	ALM, SFS.
Dibutyl pyrophosphate-----	ALM.
Diethyl hydrogen phosphate-----	ALM.
Diethyl phosphorochloridothiomate-----	SFS, TNA.
Dimethyl hydrogen phosphate-----	ALM.
Dimethyl methylphosphonate-----	ALM, SFS.
Dimethyl phosphoridothiomate-----	SFS.
Dioleyl hydrogen phosphate-----	ALM.
2-Ethylhexyl hydrogen phosphate-----	ALM.
Iso-octyl hydrogen phosphate-----	ALM.
Methyl dihydrogen phosphate-----	HK.
Mixed dialkyl hydrogen phosphates-----	ELC.
Mixed dialkyl hydrogen phosphates, amine salts-----	ELC.
Stearyl acid phosphate-----	HK.
Tetrakis(2-chloroethyl)ethylene diphosphate-----	OHM.
Trialkyl phosphate-----	MCB.
Tributyl phosphate-----	FNC.
Triethyl phosphate-----	ALM.
Triiso-octyl phosphate-----	ALM, SFA.
Trimethyl phosphate-----	ALM, MCB.
Tris(chloroisopropyl)thionophosphate-----	ALM.
Tris(2-ethylhexyl) phosphate-----	ALM.
Phosphorus acid esters, all other-----	ALM, AZT, CED, MCB, MOM, SFS, X.
*Propyl acetate-----	CEL, EKT, UCC.
Propylene carbonate-----	TX.
Stearyl methacrylate-----	CPS, RH, FX.
Tetraalkyl silicate-----	MOM.
Tetraethyl orthosilicate (Tetraethyl silicate)-----	SFS, UCC.
Tetraethyl silicate, condensed-----	SFS, UCC.
TITANIC ACID ESTERS:	
Bis(2-bis(2-hydroxyethyl)amino)ethyl diisopropyl titanate-----	DUP.
Di(hydroxy)bis(ammoniumlactato)titanium-----	DUP.
Diisopropyltitanate bis(ethyl-3-oxobutanoate)-----	DUP.



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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
TITANIC ACID ESTERS--CONTINUED	
Tetraisopropyl titanate-----	DUP.
Tetrakis(2-ethylhexyl)titanate-----	DUP, KF.
Triethanolamine titanate-----	KF.
Titanic acid esters, all other-----	DUP.
Trichloromethyl chloroformate-----	MHL.
Triethyl orthoacetate-----	KF.
Triethyl orthopropionate-----	KF.
Trimethyl borate-----	SFX, X.
Trimethyl orthoacetate-----	KF.
Trimethyl orthoformate-----	KF.
Tristearyl citrate-----	CYL.
*Vinyl acetate, monomer-----	CEL, DUP, UCC, USI.
Vinyl crotonate-----	FER.
Monohydric alcohol esters, all other-----	AA, DA, KF, ICI, PAH, PIC, USR, WTL, X.
*POLYHYDRIC ALCOHOLS:	
1,2-Bis(bromomethyl)-1,3-propanediol-----	DOM.
1,2(end 1,3)-Butanediol-----	CEL.
*1,4-Butanediol-----	BAS, DUP, GAF, X.
2-Butene-1,4-diol-----	GAF.
2-Butyne-1,4-diol-----	BAS, GAF.
3-Chloro-1,2-propanediol (Glycerol $\alpha$ -chlorohydrin)-----	DIX, EKI, EVN.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)-----	DBC, ECK.
*Ethylene glycol-----	BAS, CEL, DA, DOM, EKI, HCF, ICI, NWP, OMC, SHG, TX, UCC.
2-Ethyl-1,3-hexanediol-----	DA, UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane)-----	CEL.
Glycerol, synthetic only-----	DOM.
1,6-Hexanediol-----	DBC.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylolthane)-----	IMC.
Mannitol-----	ICI.
3-Mercapto-1,2-propanediol (Thioglycerol)-----	EVN.
2-Methyl-2,4-pentanediol (Hexylene glycol)-----	CEL, DOM, HPC, IMC, PST.
*Propylene glycol (1,2-Propanediol)-----	ATR, DOM, OMC, TX, UCC.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*POLYHYDRIC ALCOHOLS--Continued	
*Sorbitol (70% by Weight)	BRD, EHC, ICI, PFZ.
2,4,4-Trimethyl-1,3-pentanediol	EKX.
Polyhydric alcohols, all other	ICI, SHC.
*ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS:	
*POLYHYDRIC ALCOHOL ESTERS:	
2-(2-Butoxyethoxy)ethyl acetate	EKT, ICI.
2-Butoxyethyl acetate	EKT, ICI, UCC.
1,3-Butylene glycol diborate	USB.
1,3-Butylene glycol diborate/hexylene glycol boric anhydride	USB.
Diethylene glycol adipate	CMB.
Diethylene glycol, borated	OMC.
Diethylene glycol chloroformate	VCM.
Diethylene glycol dimethacrylate	CPS, RH.
Dihydromyrene	SCM, X.
2-(2-Ethoxyethoxy)ethyl acetate	AAC, EKT.
Ethylene glycol diacetate	EKT.
Ethylene glycol dimercaptoacetate	EWN.
Ethylene glycol dimethacrylate	RH.
Ethylene glycol hydroxyacetate	GCA.
Ethylene glycol phosphite	ALW.
2-Ethyl-2(hydroxymethyl)-1,3-propanediol trimethacrylate	WM.
Glycerol tricaprylate caprate	WM.
Glycerol diacetate (Diacetin)	HAL.
Glycerol monothioglycolate	EVN.
Glycerol triacetate (Triacetin)	EKT.
Glycerol tristearate	GLY.
1,6-Hexanediol diacrylate	RH.
Hydroxyethyl acrylate	DOM, RH.
Hydroxyethyl methacrylate	RH.
Hydroxypropyl acrylate	DOM, NEV, RH.
Hydroxypropyl methacrylate	AAC, CEL, RH.
2-Methoxyethyl acetate	UCC.
Pentaerythritol caprylate/caprato	WM.
Pentaerythritol stearate	GLY.
Pentaerythritol tetraacrylate	CEL.
Pentaerythritol tetrakis (3-Mercaptopropionate)	EWN.
Polyethylene polypropylene glycol glyceryl triether maleate	X.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTER AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ESTERS--CONTINUED	
Polyol aluminum chelate	SNW.
Polypropylene-polyethylene glycol glyceryl triether citrate	X.
Propylene glycol dicaprylatecaprate	X.
Propylene oxide, polymer with polyethylene glycol adipate	WH.
Sucrose octa-acetate	X.
Tetraethylene glycol diacrylate	HFT, PD.
Tetraethylene glycol diheptanoate	CEL.
Tetraethylene glycol dimethacrylate	WM.
Triethylene glycol diacetate	AAC
Triethylene glycol diacrylate	EKT.
Trimethylolmethane pelargonate	CEL.
Trimethylolpropane triacrylate	WH.
Trimethylolpropane triacrylate, ethoxylated	AAC, RH.
Trimethylolpropane tridecanoate	AAC.
Trimethylolpropane tri(2-mercaptopropionate)	SM.
2,2,3-Trimethyl-1,3-pentamediol monoisobutyrate	EVN, RH.
Tripropylene glycol diacrylate	EKK.
Polyhydric alcohol esters, all other	CEL.
*POLYHYDRIC ALCOHOL ETHERS:	ARA, CEL, EKK, SHX, SNW, SOL, UCC.
Bis(2-butoxyethyl)ether (Diethylene glycol di-n-butyl ether)	ASL, FER.
Bis(2-ethoxyethyl)ether (Diethylene glycol diethyl ether)	ASL, FER.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether)	ASL, FER.
Bis(2-methoxyethyl)ether (Diethylene glycol dimethyl ether)	ASL, FER.
*2-butoxyethanol (Ethylene glycol monobutyl ether)	ASL, FER.
*2-(2-butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	DOM, EKK, ICI, OMC, SHC, UCC.
*2-[2-(2-butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)	DOM, OMC, UCC.
1-Butoxyethoxy-2-propanol	DOM, ICI.
Butyl ethers of tetra- and higher ethylene glycols(high boiling)	EKK, ICI.
*Diethylene glycol	BAS, CEL, DOM, EKK, HST, ICI, OMC, SHC, TK, UCC.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC—CONTINUED</b>	
*ESTER AND ETHER OF POLYHYDRIC ALCOHOLS—CONTINUED	
*POLYHYDRIC ALCOHOL ETHERS—CONTINUED	
Diethylene glycol divinyl ether	GAF, ASL, FER, ATR, DOM, OMC, TX, UCC.
*Dimethoxyethane (Ethylene glycol dimethyl ether)	OMC.
*Dipropylene glycol monomethyl ether	EKK, ICI, OMC, SHG, UCC.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)	DOM, EKK, ICI, OMC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	DOM, OMC, UCC.
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	EKK, OMC.
Ethylene glycol di-tributyl ether	OMC.
Ethylene glycol monoisobutyl ether	EKK, ICI.
Ethyl ethers of tetra- and higher ethylene glycols (high boiling)	UCC.
2-[2-(Hexyloxy)ethoxy]ethanol	ICI, OMC, UCC.
*2-Methoxyethanol (Ethylene glycol monomethyl ether)	DOM, ICI, OMC, UCC.
*2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	DOM, ICI, OMC, UCC.
*2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	ASL, OMC.
(Triethylene glycol dimethyl ether)	STC, UCC.
(Triethylene glycol dimethyl ether)	DOM, OMC.
Methoxypolyethylene glycol	DOM.
1-Methoxy-2-propanol	CEL.
3-(3-Methoxypropoxy)propanol	SHX, X.
3-3-(3-Methoxypropoxy)propoxypropanol	DA, DOM, HDG, OMC, STG, TX, UCC, WTC, X, X.
Paraformaldehyde	SHX, X.
*Polyethylene glycol	X.
Polyethylene glycol dimethyl ether	ASL, CEL, DOM, UCC, X.
Polyethylene glycol monododecyl ether	ASL, CEL, DOM, UCC, X.
*Polyglycols, ethylene glycol and glycol ether, mixed	WTI.
Polymethacrylate	OMC.
Polyoxyethylene glycol	
POLYPROPYLENE ETHERS:	
Poly(propoxy)butyl ether, ethoxylated	TX.
Polypropoxybutyl ether	DA.
Polypropoxy ethers, all other	ICI, OMC.
Polyoxypropylene polyoxyethylene glycol, mixed	ICI, UCC, WTC.
*Polypropylene glycol	DOM, HDG, OMC, SH, TX, X.

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MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>MISCELLANEOUS CHEMICALS</b>	
<b>ACYCLIC--CONTINUED</b>	
*ESTER AND ETHER OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ETHERS--CONTINUED	
Polypropylene glycol glycerol tri-ether	X.
Polytetramethylene glycol ether	DUP, QKO.
Poly(1,1,1-trichlorobutane-2-ol)ethylene glycol dextrose ether	EKK.
Propoxyethanol (Ethylene glycol monopropyl ether)	EKK, OMC.
Propoxyethoxyethanol (Diethylene glycol monopropyl ether)	OMC.
Sorbitol, ethoxylated	GLY, ICI.
Sorbitol, propoxylated	ICI.
*Tetraethylene glycol	DOM, EKK, ICI, UCC.
2,2'-Thiodiethanol (Thiodiglycol)	PLC.
*Triethylene glycol	CEL, CXI, DOM, EKK, ICI, OMC, SHG, TX, UCC.
Tripropylene glycol	DOM, OMC, UCC.
Tripropylene glycol monomethyl ether	OMC.
Tri- and tetraethylene glycol monoethyl ethers, borate esters	OMC.
Polyhydric alcohol ethers, all other	DA, HTM, MIL, UCC, WTC, X.
<b>HALOGENATED HYDROCARBONS:</b>	
<b>BROMINATED (INCLUDING BROMOCHLORINATED)</b>	
<b>HYDROCARBONS:</b>	
1-Bromobutane (n-Butyl bromide)	DAZ.
Bromochlorinated paraffin C <sub>10</sub> C <sub>20</sub>	FER.
Bromochloromethane	BKH, DOM.
Bromoethane (Ethyl bromide)	DOM, GTL.
1-Bromohexadecane	HHY.
1-Bromo-3-methyl-2-butene	SD.
1-Bromo-octadecane	HHY.
1-Bromopentane (n-Amyl bromide)	GTL, WCC.
1-Bromopropane (n-Propyl bromide)	DAZ, WCC.
2-Bromopropane (Isopropyl bromide)	WCC.
Dibromohexadecane	TNA.
Dibromomethane (methylene bromide)	DOM.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOM.
Vinyl bromide (Bromoethylene)	TNA.
Brominated (Including bromochlorinated) hydrocarbons, all other	DAZ, HHY, TNA, WTC.



TABLE 2.—MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC—CONTINUED</b>	
*CHLORINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS:	
*Carbon tetrachloride-----	DA, DOM, DUP, FRO, LCP, SFC.
CHLORINATED PARAFFINS (C <sub>10</sub> -C <sub>30</sub> ):	
*Chlorinated paraffins, 35-64% chlorine-----	DA, DVC, FER, NEV, WTC, X.
Chlorinated paraffins, less than 35% chlorine-----	DVC, SHG.
*Chlorinated paraffins, 65% or more chlorine-----	DA, DOM, DVC, FER.
1-Chlorobutane (n-Butyl chloride)-----	UGC
*Chloroform-----	DA, DOM, FRO, LCP.
*Chloromethane (Methyl chloride)-----	DCG, DOM, LCP, TNA, VST.
3-Chloro-2-methyl-1-propene (Methallyl chloride)-----	FMC.
3-Chloropropene (Allyl chloride)-----	DOM, SHC.
1,2-Dichloropropane (Propylene dichloride)-----	DOM.
2,3-Dichloropropane-----	DOM.
2,2-Dimethylchloropropane (neopentyl chloride)-----	TNA.
*Ethyl chloride (Chloroethane)-----	DOM, DUP, PPG, TNA.
*Ethylene dichloride-----	BFG, DA, DOM, FOR, FRO, GGC, OMC, PFG, SHG, TNA, VST.
Hexyl chloride-----	TNA.
Lauryl chlorides-----	SHC, TNA.
*Methylene chloride (Dichloromethane)-----	DA, DOM, FRO, LCP.
Octyl chloride-----	TNA.
*Perchloroethylene (Tetrachloroethane)-----	DA, DOM, DUP, FRO, PFG, SFC.
*1,1,1-Trichloroethane (Methyl chloroform)-----	DOM, FRO, PPG.
1,1,2-Trichloroethane (Vinyl trichloride)-----	DOM, RSA.
Trichloroethylene-----	DOM, PFG.
1,2,3-Trichloropropane-----	DOM.
1,2,3-Trichloropropene-----	DOM.
*Vinyl chloride, monomer (Chloroethylene)-----	BFG, BDR, DOM, FOR, GGC, PFG, SHC, VST.
Vinylidene chloride, monomer (1,1-Dichloroethylene)-----	DOM, PFG.
Chlorinated (Not otherwise halogenated) hydrocarbons, all other-----	WTC, X.
<b>*FLUORINATED (INCLUDING OTHER FLUORHALOGENATED)</b>	
<b>HYDROCARBONS:</b>	
2-Bromo-2-chloro-1,1,1-trifluoroethane-----	HOC.
Bromotrifluoroethylene-----	DUP, GTL.
1-Chloro-1,1-difluoroethane-----	PAS.
*Chlorodifluoromethane (F-22)-----	ACS, DUP, KAI, PAS, RCN.
Chlorotrifluoroethylene (Trifluorovinyl chloride)-----	ACS.
Chlorotrifluoromethane-----	DUP.
*Dichlorodifluoromethane (F-12)-----	ACS, DUP, KAI, PAS, RCN.
Dichlorotetrafluoroethane-----	ACS, DUF.
1,1-Difluoroethane-----	DUP, PAS.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
HALOGENATED HYDROCARBONS--CONTINUED	
*FLUORINATED (INCLUDING OTHER FLUORHALOGENATED)	
HYDROCARBONS--CONTINUED	
Hexafluoropropylene, monomer	DUP.
1-Iodo-perfluorohexane	DUP.
Polyhexafluoropropylene oxide	DUP.
Polytetrafluoroethylene ethyl iodide	X.
Tetrafluoroethylene, monomer	DUP., ICI.
Tetrafluoromethane	DUP.
*Trichlorofluoromethane (F-11)	ACS, DUP, KAI, PAS, RCM.
Trichlorotrifluoroethane	ACS, DUP.
Trifluoroethanol	HOC.
Trifluoropropene	HOC.
Vinyl fluoride, monomer	DUP.
Vinylidene fluoride, monomer	PAS.
Fluorinated (including other fluorohalogenated)	
hydrocarbons, all other	DUP, HOC, ICI, OH, REG.
*IODINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS:	
Diiodomethane (Methylene iodide)	DPW, NTB.
Iodobutane	RSA.
Iodoethane (ethyl iodide), non-medical	COC, DPW, RSA.
Iodomethane (Methyl iodide)	COC, DPW, RSA.
Iodinated (Not otherwise halogenated) hydrocarbons, all other	DPW.
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS:	
Acetone sodium bisulfite	EK.
ACYCLIC PEROXIDES:	
Acetylacetone peroxide	CAD.
Acetyl peroxide	WTL.
*2-Butanone peroxide	CAD, FRE, NOC, WTC, WTL.
n-Butyl-4,-bis(1-butylperoxy)valerate	CAD.
tert-Butyl hydroperoxide	AFR, AZT, FRE, WTC, WTL.
tert-Butyl peroxide (Di-tert-butyl peroxide)	AZT, WTC, WTL.
Decanoyl peroxide	WTC, WTL.
Diisopropyl peroxydicarbonate (isopropyl percarbonate)	EKX, PPG.
2,5-Dimethyl-2,5-bis(2-ethyl-1-hexanoyl peroxy) hexane	WTC, WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane	CAD, WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3	WTL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ACYCLIC PEROXIDES--CONTINUED	
Diperoxidodecaedioic acid-----	MNC.
Di-n-propyl peroxycarbonate-----	WTL.
Lauroyl peroxide-----	CHT, KCH.
Aluminum isopropoxide (Aluminum isopropylate)-----	PAS, SET.
Carbon disulfide-----	WCK, SHP.
Chromium acetylacetonate complex-----	SHP.
Cobalt acetylacetonate complex-----	GTL.
2,3-Dibromopropanol-----	
*EPOXIDES, ETHERS, AND ACETALS:	
Bis(2-Chloroethyl)ether (Dichlorodiethyl ether)-----	BKZ.
Butylene oxide-----	DOM.
Butyl vinyl ether-----	GAF.
Chloromethyl methyl ether-----	RH.
2,2-Dichloro-1,1-difluoroethyl methyl ether-----	OH.
Epichlorohydrin-----	DOM, SHC.
*ethylene oxide-----	BAS, CEL, DOM, EKK, ICI, NMF, OMC, SHC,
	SNO, TX, UCC.
Ethyl ether, U.S.P.-----	USI.
Ethyl ether, absolute-----	EKK, USI.
Ethyl ether, tech-----	DOM, USI.
1,2-Ethanedithiol-----	REC.
2-(Ethylmercapto)ethanol-----	DOM.
Glycidol (2,3-Epoxy-1-propanol)-----	DIK.
*GLYCIDYL ETHERS:	
Alkyl glycidyl ethers, C <sub>12</sub> -C <sub>14</sub> -----	WLN.
Alkyl glycidyl ethers, C <sub>8</sub> -C <sub>10</sub> -----	WLN.
Alkyl glycidyl ether (Allyloxy-2,3-epoxypropane)-----	AAC, CFS.
1,4-Butanediol diglycidyl ether-----	CEL, WLN.
*1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)-----	AAC, CEL, CFS, WLN.
tert-Butyl glycidyl ester-----	WLN.
2-Ethylhexyl glycidyl ether-----	WLN.
Polyol glycidyl ether-----	CEL, WLN.
Glycidyl ethers, all other-----	CEL, WLN.
Isopropyl ether-----	ENJ, SHC.
Malonaldehyde bis(dimethyl) acetal-----	KF.
Methylal (Dimethoxymethane)-----	CEL.
Methyl ether (Dimethyl ether)-----	DUF.
Methyl vinyl ether-----	GAF, UCC.
Propylene oxide-----	ATR, DOM.
Epoxydes, ethers, acetals, all other-----	STC, UCC, VIK.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>ACYCLIC--CONTINUED</b>	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
FATS AND OILS, CHEMICALLY MODIFIED:	
Hydrogenated tallow glycerides	CHL
Lined oil, oxygenated	CJO
Sulfurized corn oil	SH
Vegetable glycerides, hydrogenated	GLY
Fats and oils, chemically modified, all other	CAS, CHL, DA
Glutaraldehyde bis(sodium bisulfite)	EK
Hexachlorodimethyl sulfone	SFS
1-Hexadecanethiol	HNY
*HYDROCARBONS:	
n-Decane	HHY, PLC
3,3-Dimethylbutene	PLG
n-Dodecane	HHY, PLC
Hexadecane	HHY
Isononanyl peroxide	WTL
Hyrcene	SCM, X
n-Nonane	HHY, PLC
n-Octadecane	HHY
n-Octane	HHY, PLC
n-Tetradecane	HHY
Hydrocarbons, all other	PAS, WTK
Iron acetylacetonate complex	MCK, SHP
Manganese acetylacetonate complex	SHP
2-Hercaptoethanol	PLC
Methyl sulfide (Dimethyl sulfide)	GRZ, PAS
Methyl sulfoxide (Dimethyl sulfoxide)	GRZ
1-Octadecanethiol	HHY
ORGANO-ALUMINUM COMPOUNDS:	
Aluminum acetylacetonate complex	MCK
Aluminum di-sec-butoxide acetoacetic ester chelate	CHI
Aluminum diisopropoxide acetoacetic ester chelate	CHI, KCH
Aluminum ethyl-3-oxobutanato-0,0 -dihydroxy 1-4	CHI
Aluminum (2-ethyl hexenato)-oxo-homopolymer	KCH
Aluminum tri-sec-butoxide	CHI
Diethylaluminum chloride	TWA, TSA
Diethyl aluminum ethoxide	TWA, TSA
Diethylaluminum iodide	TWA, TSA
Diisobutylaluminum chloride	TWA, TSA
Diisobutylaluminum hydride	TWA, TSA

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*OTHER MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-ALUMINUM COMPOUNDS--CONTINUED	
Ethylaluminum dichloride	TWA, TSA.
Ethylaluminum sesquichloride	TWA, TSA.
Isopropylaluminum	TSA.
Methylaluminum sesquichloride	CHT.
Oxy-aluminum octanoate	TWA.
Sodium dihydrobis(2-methoxyethoxy)aluminum hydride	HXL.
Triethylaluminum	TWA, TSA.
Tri-n-hexyl aluminum	TSA.
Triisobutylaluminum	AIP, TWA, TSA.
Trimethylaluminum	MHI, TWA.
Tri-n-octylaluminum	TSA.
Tri-oxyaluminum tri-isopropoxide	CHT, KCH.
Organo-aluminum compounds, all other	TWA, TSA.
*ORGANO-BORON COMPOUNDS:	
Boron fluoride-ethyl ether complex	ACS.
Ethylamine with borane (1:1)	ACS.
1-Hexyl-1,2-dicarbadodecaborane	X.
n-Methyl-methanamine with borane (1:1)	X.
2-Methyl-2-propanamine with borane (1:1)	X.
Triethylborane	X.
Triethoxyboroxine	X.
n,N,N-Trimethyl methanaminium octahydrotriborate	X.
Organo-boron compounds, all other	MHI, STC, TSA.
ORGANO-LITHIUM COMPOUNDS	
n-Butyllithium	FTE.
sec-Butyllithium	FTE.
Butyl ethyl magnesium	TSA.
Di-n-hexyl magnesium	TSA.
Methylmagnesium bromide	ARA.
Methylmagnesium chloride	ARA.
ORGANO-SILICON COMPOUNDS:	
$\gamma$ -Aminopropyltriethoxysilane	SCM.
$\alpha$ -Chloropropyltrichlorosilane	DCG.
Chloropropyltrimethoxysilane	DCG, KF.
Chlorotrimethylsilane	DCG.
Dichlorodimethylsilane	DCG.
Dichloromethylsilane	DCG.
Dichloromethylvinylsilane	DCG, UCC.



TABLE 2. -- MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
<b>MISCELLANEOUS CHEMICALS</b>	
<b>ACYCLIC--CONTINUED</b>	
<b>*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED</b>	
<b>ORGANO-SILICON COMPOUNDS:</b>	
Diethoxypropoxytriethoxysilane	UCC.
$\alpha$ -glycidoxypropyltrimethoxysilane	UCC.
Hexamethyldisilazane	KF, SCH.
Isobutyltrimethoxysilane	KF.
Mercaptopropyltrimethoxysilane	KF.
$\alpha$ -methacryloxypropyltrimethoxysilane	UCC.
Methyltrimethoxysilane and polymethyltrisiloxane	DCC, KF, UCC.
Polyoxalkene silicones--	UCC.
*Silicone fluids	DCC, HON, SPD, SWS, UCC.
Trichloromethylsilane	DCC.
Trichloropropylsilane	DCC.
Trichlorovinylsilane	UCC.
Tris(2-methoxyethoxy)vinyl silane	KF, UCC.
Vinyltriethoxysilane	KF, UCC.
Organo-silicone compounds, all other	DA, KF, SFS, UCC, X.
<b>ORGANO-TIN COMPOUNDS:</b>	
Dibutyltin bis(butylmaleate)	CCA.
Dibutyltin bis(isooctylmercaptacetate)	X.
Dibutyltin bis(mercaptolaurate)	X.
Dibutyltin oxide	WTC, X.
Ester tin mercaptoesters	CCA.
Octyltin	CCA, X.
Tributyltin acetate	X.
Tributyltin fluoride	X.
Tributyltin propylene glycol maleate	CCA.
Organo-tin compounds, all other	CCM, COS, FER, WTC.
<b>ORGANO-ZINC COMPOUNDS:</b>	
Diethylzinc	MHI, TSA.
Zinc acetylacetonate complex	SHP.
Organo-zinc compounds, all other	FER.
Perchloromethanethiol (perchloromethyl mercaptan)	SFC.
Perfluoroalkyl polyether	X.
*Phosgene (carbonyl chloride)	DUP, ICI, OMC, UPJ, VDM.
Potassium 2-methyl-2-butanol	X.
Potassium 2-methyl-2-propanol	X.
Sodium ethoxide	RBC.
Sodium methoxide (sodium methylate)	DA, OMC, RBC.
Succinyl peroxide	WTL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1985

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
Titanium acetylacetonate complex	KF.
Zirconium acetylacetonate complex	MCX.
Miscellaneous acyclic chemicals, all other	AWG, CFS, CRZ, DUP, IFF, MOD, PLC, SFS, SHP, TNA, X.
*MIXTURES NOT SPECIFICALLY ITEMIZED:	
C <sub>3</sub> -C <sub>12</sub> Alcohol lactates	VND.
Alcohols, monohydric, and their esters, C <sub>8</sub> and higher, mixed	EKK, MON, X.
Butanol residue stream	CEL.
Butyl formcel	CEL.
Cel-tone-id amide mixtures	SHX.
Fatty acid residues	SHX.
Fatty acid and salts, mixed	PHF.
*Glycol residues	GEL, ICI, OMC.
Methacrylate based cationic polyelectrolytes	GOS.
Methyl formcel	CEL.
Mixed alcohol borates	X.
Mixed chain length fatty acid, synthetic	ENJ, PG.
Morpholine residue stream	YX.
Oxide light ends	HCF.
Polymethacrylic acid esters	ABB, DUP.
Silicone resins for mold release agents	CNI.
Mixtures of miscellaneous acyclic chemicals not specifically itemized, all other	ETL, DIX, MCB, UCC.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1985

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of miscellaneous cyclic and acyclic chemicals to the U.S. International Trade Commission for 1985 are listed below in the order of their identification codes as used in table 2]

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
AAC	Aicalac, Inc.	DA	Diamond Shamrock Corp., Chemicals Div.
ABB	Abbott Laboratories	DAZ	Diaz Chemical Corp.
ACS	Allied Corp., Chemical Sector	DBC	Badische Corp.
ACY	American Cyanamid Co.	DCC	Dow Corning Corp.
ADC	Anderson Development Co.	DIX	Dixie Chemical Co., Inc.
AGC	Alberta Gas Chemicals, Inc.	DKA	Denka Chemical Corp.
AIP	Air Products & Chemicals, Inc.	DOM	Dominion Products, Inc.
ALI	Anzon, Inc.	DOW	Dow Chemical Co.
ALW	Albright & Wilson, Inc.	DPW	Deepwater, Inc.
AME	American Bio-Synthetics Corp.	DRL	Unichema Chemicals, Inc.
AMO	Amoco Corp.	DUP	E. I. duPont de Nemours & Co., Inc.
ANG	Angus Chemical Co.	DVC	Dover Chemical Corp. Sub. of ICC Industries, Inc.
ARA	Syntex Chemicals, Inc.		
ARC	Azko Chemie America, ArmaK Chemicals	EFH	E. F. Houghton & Co.
ARS	Arsynco, Inc.	EHC	Ethichem Corp.
ARZ	Arizona Chemical Co.	EK	Eastman Kodak Co.:
ASH	Ashland Oil, Inc.	EKT	Tennessee Eastman Co. Div.
ASL	Specialtychem Products Corp.	EKK	Texas Eastman Co. Div.
ATL	Atlantic Industries, Inc.	ELC	Elco Corp. Sub of Detrex Chemical Industries, Inc.
ATR	Atlantic Richfield Co., Arco Chemical Co.		
ATZ	Catalyst Resources, Inc.	EMR	Emery Industries Div. of National Distillers & Chemical Corp.
		ENJ	Exxon Chemical Americas
BAS	BASF Corp.	ESA	East Shore Chemical Co.
BCC	Buffalo Color Corp.	ESX	Essex Chemical Corp., Essex Industrial Chemicals, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group		
BKC	J. T. Baker Chemical Co.	EVN	W. R. Grace & Co., Organic Chemicals Div., Evans Chemetics
BKM	Buckman Laboratories, Inc.		
BOC	Biocraft Laboratories, Inc.		
BOR	Borden Inc., Borden Chemical Div.	FER	Ferro Corp.:
BRD	Lonza, Inc.		Ferro Chemical Div.
BTL	BTL of Illinois, Inc.		Grant Chemical Div.
			Keil Chemical Div.
CAD	Akzo Chemie America, Noury Chemicals	FKE	Frank Enterprises, Inc.
CAS	Caschem, Inc.	FMC	FMC Corp.:
CBD	Chembond Corp.	FMB	Specialty Chemicals Div.
CGA	Interstab Chemicals, Inc.	FMT	Fairmount Chemical Co., Inc.
CCC	C.N.C. Chemical Corp.	FOC	Handschy Industries, Inc., Farac Varnishes Chemicals
CCW	Morton-Thiokol, Inc., Carstab Div.		
CED	Cedar Chemical Co.	FOR	Formosa Plastics Corporation Louisiana
CEL	Celanese Corp.:	FRE	Freeman Chemical Corp.
	Celanese Chemical Co., Inc.	FRO	Vulcan Materials Co., Chemicals Div.
	Celanese Fibers Operations	FTE	Footo Mineral Co.
	Celanese Specialties Resins	FTX	Finetex, Inc.
CGY	Ciba-Geigy Corp.		
CHG	Hobay Chemical Corp., Agricultural Chemicals Div.	GAF	GAF Corp., Chemical Group
		GAN	Gane's Chemicals, Inc.
CHL	Chemol, Inc.	GE	General Electric Co.
CHP	C. H. Patrick & Co., Inc.	GGC	Georgia-Gulf Corp.:
CHT	Chattem, Inc.		Boundbrook Div.
CJO	C. J. Osborn Chemicals, Inc.		Plaquemine Div.
CLK	Clark Oil & Refining Corp.	GIV	Givaudan Corp.
CMB	Cambridge Industries Co.	GLY	Glyco, Inc.
CNI	Consp. Inc.	GP	Georgia-Pacific Corp.:
CNP	Nipro, Inc.		Plaquemine Div.
COC	Columbia Organic Chemicals Co., Inc.		Resins Operations
COS	Cosan Chemical Corp.	GTL	Great Lakes Chemical Corp.
CPS	CPS Chemical Co., Inc.	GYR	Goodyear Tire & Rubber Co.
CRN	CPC International, Inc., Amerchol Corp.		
CRZ	Crown Zellerbach Corp., Chemical Products Div.	HAL	C. P. Hall Co.
		HCC	Hatco Chemical Corp.
CWN	Upjohn Co., Fine Chemicals	HCF	Cape Industries
CXI	Chemical Exchange Industries, Inc.	HCP	Honig Chemical & Processing Corp.
CYL	Cyclo Chemical Corp.	HDG	Hodag Chemical Corp.
CYR	CYRO Industries	HEX	Hexagon Laboratories, Inc.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1985--CONTINUED

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
HFT	Syntex Agribusiness, Inc., Nutrition & Chemical Div.	PCI	Piedmont Chemical Industries, Inc.
HK	Occidental Chemical Corp., Industrial & Specialty Chemical Div.	PEL	Pelron Corp.
HML	Hummel Chemical Co.	PEN	GPC International, Inc., Penick Corp.
HMP	W. R. Grace & Co., Hampshire Chemicals Div.	PFN	Pfanstiehl Laboratories, Inc.
HMY	Humphrey Chemical Co.	PFZ	Pfizer, Inc. and Pfizer Pharmaceuticals, Inc.
HOC	Malocarbon Products Corp.	PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.
HPC	Hercules, Inc.	PIC	Pierce Chemical Co.
HRT	Hart Products Corp.	PKI	Perkins Industries, Inc.
HST	American Hoechst Corp., Hoechst Fiber Industries Div.	PLC	Phillips Petroleum Co.
HTM	Haltermann Ltd. Co.	PLS	Plastics Engineering Co.
HXL	Hexcel Corp., Hexcel Chemical Products	PMP	PMP Fermentation Products, Inc.
ICI	ICI Americas, Inc., Chemicals Div.	PPG	PPG Industries, Inc.
IFF	International Flavors & Fragrances, Inc.	PSG	PMC Specialties Group Inc.
IMC	International Minerals & Chemical Corp., Industries Chemicals Div.	PST	Perstorp Polyols, Inc.
IOC	Sybron Chemicals, Inc.	QKO	QO Chemicals, Inc.
JRC	Jarchem Industries, Inc.	RBC	Fike Chemicals, Inc.
KAI	Kaiser Aluminum & Chemical Corp.	RCI	Reichhold Chemicals, Inc.
KCH	Joseph Ayers, Inc.	RCN	Racon, Inc.
KF	Dynamit Nobel of America, Dynamit Nobel Chemical Div.	RDA	Rhone-Poulenc, Inc.
KLM	Kalama Chemical, Inc.	REG	Regis Chemical Co.
KHI	Kemin Industries, Inc.	REM	Remington Arms Co., Inc.
KPT	Koppers Co., Inc.	RH	Rohm & Haas Co.
LCP	LCP Chemicals - West Virginia, Inc.	RPC	Millmaster Onyx Group, Inc., Lyndall Chemical Co. Div.
LEM	Napp Chemicals, Inc.	RSA	R.S.A. Corp.
LIL	Eli Lilly & Co.	RUC	Rubicon, Inc.
LYP	Lyondell Petrochemical Co.	SBC	Scher Chemicals, Inc.
MAL	Mallinckrodt, Inc.	SCM	SCM Corp.: Organic Chemicals Div.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	PCR	PCR, Inc.
MCI	Mooney Chemicals, Inc.	SCP	Henkel Corp.
MCK	MacKenzie Chemical Works, Inc.	SD	Sterling Drug, Inc.: Sterling Pharmaceuticals, Inc.
MET	M & T Chemicals, Inc.	SDC	Sandoz Chemicals Corp.
MHI	Morton-Thiokol, Inc., Ventron Div.	SDM	Hilton Davis Chemical Co. Div.
MIL	Milliken & Co., Milliken Chemical Co.	SDW	Sterling Organics Div.
MLS	Miles Laboratories, Inc., Biotechnology Group	SFA	Stauffer Chemical Co.: Agricultural Div.
MMC	EM Industries, Inc., EM Science Div.	SFC	Calhio Chemicals, Inc.
MOB	Mobay Chemical Corp., Pittsburgh Div.	SFS	Specialty & Intermediates Chemical Div.
MON	Monsanto Co.	SHC	Shell Oil Co., Shell Chemical Co. Div.
MRF	Morflex Corp.	SHP	Shepherd Chemical Co.
MRK	Merck & Co., Inc.	SHX	Sherex Chemical Co., Inc.
NCC	Nisacet Corp.	SK	SmithKline Beckman Corp., SmithKline Chemicals Div.
NCI	Union Camp Corp., Terpene & Aromatics Div.	SM	Mobil Oil Corp.: Mobil Chemical Co.
NES	Ruetgers-Nesse Chemical Co.	SNO	Chemical Products Div.
NEV	Neville Chemical Co.	SNO	SunOlin Chemical Co.
NOV	Norsac Co., Inc.: Mathe Div.	SNW	Sun Chemical Corp., Chemicals Div.
NOD	Nuodex, Inc.	SOH	Standard Oil Chemical Co.
NSC	National Starch & Chemical Corp.	SOL	Southland Corp., Fine Chemical Div.
NTB	National Biochemical Co.	SPD	General Electric Co., Silicone Products Dept.
NWP	Norchem, Inc.	STC	American Hoechst Corp., Sou-Tex Works
OH	Anaquest	SWS	Stauffer Chemical Co., Stauffer-Wacker Silicones Div.
OMC	Olin Corp.	SYL	Sylvachem Corp.
ORT	Roehr Chemicals, Inc.	SYF	Plastic Specialties & Technology, Inc., Synthetic Products Co. Div.
PAC	Pacific Anchor Chemical Corp.	TCC	Sybron Chemicals, Inc.
PAH	Parish Chemical Co.	TCH	Emery Industries, Inc., Trylon Div.
PD	Parke-Davis, Div. of Warner-Lambert Co.	TIL	Tillett Chemical Co.
PAS	Pennwalt Corp.	TLC	Twin Lake Chemical, Inc.



TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1985--CONTINUED

CODE	NAME OF COMPANY	CODE	NAME OF COMPANY
TNA	Ethyl Corp.	VGC	Virginia Chemicals, Inc.
TNI	Gillette Co., Chemical Div.	VIK	Viking Chemical Co.
TRO	Troy Chemical Corp.	VNC	Vanderbilt Chemical Corp.
TSA	Texas Alkyls, Inc.	VND	Van Dyk, Div. of Mallinckrodt, Inc.
TU	Tenn-USS Chemicals Co.	VST	Vista Chemical Co.
TX	Texaco, Inc., Texaco Chemical Co.	VTC	Vertac Chemical Corp.
TZC	Magnesium Elektron, Inc.		
		WAG	West Design-Chemical, Inc.
UCC	Union Carbide Corp.	WCC	White Chemical Corp.
UPJ	Upjohn Co. and Polymer Chemical Div.	WCL	Wright Chemical Corp.
USB	U. S. Borax & Chemical Corp., U.S. Borax Research Corp.	WLN	Wilmington Chemical Corp.
USI	National Distillers & Chemicals Corp., U.S. Industrial Chemicals Co.	WM	Inolex Chemical Co.
USR	Uniroyal, Inc., Uniroyal Chemical Div.	WPG	West Point-Pepperell, Inc., Griffitex Chemical Co. Sub.
USS	U.S. Steel Corp., USS Chemicals Div.	WTC	Witco Chemical Corp.
		WTH	Union Camp Corp.
VAL	United Merchants & Manufacturers, Inc., Valchem Div.	WTK	Whittaker Corp., Heico Chemicals Div.
VCM	Vanchem, Inc.	WTL	Pennwalt Corp., Lucidol Div.
VDM	Van De Mark Chemical Co., Inc.	WVA	Westvaco Corp.,
VEL	Valsicol Chemical Corp.	WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.

Nota.--Complete names, telephone number, and addresses of the above reporting companies are listed in table 1 of the appendix.





## APPENDIX



## APPENDIX

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TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985

[Names of synthetic organic chemicals manufacturers that reported production and/or sales to the U.S. International Trade Commission for 1985 are listed below alphabetically, together with their identification codes as used in table 2 of the 15 individual sections of this report]

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
AEP	A & E Plastic Inc-----	818-968-3801	14505 Proctor Ave., P. O. Box 1268, Industry, CA 91749.
AZS	AZS Corp-----	404-873-1851	762 Marietta Blvd., N.W., Atlanta, GA 30318.
	AZS Chemical Corp-----	404-873-1850	762 Marietta Blvd., N.W., Atlanta, GA 30318.
ABB	Abbott Laboratories-----	312-937-7262	14th St. & Sheridan Rd., N. Chicago, IL 60064.
ABS	Abex Corp., Friction Products Div.- U.S.-----	703-662-3871	P. O. Box 3250, Winchester, VA 22601.
ACO	Adco Chemical Co-----	201-589-0880	49-129 Rutherford St., Newark, NJ 07105.
WLC	Agrico Chemical Co-----	918-588-2000	One William Center, Tulsa, OK 74172.
AIP	Air Products & Chemicals, Inc-----	215-481-4911	P. O. Box 538, Allentown, PA 18105.
AJY	Ajay Chemicals, Inc-----	404-943-6202	1400 Industry Rd., Powder Springs, GA 30073.
AJI	Ajinomoto U.S.A., Inc-----	919-832-2890	4020 Ajinomoto Dr., Raleigh, NC 27610.
ARC	Akzo Chemie America, Armark Chemicals-----	312-786-0400	300 S. Wacker Dr., Chicago, IL 60614.
CAD	Noury Chemicals-----	716-778-8554	2153 Lockport-Olcott Rd., Burt, NY 14028.
ABP	Alabama By-Products Corp-----	205-250-5400	P. O. Box 10246, Birmingham, AL 35202.
AGC	Alberta Gas Chemicals, Inc-----	201-267-1400	7 Century Dr., Parsippany, NJ 07054.
ALW	Albright & Wilson, Inc-----	804-798-4291	P.O. Box 26229, Richmond, VA 23260-6229.
ALC	Alco Chemical Corp-----	615-629-1405	909 Mueller Dr., Chattanooga, TN 37406.
AAC	Alcolac, Inc-----	301-355-2600	3440 Fairfield Rd., Baltimore, MD 21226.
ALD	Aldrich Chemical Co., Inc-----	414-273-3850	940 W. St. Paul Ave., Milwaukee, WI 53233.
ALE	Alex Chemical Co-----	717-462-3500	119 N. Union St., Shenandoah, PA 17976.
ALG	Allegheny Chemical Corp-----	814-776-1186	Gillis Ave., Ridgway, PA 15853.
ALL	Alliance Chemical, Inc-----	201-344-2344	33 Avenue P, Newark, NJ 07657.
	Allied Corp.:		
ACS	Chemical Section-----	201-455-5000	P. O. Box 1087-R, Morristown, NJ 07960.
ACU	Union Texas Petroleum Corp-----	713-960-7500	P. O. Box 2120, Houston, TX 77001.
BME	Allied-Bendix Corp., Friction Materials Div.-----	518-273-6550	P. O. Box 238, Green Island, NY 12180.
ALX	Alox Corp-----	716-282-1295	3943 Buffalo Ave., Niagara Falls, NY 14303.
APH	Alpha Corporation of Tennessee-----	901-853-2450	P. O. Drawer A, Hwy. 57 E, Collierville, TN 38017.
ALP	Alpha Laboratories, Inc-----	303-756-1338	1685 S. Fairfax St., P. O. Box 22223, Denver, CO 80222.
HES	Amerada Hess Corp. (Hess Oil Virgin Island Corp.)-----	201-750-6000	1 Hess Plaza, Woodbridge, NJ 07095.
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.
HST	American Hoechst Corp.:		
	Hoechst Fibers Industries Div-----	803-579-5750	P. O. Box 5887, Spartanburg, SC 29301.
	Petrochemicals/Plastics Group-----	201-231-2954	Route 202-206 North, Somerville, NJ 08876.
STC	Sou-tex Works-----	704-827-7531	P. O. Box 866, Mount Holly, NC 28120.
	Specialty Products Group, Rhode Island Works.-----	401-823-2000	129 Quidnick St., Coventry, RI 02816.
ASY	Ametek Synthetic Rubber Corp-----	502-448-2761	P. O. Box 32960, Louisville, KY 40232.
HVG	Ametek, Inc., Havag Div-----	302-995-0410	900 Greenbank Rd., Wilmington, DE 19808.
AMO	Amoco Corporation-----	312-856-6111	P. O. Box 87703 Mail Code 1201, Chicago, IL 60680-0703.
AMV	Amvac 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-----	312-498-6700	2211 Sanders Rd., Northbrook, IL 60062.
ALI	Anzon, Inc-----	215-427-3000	2545 Aramingo Ave., Philadelphia, PA 19125.
APX	Apex Chemical Co., Inc-----	201-354-5420	200 S. First St., P. O. Box 254, Elizabethport, NJ 07206.
APO	Apollo Colors, Inc-----	312-564-9190	899 Skokie Blvd., Northbrook, IL 60062.
ADM	Armstrong Chemical Co-----	201-481-2406	29 Riverside Ave., Newark, NJ 07104.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
ARN	Arenol Chemical Corp-----	718-784-0948	40-33 - 23d St., Long Island City, NY 11101.
ARZ	Arizona Chemical Co-----	201-794-3200	200 So. Sudduth Pl., Panama City, FL 32404.
ALS	Armco, Inc., Eastern Steel Div-----	513-425-5000	703 Curtis St., Middletown, OH 45043.
ARP	Armour Pharmaceutical Co-----	815-932-6771	P. O. Box 511, Kankakee, IL 60901.
ARK	Armstrong World Industries, Inc-----	717-397-0611	Liberty & Charlotte Sts., Lancaster, PA 17604.
ARO	ARNCO-----	213-567-1378	5141 Firestone Place, South Gate, CA 90280.
ARL	Arol Chemical Products Co-----	201-344-1510	649 Ferry St., Newark, NJ 07105.
ARS	Arsynco, Inc-----	201-933-2323	126-20 Northern Blvd., Flushing, NY 11368.
ASH	Ashland Oil, Inc-----	614-889-3333	P. O. Box 2219, Columbus, OH 43216.
	Ashland Petroleum Co-----	606-329-3333	P. O. Box 391, Ashland, KY 41101.
API	Asoma Polymers, Inc-----	617-987-0144	Old Webster St., Oxford, MA 01540.
BLA	Astor Products, Inc., Blue Arrow Div-----	904-783-5000	5244 Edgewood Ct., Jacksonville, FL 32205.
ATL	Atlantic Industries, Inc-----	201-235-1800	10 Kingsland Rd., Nutley, NJ 07110.
ATR	Atlantic Richfield Co., Arco Chemical Co-----	215-557-2846	1500 Market St., Philadelphia, PA 19101.
APD	Atlas Powder Co. Sub. of Tyler Corp-----	417-624-0212	P. O. Box 87, Joplin, MO 64802.
APR	Atlas Processing Co-----	318-636-2711	P. O. Box 3099, Shreveport, LA 71133.
AUX	Auralux Corp-----	203-886-2616	29 Stott Ave., Norwich, CT 06360.
KCH	Joseph Ayers, Inc-----	215-837-1808	275 Keystone Dr., Bethlehem, PA 18017.
BTL	BTL of Illinois, Inc-----	419-244-5856	2112 Sylvan Ave., Toledo, OH 43606.
BAS	BASF Corp-----	616-392-2391	491 Columbus Ave., Holland, MI 49423.
		201-263-4050	and 100 Cherry Hill Rd., Parsippany, NJ 07054.
ICC	Inmont Div-----	201-263-4050	100 Cherry Hill Rd., Parsippany, NJ 07054.
ICF	Inmont Div-----	201-365-3400	1255 Broad St., Clifton, NJ 07015.
		201-263-4050	and 100 Cherry Hill Rd., Parsippany, NJ 07054.
DBC	Badische Corp-----	804-887-6000	P. O. Box Drawer D, Williamsburg, VA 23187.
BKG	J. T. Baker Chemical Co-----	201-859-2151	222 Red School Lane, Phillipsburg, NJ 08865.
BAX	Baxter Travenol Laboratories, Inc-----	312-948-2000	Route 120 & Wilson Rd., Round Lake, IL 60053.
BCK	Beckman Instruments, Inc-----	619-438-9151	6200 El Camino Real, Carlsbad, CA 92008.
BIB	Spinco Div-----	714-871-4848	1050 Page Mill Rd., Palo Alto, CA 94304.
BEE	Beecham, Inc., Beecham Laboratories Div-----	201-469-5200	101 Possumtown Rd., Piscataway, NJ 08854.
BEW	Beecham, Inc.; Beecham Western Hemisphere, Inc-----	201-881-3000	3 Garret Mountain Plaza, West Paterson, NJ 07424.
BCH	Belding Chemical Industries-----	212-944-6040	P. O. Box 300, Grosvenor Dale, CT 06246.
BLZ	Belzak Corp-----	201-773-0602	850 Bloomfield Ave., Clifton, NJ 07012.
BEN	Bennett's Paint Corp-----	801-486-2211	2131 South West Salt Lake City, UT 84115.
BTS	Bethlehem Steel Corp-----	215-694-4522	Martin Tower - 8th Fl., Bethlehem, PA 18016.
BDS	Biddle Sawyer Corp-----	212-736-1580	2 Penn Plaza - Suite 2439, New York, NY 10121.
BNS	Binney and Smith, Inc-----	215-253-6271	P. O. Box 431, 1100 Church Lane, Easton, PA 18044-0431.
BOC	Biocraft Laboratories, Inc-----	201-796-3434	12 Industrial Park, Waldwick, NJ 07463.
BWP	Bison Nitrogen Products Co-----	712-277-1340	Terra Centre, 600 4th St., Sioux City, IA 51101.
BMX	Blu-Max Pigments Div-----	312-586-8400	7000 W. 60th, Chicago, IL 60638.
LAK	Bofors Nobel, Inc-----	616-788-2341	5025 Evanston Ave., Muskegon, MI 49443.
BOR	Borden, Inc.; Borden Chemical Div-----	614-225-4000	180 E. Broad St., Columbus, OH 43215.
MCB	Borg-Warner Corp., Borg-Warner Chemicals-----	304-424-5411	International Center, Parkersburg, WV 26101.
BFP	Breddo Inc-----	913-321-5300	18th & Kansas Ave., Kansas City, KS 66105.
BMC	Brin-Mont Chemicals, Inc-----	919-292-0566	3921 Spring Garden St., Greensboro, NC 27407.



## APPENDIX

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TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,  
BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
BRS	Bristol-Myers Co	212-546-4000	345 Park Ave., 5th Fl., New York, NY 10154.
BRU	M. A. Bruder & Sons, Inc	215-353-5100	52nd St. & Grays Ave., Philadelphia, PA 19143.
BKM	Buckman Laboratories, Inc	901-278-0330	1256 N. McLean Blvd., Memphis, TN 38122.
BCC	Buffalo Color Corp	716-827-4500	100 Lee St., Buffalo, NY 14210.
BUR	Burroughs Wellcome Co	919-248-3000	3030 Cornwallis Rd., Research Triangle Park, NC 27709.
CFI	CF Industries, Inc	312-438-9500	Salem Lake Dr., Long Grove, IL 60047.
GLU	CL Industries, Inc	217-662-2136	P. O. Box 218 Georgetown, IL 61846.
CCC	C.N.C. International, Inc	401-751-7711	20 Priviledge St., Woonsocket, RI 02895.
ACR	CPC International, Inc.		
ACR	Acme Resin Corp	312-771-9600	1401 Circle Ave., Forest Park, IL 60130.
CRN	Amerchol Corp	201-287-1600	136 Talmadge Rd., P. O. Box 4051, Edison, NJ 08818-4051.
PEN	Penick Corp	201-935-6600	158 Mount Olivet Ave., Newark, NJ 07114.
CPS	CPS Chemical Co., Inc	201-727-3100	P. O. Box 162, Old Bridge, NJ 08857.
CYR	CYRO Industries	201-930-0100	155 Tice Blvd., P. O. Box 8588, Woodcliff Lake, NJ 07675.
CMB	Cambridge Industries Co	617-924-0026	440 Arsenal St., Watertown, MA 02172.
HCF	Cape Industries	919-343-1150	310 N. Front St., P. O. Box 1694, Wilmington, NC 28402.
SVC	Capital City Products Co., Armstrong Chemical Plant.	608-752-9007	1530 S. Jackson St., Janesville, WI 53545.
CBC	Carbose Corp	814-443-1611	100 Maple St., Somerset, PA 15501.
OGL	Cargill, Inc	612-475-7634	P. O. Box 5630, Minneapolis, MN 55440.
CHC	Carpenter Chemical Co	804-359-0800	P. O. Box 27205, Richmond, VA 23261.
BSC	Cascade Resins, Inc	503-343-2111	P. O. Box 1989, Eugene, OR 97440.
CAS	Caschem, Inc	201-858-7900	40 Avenue A, Bayonne, NJ 07002.
AZT	Catalyst Resources, Inc	713-682-5300	P. O. Box 250, Elyria, OH 44035.
CCL	Catawba-Charlab, Inc	704-523-4242	5046 Old Pineville Rd., P. O. Box 240497, Charlotte, NC 28224.
CEO	Cedar Chemical Co	901-767-6851	P. O. Box 3, Rifle Range Road, Vicksburg, MS 39180.
CEL	Celanese Corp.:		
	Celanese Chemical Co., Inc	214-689-4000	1250 W. Mockingbird Lane, Dallas, TX 75247.
	Celanese Fibers Operations	704-554-2000	P. O. Box 32414, Charlotte, NC 28232.
	Celanese Specialities	201-635-2600	26 Main St., Chatham, NJ 07928.
	Celanese Specialty Resins	502-585-8011	P. O. Box 37600, Louisville, KY 40233.
CLP	Cell Products, Inc	201-828-6100	5 Georges Rd., New Brunswick, NJ 08901.
GNT	Certainteed 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.
GRS	Champlin Petroleum Co	512-882-8871	P. O. Box 9176, Corpus Christi, TX 78469.
SOG	Charter International Oil Co	713-923-3578	P. O. Box 5008, Houston, TX 77012.
CHA	Chattanooga Coke & Chemicals Co., Inc	615-821-3541	4800 Central Ave., P. O. Box 2339, Chattanooga, TN 37409.
CHT	Chattem, Inc	615-821-4571	1715 W. 38th St., Chattanooga, TN 37409.
CBD	Chembond Corp	503-746-6501	1600 Valley River Dr., Suite 390, Eugene, OR 97401.
CFX	Chemfax, Inc	601-863-6511	Three Rivers Rd., Gulfport, MS 39503.
CI	Chem-Fleur, Inc	201-589-4266	200 Pulaski St., Newark, NJ 07105.
CKI	Chemical Exchange Industries, Inc	713-526-8291	3813 Buffalo Speedway, Houston, TX 77098.
CMT	The Chemiton Corp	206-937-9954	5430 W. Marginal Way, SW., Seattle, WA 98106.
CHL	Chemol Co	919-272-3121	2410 Randolph Ave., Greensboro, NC 27420.
CRT	Chemos Corp	201-623-3334	225-235 Emmett St., Newark, NJ 07114.
GOC	Chevron Chemical Co	713-754-2000	595 Market St., San Francisco, CA 94120.
SOC	Chevron Corp., Chevron Chemical Corp	415-894-7700	575 Market St., San Francisco, CA 94105.
GHH	CHR. Hansen's Laboratory, Inc	414-476-3630	9015 W. Maple St., West Allis, WI 53214.
GGY	Ciba-Geigy Corp	914-478-3131	444 Saw Mill River Rd., Ardsley, NY 10502.
	Agricultural Div	919-292-7100	P. O. Box 18300, Greensboro, NC 27419.
GGO	Citgo Petroleum Corp	314-491-7356	P. O. Box 1562, Lake Charles, LA 70602.
CLK	Clark Oil & Refining Corp	314-889-9600	7930 Clayton Rd., St. Louis, MO 63117.

## SYNTHETIC ORGANIC CHEMICALS, 1935

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
CLI	Clintwood Chemical Co-----	312-890-5790	4342 S. Wolcott Ave., Chicago, IL 60609.
CSP	Coastal Refining & Marketing Inc-----	512-887-4100	Nine Greenway Plaza, Houston, TX 77046.
CP	Colgate-Palmolive Co-----	212-310-2000	300 Park Ave., New York, NY 10022.
CLD	Colloids, Inc-----	201-926-6100	394 Frelinghuysen Ave., Newark, NJ 07114.
CCS	Colorado Chemical Specialties, Inc-----	303-278-1963	4880 Robb St. - Unit #2, Wheat Ridge, CO 80033.
CRS	Colorado Resins, Inc-----	303-278-1963	4880 Robb St. - Unit #2, Wheat Ridge, CO 80033.
CIG	Color Chem International Corp-----	201-444-8563	7 Plymouth Rd., Glen Rock, NJ 07452.
CNC	Columbia Nitrogen Corp-----	404-823-4000	P. O. Box 1483(13), Augusta, GA 30913.
COC	Columbia Organic Chemical Co., Inc-----	716-372-9650	1405 Buffalo St., Olean, NY 14760.
CEI	Combustion Engineering, Inc., C-E Cast Products-----	412-344-7500	305 Mt. Lebanon Blvd., Pittsburgh, PA 15234.
CAC	Cominco American, Inc-----	509-747-6111	W. 818 Riverside Ave., Spokane, WA 99201.
CMF	Commercial Products Co., Inc-----	201-427-6887	117 Ethel Ave., Hawthorne, NJ 07506.
CNI	Conap, Inc-----	716-372-9650	1700 Buffalo St., Olean, NY 14760.
CON	Concord Chemical Co., Inc-----	609-966-1526	17th & Federal Sts., Camden, NJ 08105.
CO	Conoco Specialty Products, Inc-----	713-293-1767	600 N Daisys Ashford Rd., P. O. Box 2197, Houston, TX 77252.
CTL	Continental Chemical Co-----	201-472-5000	270 Clifton Blvd., Clifton, NJ 07015.
CTP	Continental Polymers, Inc-----	213-637-2103	2225 E. Del Amo Blvd., Compton, CA 90220.
CPV	Cook Paint & Varnish Co-----	816-391-6000	P. O. Box 389, Kansas City, MO 64141.
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.
CRP	Corpus Christi Petrochemicals Co-----	713-751-7100	1000 Louisiana St., Suite 2700, Houston, TX 77002.
COS	Cosan Chemical Corp-----	201-460-9300	400 - 14th St., Carlstadt, NJ 07072.
CRD	Croda, Inc-----	212-683-3089	183 Madison Ave., New York, NY 10016.
CK	Crompton & Knowles Corp-----	215-376-8749	P. O. Box 341, Reading, PA 19603.
CCP	Crown Central Petroleum Corp-----	301-539-7400	1 N Charles St., Baltimore, MD 21203.
USM	Crown Metro, Inc-----	803-277-1870	P. O. Box 5695, Greenville, SC 29606.
GRZ	Crown Zellerbach Corp., Chemical Products Div.-----	206-254-0922	P. O. Box 4266, Vancouver, WA 98662.
CYT	Cumberland International Corp-----	713-682-1221	1523 N. Post Oak Rd., Houston, TX 77055.
CUS	Custom Pigments Corp-----	312-252-7273	2125 W. Rice St., Chicago, IL 60622.
CTR	Customs Resins Div. of Bemis Co., Inc-----	612-340-6000	800 Northstar Ctr., Minneapolis, MN 42420.
CYH	Cychem, Inc-----	513-641-4371	P. O. Box 16056, Cincinnati, OH 45216.
CYL	Cyclo Chemical Corp-----	305-592-6700	7500 N.W. 66th St., Miami, FL 33166.
AMD	Cyclo Products, Inc-----	213-582-6411	1922 E. 64th St., Los Angeles, CA 90001.
DAN	Dan River, Inc., Chemical Products Div.-----	804-799-7000	P. O. Box 261, Danville, VA 24543.
DPI	Dart Polymers, Inc., Sub. of Dart Container Corp.-----	517-676-3800	432 Hogsback Rd., Mason, MI 48854.
DGO	Day-Glo Color Corp-----	216-391-7070	4515 St. Clair Ave., Cleveland, OH 44103.
DFW	Deepwater, Inc-----	714-751-3522	P. O. Box 17599, Irvine, CA 92713.
DGC	Degussa Corp-----	201-288-6500	Rt. 46 at Hollister Rd., Teterboro, NJ 07608.
DRR	Delta Resins & Refractories, Inc-----	414-462-1200	6263 N. Teutonia Ave., Milwaukee, WI 53209.
DKA	Denka Chemical Corp-----	713-477-8821	8701 Park Place Blvd., Houston, TX 77017.
DNS	Dennis Chemical Co-----	314-771-1800	2700 Papin St., St. Louis, MO 63103.
DRB	Derby Co., Inc-----	617-342-5831	231 Industrial Park, 119 Authority Dr., Fitchburg, MA 01420.
DSO & PLX	DeSoto, Inc-----	312-391-9000	1700 S. Mt. Prospect Rd., Des Plaines, IL 60018.
UDI	DeSoto Petrochemicals Inc-----	817-625-2111	510 E. Central St., Fort Worth, TX 76113.
DEX	Dexter Chemical Corp-----	212-542-7700	845 Edgewater Rd., Bronx, NY 10474.
HYA	Dextex Corp., Hysol Aerospace & Industrial Products Div., Dexter Specialty Chemicals Group.-----	818-968-6511	15051 East Don Julian Rd., Industry, CA 91746.
HYC	Hysol Electronic Chemical Div., Dexter Specialty Chemicals Group.-----	818-968-6511	15051 E. Don Julian Rd., Industry, CA 91749.
MID	Midland Div-----	312-623-4200	E. Water St., Waukegan, IL 60085.
AGP	Dial Corp-----	312-892-4381	2000 Aucutt Rd., Montgomery, AL 60538.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,  
BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
DA	Diamond Shamrock Chemicals Co-----	214-659-7000	351 Phelps Ct., Irving, TX 75015.
DAZ	Diaz Chemical Corp-----	716-638-6321	P. O. Box 194, Holley, NY 14470.
PLN	Disogrin Industries Corp-----	603-669-4050	Greiner Industrial Airpark, Manchester, NH 03130.
GNT	Diversitech General, Polymers Div-----	216-798-3320	1 General St., Akron, OH 44329.
DIX	Dixie Chemical Co., Inc-----	713-526-2604	3635 W. Dallas Ave., Houston, TX 77019.
DRC	Dock Resins Corp-----	201-862-2351	1512 W. Elizabeth Ave., Linden, NJ 07036.
DOM	Dominion Products, Inc-----	718-499-3050	882 - 3d Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Corp. Sub. of ICG Industries, Inc.	216-343-7711	W. 15th & Davis Sts., P. O. Box 40, Dover, OH 44622.
DOW	Dow Chemical Co-----	517-636-6125	2020 Willard H. Dow Center, Midland, MI 48674.
TGI	Chemical Corp., Texize Division-----	803-963-4261	P. O. Box 368, Greenville, SC 29602.
DGC	Dow Corning Corp-----	517-496-4000	2200 W. Salzburg Rd., Auburn, MI 48640.
DRX	Drexel Chemical Co-----	901-774-4370	2487 Penn St., P. O. Box 9306, Memphis, TN 38109.
DUP	E. I. duPont de Nemours & Co., Inc-----	302-774-0911	DuPont Bldg., Wilmington, DE 19898.
DSC	Dye Specialties, Inc-----	201-866-9504	100 Plaza Center, Secaucus, NJ 07094.
KF	Dynamit Nobel of America, Dynamit Nobel Chemicals Div.	201-784-0200	10 Link Dr., Rockleigh, NJ 07647.
HMC	EM Industries, Inc., EM Science Div-----	609-354-9200	2909 Highland Ave., Cincinnati, OH 45212.
AGI	EHS-American Grilon, Inc-----	803-481-9173	P. O. Box 1948, Sumter, SC 29151.
EPI	Eagle Fitcher Industries, Ohio Rubber Co. Div.	216-942-0500	P. O. Box 1398, Denton, TX 76201.
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 1974, Kingsport, TN 37662.
EKX	Texas Eastman Co. Div-----	214-236-5000	P. O. Box 1974, Kingsport, TN 37662.
ESA	East Shore Chemical Co., Inc-----	616-726-3106	1221 E. Barney Ave., Muskegon, MI 49443.
EEP	Eaton Corp., Industrial Polymers Products Div.	216-523-5000	1199 S. Chillicothe Rd., Aurora, OH 44202.
ELN	Elen Chemical Co-----	201-344-8014	268 Doremus Ave., Newark, NJ 07105.
ELC	Elco Corp. Sub. of Detrex Chemical Industries, Inc.	216-749-2605	P. O. Box 09186, Cleveland, OH 44109.
ELP	El Paso Products Co-----	915-333-7200	619 N. Grant, Odessa, TX 79760.
EMR	Emery Chemicals, Division of National Distillers & Chemical Corp.	513-530-7300	11501 North Lake Dr., Cincinnati, OH 45249.
TCH	Emery Industries, Inc., Trylon Div-----	803-963-4031	P. O. Box 628, Mauldin, SC 29662.
USM	Emhart Corp., Bostik U.S. Div-----	617-777-0100	Boston St., Middleton, MA 01949.
EMK	Emkay Chemical Co-----	201-352-7053	319 - 2d St., Elizabeth, NJ 07206.
EKO	Empire Coke Co-----	205-323-2400	1927 1st Ave., N. Birmingham, AL 35203.
ENO	Enenco, Inc-----	901-320-5800	P. O. Box 125, Memphis, TN 38101.
EPC	Enterprise Products Co. of Mississippi.	713-880-6500	P. O. Box 4324, Houston, TX 77210.
ESS	Essential Chemicals Corp-----	404-691-3000	28391 Essential Rd., Merton, WI 53056.
ESX	Essex Chemical Corp., Essex Industrial Chemicals, Inc.	201-773-6300	1401 Broad St., Clifton, NJ 07015.
EHC	Ethichem Corp-----	201-933-7880	150 Grand St., Carlstadt, NJ 07072.
TNA	Ethyl Corp-----	804-788-5000	330 S. 4th St., Richmond, VA 23219.
ENJ	Exxon Chemical Americas-----	713-870-6000	13501 Katy Freeway, Houston, TX 77079.
FMC	FMC Corp-----	215-299-6000	2000 Market St., Philadelphia, PA 19103.
FMN	Agricultural Chemical Group-----	215-299-6000	2000 Market St., Philadelphia, PA 19103.
FMB	Specialty Chemicals Div-----	716-876-8300	Sawyer Ave. & River Rd., Town of Tonawanda, NY 14150.
FRP	FRP Co-----	912-367-3616	P. O. Box 349, Baxley, GA 31513.
FAB	Fabricolor Manufacturing Corp-----	201-742-3900	24-1/2 Van Hoaten St., Paterson, NJ 07505.
FMT	Fairmont Chemical Co., Inc-----	201-344-5790	117 Blanchard St., Newark, NJ 07105.
FRI	Farmland Industries, Inc-----	816-459-6000	3315 North Oak Trafficway, Kansas City, MO 64116.
FRI	Farmland Industries, Inc-----	913-843-7300	P. O. Box 69, Lawrence, KS 66044.
FEL	Felton International, Inc-----	718-497-4664	599 Johnson Ave., Brooklyn, NY 11237.



## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
FER	Ferro Corp.:	:	:
:	Ferro Chemical Div-----	216-641-8580	7050 Krick Rd., Bedford, OH 44146.
:	Grant Chemical Div-----	504-654-6801	P. O. Box 263, Baton Rouge, LA 70821.
:	Kail Chemical Div-----	219-931-2630	3000 Sheffield Ave., Hammond, IN 46320.
:	Productol Chemical Div-----	213-945-3401	10051 Romandel Ave., Santa Fe Springs, CA 90670.
RBC	Fike Chemicals, Inc-----	304-755-3336	P. O. Box 550, Nitro, WV 25143.
CSD	Fina Oil & Chemical Co., Cosden Chemical Div.:	214-750-2400	8350 N. Central, Dallas, TX 75206.
FTX	Finetex, Inc-----	201-797-4686	418 Falmouth Ave., Elmwood Park, NJ 07407.
:	Firestone Tire & Rubber Co.:	:	:
FRF	Firestone Fibers & Textile Co-----	804-541-2000	P. O. Box 450, Hopewell, VA 23869.
FRS	Firestone Synthetic Rubber & Latex Co. Div.:	216-379-7495	P. O. Box 2786, Akron, OH 44301.
FST	First Chemical Corp-----	601-762-0870	P. O. Box 1427, Pascagoula, MS 39567.
FPC	Flambeau Paper Corp-----	715-762-3231	P. O. Box 340, Park Falls, WI 54552.
FLM	Fleming Laboratories, Inc-----	704-372-5613	2215 Thrift Rd., P. O. Box 34384, Charlotte, NC 28234.
CIK	Flint Ink Corp., Cal/Ink Div-----	415-525-1188	1404 - 4th St., Berkeley, CA 94710.
FTE	Foota Mineral Co-----	215-363-6500	Route 100, Exton, PA 19341.
FMO	Ford Motor Co., Paint Operations-----	313-466-1913	400 Grosbeck Hwy., Mt. Clemens, MI 48043.
FOR	Formosa Plastics Corp:	:	:
:	Louisiana-----	504-356-3341	P. O. Box 271, Baton Rouge, LA 70821.
:	USA-----	201-966-6980	66 Hanover Rd., Florham Park, NJ 07932.
FJI	Foy-Johnston, Inc-----	513-631-4270	1776 Mentor Ave., Cincinnati, OH 45212.
FKE	Frank Enterprise, Inc-----	614-253-5519	700 Rose Ave., Columbus, OH 43219.
FLN	Franklin International-----	614-443-0241	2020 Bruck St., Columbus, OH 43207.
FRE	Freeman Chemical Corp-----	414-284-5541	P. O. Box 247, Port Washington, WI 53074.
FB	Fritzsche Dodge & Olcott, Inc-----	212-929-4100	76 - 9th Ave., New York, NY 10011.
FLH	H. B. Fuller Co-----	612-645-3401	3520 Lexington Ave. N., St. Paul, MN 55126.
GAF	GAF Corp., Chemical Corp-----	201-862-2600	P. O. Box 12, Linden, NJ 07036.
GLX	Galxie Chemicals Corp-----	201-279-0558	26 Piercy St., Paterson, NJ 07524.
GAN	Gane's Chemicals, Inc-----	212-391-2580	1114 Avenue of the Americas, New York, NY 10036.
GNR	Genencor, Inc-----	415-588-3475	180 Kimball Way, S. San Francisco, CA 94080.
GE	General Electric Co-----	614-622-5310	1350 S. Second St., Coshocton, OH 43812
:	:	413-494-4793	and 1 Plastics Ave., Pittsfield, MA 01201.
GEI	Insulating Materials-----	518-385-7999	RV-28, 1 Campbell Rd., Schenectady, NY 12345.
SPD	Silicone Products Div-----	518-266-3330	Mechanicville Rd., Waterford, NY 12188.
GNF	General Foods Manufacturing Corp., Maxwell House Coffee Div.:	201-420-3436	1125 Hudson St., Hoboken, NJ 07030.
GLC	General Latex & Chemical Corp-----	617-576-8000	675 Mass. Ave., Cambridge, MA 02139.
CRG	P D Georgia Co-----	314-621-5700	5200 N. Second St., St. Louis, MO 63147.
GGC	Georgia Gulf Corp., Bound Brook Div-----	404-395-4533	400 Perimeter Ctr., Terr. Suite 595, Atlanta, GA 30348.
GGC	Houston Div-----	404-521-4000	400 Perimeter Ctr., Terr. Suite 595, Atlanta, GA 30348.
GGC	Plaquemine Div-----	404-521-4000	400 Perimeter Ctr., Terr. Suite 595, Atlanta, GA 30348.
GGC	PVC Compound Div-----	404-521-5200	P. O. Box 629, Evergreen Rd., Plaquemine, LA 70765.
:	Georgia-Pacific Corp.:	:	:
PSP	Bellingham Div-----	206-733-4410	P. O. Box 1236, Bellingham, WA 98227.
GP	Resins Inc-----	404-521-4000	133 Peachtree St. NE., Atlanta, GA 30361.
TNI	The Gillette Co., Chemical Div-----	617-421-7000	3500 W. 16th St., N. Chicago, IL 60064.
GBF	Gist-Brocades, USA, Inc-----	704-527-9000	5550 - 77 Center Dr., P. O. Box 241068, Charlotte, NC 28224.
GIV	Givaudan Corp-----	201-365-8000	100 Delawanna Ave., Clifton, NJ 07014.
GAI	Glasurit America, Inc-----	313-861-1000	3301 Bourke Ave., Detroit, MI 48238.

## APPENDIX

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TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,  
BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
GLY	Glyco, Inc-----	203-847-1191	488 Main St., P. O. Box 5100, Norwalk, CT 06856.
BFG	B. F. Goodrich-Ameripol SBR Div-----	216-374-2000	500 S. Main St., Akron, OH 44318.
BFG	B. F. Goodrich Co.:		
	B. F. Goodrich Chemical Group-----	216-447-6000	6100 Oak Tree Blvd., Cleveland, OH 44131.
HGC	Goodson Chemical Corp-----	801-278-5311	3760 S. Highland Dr., Suite 200, Salt Lake City, UT 84106.
GVR	Goodyear Tire & Rubber Co-----	216-796-7383	1144 E. Market St., Akron, OH 44316.
	W. R. Grace & Co.:		
GCC	Agricultural Chemicals Group-----	901-357-2311	P. O. Box 27147, Memphis, TN 38127.
HMP	Hampshire Chemicals Div-----	617-861-6600	55 Hayden Ave., Lexington, MA 02173.
EVN	Organic Chemicals Div., Evans Chemetics.	203-655-8741	90 Tokeneke Rd., Darien, CT 06820.
GRD	Polymers & Chemicals Div-----	617-861-6600	55 Hayden Ave., Lexington, MA 02173.
GPC	Grain Processing Corp-----	319-264-4211	P. O. Box 349, Muscatine, IA 52761.
GFC	Grant Industries, Inc-----	201-791-6700	P. O. Box 360, Elmwood Park, NJ 07407.
GTL	Great Lakes Chemical Corp-----	317-463-2511	P. O. Box 2200, Hwy. 52, W. Lafayette, IN 47906.
GNW	Greenwood Chemical Co-----	703-456-6832	P. O. Box 26, State Hwy. #690, Greenwood, VA 22943.
GDC	Gresto Mfg. Inc-----	919-475-8101	216 E. Holly Hill Rd., Thomasville, NC 27360.
GRV	Guardsman Chemicals, Inc-----	616-452-5181	1350 Steele Ave., S.W., Grand Rapids, MI 49507.
HAR	Haarmann & Reimer Corp-----	201-686-3132	70 Diamond Rd., Springfield, NJ 07081.
HAL	C. P. Hall Co-----	312-767-4600	7300 S. Central Ave., Chicago, IL 60638.
HOC	Halocarbon Products Corp-----	201-343-8703	82 Burlews Ct., Hackensack, NJ 60638.
HTM	Haltermann Ltd. Co-----	713-452-5951	16717 Jacintoport Blvd., Houston, TX 77015.
FOC	Handschy Industries, Inc., Farac Varnishes & Chemicals.	312-597-7990	13601 S. Ashland Ave., Riverdale, IL 60627.
HAN	Hanna Chemical Costings Corp-----	614-294-3361	1313 Windsor Ave., P. O. Box 147, Columbus, OH 43216.
HSH	Harshaw/Filtrol Partnership-----	216-292-9200	3400 Bank St., Louisville, KY 40212.
HRT	Hart Products Corp-----	201-433-6665	173 Sussex St., Jersey City, NJ 07302.
HCC	Hatco Chemical Co-----	201-738-1000	King George Post Rd., Fords, NJ 08863.
HEK	Hawkeye Chemical Co-----	319-243-5800	P. O. Box 899, Clinton, IA 52733.
HAP	Helmerich & Payne, Inc., Natural Gas Odorizing Div.	713-424-5568	3601 Decker Dr., P. O. Box 4176, Baytown, TX 77520.
SCP	Henkel Corp-----	612-828-8000	7900 W. 78th St., Minneapolis, MN 55435.
HPC	Hercules, Inc-----	302-594-5000	Hercules Plaza, Wilmington, DE 19899.
HER	Heresite-Saekephen, Inc-----	414-684-6646	822 S. 14th St., Manitowoc, WI 54220.
HTN	Heterene Chemical Corp-----	201-278-2000	790 - 21st Ave., Paterson, NJ 07513.
HET	Heterochemical Corp-----	516-561-8225	111 E. Hawthorne Ave., P. O. Box 157, Valley Stream, NY 11580.
HEU	Heubach Inc-----	201-242-1800	Heubach Ave., Newark, NJ 07114.
HEC	Hewchem-----	601-863-6600	2500 - 33d Ave., Gulfport, MS 39501.
HEW	Hewitt Soap Co., Inc-----	513-253-1151	333 Linden Ave., Dayton, OH 45403.
HEX	Hexagon Laboratories, Inc-----	212-324-7550	4166 Boston Rd., Bronx, NY 10475.
HXL	Hexcel Corp., Hexcel Chemical Products.	201-472-6800	205 Main St., Lodi, NJ 07644.
HIP	High Point Chemical Corp-----	919-884-2214	601 Taylor Ave., High Point, NC 27261.
HIM	Himont, U.S.A., Inc-----	302-594-5500	1313 N. Market St., Wilmington, DE 19894.
HDG	Hodag Chemical Corp-----	312-675-3950	7247 N. Central Park Ave., Skokie, IL 60076.
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-----	215-666-4000	Madison & Van Buren Aves., Valley Forge, PA 19482.
HML	Hummel Chemical Co., Inc-----	201-754-1800	P. O. Box 250, S. Plainfield, NJ 07080.
HMY	Humphrey Chemical Co-----	203-281-0012	P. O. Box 325, N. Haven, CT 06473-0325.
WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.	201-977-6000	One Wellington Rd., Lincoln, RI 02865.
HNT	Huntington Laboratories, Inc-----	219-356-8100	970 E. Tipton St., Huntington, IN 46750.



## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
HUS	Husky Industries, Inc-----	404-393-1430	P. O. Drawer I, Dickinson, ND 58601.
HYN	Hynson, Westcott, & Dunning, Inc-----	301-837-0890	Charles & Chase Sts., Baltimore, MD 21202.
ICI	ICI Americas, Inc-----	302-575-3000	Concord Pike & Murphy Rd., Wilmington, DE 19897.
	Chemicals Div-----	302-575-3000	Wilmington, DE 19897.
RAY	ITT Rayonier, Inc-----	203-348-7000	1177 Summer St., Stamford, CT 06904.
IGC	Indiana Gas & Chemical Corp-----	812-232-0231	1341 Hulman St., Terre Haute, IN 47808.
IND	Indol Color Co., Inc-----	201-242-1300	1029 Newark Ave., Elizabeth, NJ 07201.
IDC	Industrial Color, Inc-----	815-722-7402	50 Industry Ave., Bldg. 28, Joliet, IL 60435.
INL	Inland Steel Co-----	219-392-5408	3210 Watling, E. Chicago, IL 46312.
WM	Inolx Chemical Co-----	215-271-0800	Jackson & Swanson Sts., Philadelphia, PA 19148.
	Insilco Corp.:		
ENP	Enterprise Co-----	312-541-9000	1191 S. Wheeling Rd., Wheeling, IL 60090.
SPC	Sinclair Paint Co. Div-----	213-268-2511	3960 E. Washington Blvd., Los Angeles, CA 90023.
ILI	Interlake, Inc-----	312-986-6600	2015 Spring Rd., Oak Brook, IL 60521.
IFF	International Flavor & Fragrances, Inc-----	212-765-5500	521 W. 57th St., New York, NY 10019.
IMC	International Minerals & Chemical Corp.:	812-232-0121	P. O. Box 207, Terra Haute, IN 47808.
	Industrial Chemicals Div-----	312-566-2600	421 E. Hawley St., Mundelein, IL 60060.
IPC	Interplastic Corp-----	612-331-6850	2015 NE Broadway, Minneapolis, MN 55413.
CCA	Interstab Chemicals, Inc-----	201-247-2202	500 Jersey Ave., New Brunswick, NJ 08903.
IOV	Iovite, Inc-----	312-481-8900	21625 Oak St., P. O. 129, Matteson, IL 60443.
IRI	Ironsides Co-----	614-224-2228	270 W. Mound St., Columbus, OH 43215.
JRC	Jarchem Industries, Inc-----	201-344-0600	40 Ball St., Newark, NJ 07105.
JFR	George A. Jeffreys & Co., Inc-----	703-389-8220	P. O. Box 909, 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.
UPF	Jim Walter Resources, Inc., CIC Div-----	205-849-3032	P. O. Box 5327, Birmingham, AL 35217.
MRI	Johnson Matthey, Inc., Pigments Dept-----	201-373-7801	1200 Grove St., Irvington, NJ 07111.
JNS	S. C. Johnson & Son, Inc-----	414-631-2000	1525 Howe St., Racine, WI 53403.
JOB	Jones-Blair Co-----	214-353-1600	2728 Empire Central, Dallas, TX 75235.
JOR	Jordan Chemical Co-----	215-583-7000	1830 Columbia Ave., Folcroft, PA 19032.
KAI	Kaiser Aluminum & Chemical Corp-----	415-271-3300	P. O. Box 337, Gramercy, LA 70052.
KLM	Kalama Chemical, Inc-----	206-682-7890	Suite 1110, Bank of California Center, Seattle, WA 98164.
KAN	Kanasco, Ltd-----	301-789-7800	6110 Robinwood Road, Baltimore, MD 21175.
KMP	Kelly-Moore Paint Co., Inc-----	415-592-8337	987 Commercial St., San Carlos, CA 94070.
KMI	Kemlin Industries, Inc-----	515-266-2111	2100 Maury St., DesMoines, IA 50301.
KCU	Kennecott Minerals Co., Utah Copper Div-----	801-322-6178	P. O. Box 31838, Salt Lake City, UT 84106.
KPI	Kenrich Petrochemicals, Inc-----	201-823-9000	P. O. Box 32, 140 E. 22nd St., Bayonne, NJ 07002.
KTP	Kent Polymers, Inc-----	717-455-2021	666 Dietrich Ave., P. O. Box 658, Hazelton, PA 18201.
KYS	Keycor Century Corp-----	805-259-2360	P. O. Box 308, Saugus, CA 91350.
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 671, Nitro, WV 30067.
KHI	Koch Refining Co-----	316-832-5217	P. O. Box 2302, Wichita, KS 67201.
KON	H. Kohnstamm & Co., Inc-----	212-620-4800	161 Avenue of the Americas, New York, NY 10013.
KMC	Komac Paint, Inc-----	303-534-5191	201 Osage ST., Denver, CO 80204.
KPT	Koppers Co., Inc-----	412-227-2228	Koppers Bldg., K-1050, 10th Fl., Pittsburgh, PA 15219.
LCP	LCP Chemicals:		
	Maine-----	201-225-4840	P. O. Box 149, Orrington, ME 04474.
	West Virginia, Inc-----	304-843-1310	P. O. Box Box J, Moundsville, WV 26041.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,  
BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
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.	715-369-4356	515 W. Davenport St., Rhineland, WI 54501.
LUR	Laurel Products Corp.	215-423-5300	2600 E. Tioga St., Philadelphia, PA 19134.
LII	Lawter International, Inc.	312-498-4700	990 Skokie Blvd., Northbrook, IL 60062.
LLI	Lee Laboratories, Inc.	804-862-2534	P. O. Box 1658, Petersburg, VA 23805.
SAR	Leksi, Inc.	215-521-3800	P. O. Box 56, Essington, PA 19029.
LEV	Lever Brothers Co.	212-906-6000	390 Park Ave., New York, NY 10022.
LVR	C. Lever Co., Inc.	215-639-8640	736 DunksFerry Rd., Bensalem, PA 19020.
LIL	Eli Lilly & Co.	317-261-2000	307 E. McCarthy St., Indianapolis, IN 46285.
	Eli Lilly Industries, Inc.	809-757-4150	Call Box 1198 - Pueblo Station, Carolina, PR 00628-1198.
LIC	Lilly Industrial Coatings, Inc.	317-634-8512	P. O. Box 946, Indianapolis, IN 46206.
BRD	Lonza, Inc.	201-794-2400	22-10 Route 208, Fair Lawn, NJ 07410.
LC	Lord Corp., Chemical Products Group	814-868-3611	2000 W. Grandview Blvd., P. O. Box 10038, Erie, PA 16514-0038.
LAS	Los Angeles Soap Co.	213-627-5011	617 E. 1st St., P. O. Box 2198 T.A., Los Angeles, CA 90051.
LCS	Louisiana Chemical Specialties, Inc.	504-775-1801	12537 Scenic Hwy., Baton Rouge, LA 70807.
LYP	Lyondell Petrochemical Co.	713-652-7200	1221 McKinney, Suite 1600, Houston, TX 77253.
MCK	MacKenzie Chemical Works, Inc.	516-234-8600	1 Cordello Ave., Central Islip, NY 11722.
MCC	McCloskey Varnish Co.	215-624-4400	7600 State Rd., Philadelphia, PA 19136.
MCC	McCloskey Varnish Co., Oregon	503-226-3751	4155 N.W. Yeon Ave., Portland, OR 97210.
MCC	McCloskey Varnish Co., California	213-726-7272	5501 W. Slauson, Commerce, CA 90040.
STG	McCormick & Co., Inc., McCormick-Strange, Flavor Div.	301-667-7400	230 Schilling Circle S., Hunt Valley, MD 21031.
MCK	McLaughlin Gormley King Co.	612-544-0341	8810 - 10th Ave., N., Minneapolis, MN 55427.
MMP	McWhorter, Inc.	312-428-2657	400 E. Cottage Place, Carpentersville, IL 60110.
MAK	MAK Chemical Corp.	317-288-4464	1200 Rochester Ave., P. O. Box 2423, Muncie, IN 47302.
SOR	MW Manufacturers, Inc., Southern Resin Div.	703-483-0211	P. O. Box 68, Thomasville, NC 27360.
TZC	Magnesium Elektron, Inc.	201-782-5800	R.D. #2, Box 251, Flemington, NJ 08822.
MGR	Magruder Color Co., Inc.	201-242-1300	1029 Newark Ave., Elizabeth, NJ 07201.
MAL	Mallinckrodt, Inc.	314-895-2000	675 McDonnell Blvd., Building-10-3-5, St. Louis, MO 63134.
MOC	Marathon Petroleum Co., Texas Refining Div.	419-422-2121	539 S. Main St., Findlay, OH 45840.
MRD	Marden-Wild Corp.	617-666-0400	500 Columbia St., P.O. Box 499, Somerville, MA 02143.
MRV	Marlowe-Van Loan Corp.	919-886-7126	1511 Joshua Circle, P. O. Box 1851, High Point, NC 27261.
MGA	Masonite Corp., Alpine Resin Div.	601-863-5772	P. O. Box 2392, Gulfport, MS 39505.
MYO	Mayo Chemical Co.	404-696-6711	5544 Oakdale Rd., Smyrna, GA 30080.
MZC	Mazer Chemicals, Inc.	312-244-3410	3938 Poret Dr., Gurnee, IL 60031.
MLC	Melamine Chemicals, Inc.	504-473-3121	P. O. Box 748, 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.
MLS	Miles Laboratories, Inc., Biotechnology Group.	219-262-7445	1127 Myrtle St., Elkhart, IN 46515.
MIL	Milliken & Co., Milliken Chemical Div.	803-472-9041	P. O. Box 817, Inman, SC 29349.
RPC	Millmaster Onyx Group, Inc., Lyndal Chemical Co. Div.	212-687-2757	Coronet Dr., Dalton, GA 30720.
MMM	Minnesota Mining & Manufacturing Co.	612-736-0940	3M Center 224-6SE, St. Paul, MN 55144.
MIR	Miranol Chemical Co., Inc.	201-329-3900	P. O. Box 436, Dayton, NJ 08810.
MSC	Mississippi Chemical Corp.	601-746-4131	P. O. Box 388, Yazoo City, MS 39194.
CHG	Mobay Chemical Corp., Agricultural Chemicals Div.	816-242-2345	P. O. Box 4913, Hawthorne Rd., Kansas City, MO 64120.
VPC	Dye & Pigment Div.	201-686-3700	P. O. Box 385, Union, NJ 07083.
MOB	Pittsburgh Div.	412-777-2000	Mobay Rd., Pittsburgh, PA 15205.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
SM	Mobil Oil Corp.:		
	Gas Liquids Dept-----	703-849-3000	P. O. Box 900, Dallas, TX 75221.
	Mobil Chemical Co-----	212-883-4242	P. O. Box 726, Paramus, NJ 07652.
	Chemical Products Div-----	201-321-6000	P. O. Box 250, Edison, NJ 08818.
	Petrochemicals Div-----	713-590-7700	World Tower One, 15600 Drummit Blvd., Houston, TX 77032.
MOA	Mona Industries, Inc-----	201-345-8220	76 E. 24th St., Paterson, NJ 07544.
MON	Monsanto Co-----	314-694-1000	800 N. Lindberg Blvd., St. Louis, MO 63167.
MCI	Mooney Chemicals, Inc-----	216-781-8383	2301 Scranton Rd., Cleveland, OH 44113.
MCP	Moretax Chemical Products, Inc-----	803-583-8441	314 W. Henry St., Spartanburg, SC 29304.
MRF	Morflex Chemical Co., Inc-----	919-292-1781	2110 High Point Road, Greensboro, NC 27403.
	Morton Thiokol, Inc.:		
CGW	Carstab Div-----	513-733-2100	West St., Reading, OH 45215.
MRT	Morton Chemical Div-----	312-621-5555	2 N. Riverside Plaza, Chicago, IL 60606.
MHI	Ventron Div-----	617-774-3100	150 Andover St., Danvers, MA 01923.
MOT	Motomco, Ltd-----	608-244-2904	P. O. Box 8422, Madison, WI 53708.
PNX	The Murphy-Phoenix Co-----	216-831-0404	23811 Chagrin Blvd., Beechwood, OH 44122.
NTL	NL Industries, Inc-----	212-621-9400	1230 Avenue of the Americas, New York, NY 10020.
	NL Chemicals Div-----	609-443-2450	P. O. Box 700, Hightstown, NJ 08520.
CHN	N-Ren Corp., Cherokee Nitrogen Div-----	800-543-6736	P. O. Box 429, Pryor, OK 74362.
LEM	Napp Chemicals, Inc-----	201-773-3900	199 Main St., Lodi, NJ 07644.
NTB	National Biochemical Co-----	312-722-0126	3127 W. Lake St., Chicago, IL 60612.
NTC	National Casein Co-----	312-846-7300	601 W. 80th St., Chicago, IL 60620.
NCJ	National Casein of New Jersey-----	609-829-1880	P. O. Box 226, Riverton, NJ 08077.
USI	National Distillers & Chemicals Corp., U.S. Industrial Chemicals Co-----	513-530-6500	11500 N. Lake Dr., P. O. Box 429550, Cincinnati, OH 45249.
NMC	National Milling & Chemical Co., Inc-----	215-482-6600	4601 Flat Rock Rd., Philadelphia, PA 19127.
NSC	National Starch & Chemical Corp-----	201-685-5000	10 Finnerna Ave., Bridgewater, NJ 08807.
NTS	National Steel Corp., Great Lakes Plant-----	313-297-3601	1 Quality Dr., Ecorse, MI 48229.
NEP	Nepera, Inc-----	914-782-8171	Route #17, Harriman, NY 10926.
NVM	Nevamar Corp-----	301-569-5000	8339 Telegraph Rd., Odenton, MD 21113.
NEV	Neville Chemical Co-----	412-331-4200	Grand Avenue, Neville Island, Pittsburgh, PA 15225.
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	Wilas Chemical Paint Co-----	616-683-3377	P. O. Box 307, Files, MI 49120.
	Kordell Industries Div-----	219-255-9678	413 Clover Rd., P. O. Box 930, Mishawaka, IN 46544.
CNP	Nipro, Inc-----	404-823-4000	P. O. Box 1483(13), Augusta, GA 30913.
NOC	The Norac Co., Inc-----	818-334-2908	405 S. Motor Ave., Azusa, CA 91702.
	Mathe Div-----	201-779-4981	169 Kennedy Dr., P. O. Box 2230, Lodi, NJ 07644.
FSN	NOR-AM Chemical Co-----	302-575-2000	3509 Silverside Road, P. O. Box 7495, Wilmington, DE 19803.
NWP	Norchem, Inc-----	402-633-5735	Two Center Park Plaza, Norchem Center, Omaha, NB 68102.
NW	Northwestern Chemical Co-----	312-231-6111	120 N. Aurora St., West Chicago, IL 60185.
NPC	Northwest Petrochemical Corp-----	206-293-3176	P. O. Box 99, Anacortes, WA 98221.
NOR	Norwich Eaton Pharmaceutical, Inc-----	607-335-2111	17 Eaton Ave., Norwich, NY 13815.
NBI	Novo Biochemical Industries Inc-----	919-494-2014	P. O. Box 576, Franklin, NC 27525.
NOD	Nuodex, Inc-----	201-981-5000	P. O. Box 365, Turner Place, Piscataway, NJ 08854.
NSW	The Nutrasweet Co-----	312-982-7000	4711 Golf Rd., Skokie, IL 60076.
NUT	Nutrius, Inc-----	216-526-5522	8221 Brecksville Rd., Brecksville, OH 44141.
OBC	The O'Brien Corp-----	415-761-2300	450 E. Grand Ave., S. San Francisco, CA 94080.
	Occidental Chemical Corp.:		
HKD	Durez Div-----	716-696-6000	Walck Rd., N. Tonawanda, NY 14120.
HK	Industrial & Specialty Chemical Div-----	716-286-3000	360 Rainbow Blvd. S., Niagara Falls, NY 14303.



TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
HKP	: PVC Div-----	: 215-327-6400	: P. O. Box 699, Pottstown, PA 19464.
OHM	: Olin Corp-----	: 203-356-2000	: 120 Long Ridge Rd., Stamford, CT 06904.
ONX	: Onyx Chemical Co-----	: 201-434-1700	: 190 Warren St., Jersey City, NJ 07302.
ORG	: Organics/LaGrange, Inc-----	: 312-764-6700	: 7125 N. Clark St., Chicago, IL 60626.
OCC	: Orient Chemical Corp-----	: 201-465-0714	: 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 08109.
OCF	: Owens-Corning Fiberglas Corp-----	: 419-248-8000	: Fiberglas Tower, Toledo, OH 43659.
PBI	: BEI-Gordon Corp-----	: 816-421-4070	: 1217 W. 12th St., Kansas City, MO 64101-9984.
PSG	: PMC Specialities Group, Inc-----	: 216-356-0700	: 20525 Center Ridge Rd, Suite 235, Rocky River, OH 44116.
PMP	: PMP Fermentation Products, Inc-----	: 414-352-3001	: 7670 N. Port Washington Rd., Milwaukee, WI 53217.
PPG	: PPG Industries, Inc-----	: 412-434-3131	: PPG Place, Pittsburgh, PA 15272.
PAC	: Pacific Anchor Chemical Corp-----	: 213-725-1800	: 6055 E. Washington Blvd., Suite 700, Los Angeles, CA 90040.
PNT	: Pantasote, Inc., Film/Compound Div-----	: 201-777-8500	: 26 Jefferson St., Passaic, NJ 07055.
PAM	: Parish Chemical Co-----	: 801-226-2018	: 145 N. Geneva Rd., Orem, UT 84057.
PD	: Parke-Davis Div. of Warner Lambert Co-----	: 201-540-2000	: 188 Howard Ave., Holland, MI 49423.
PSC	: Passaic Color & Chemical Co-----	: 201-279-0400	: 28-36 Paterson St., Paterson, NJ 07501.
CHP	: C. H. Patrick & Co., Inc-----	: 803-244-4831	: P. O. Box 2526, Greenville, SC 29602.
PEL	: Pelron Corp-----	: 312-442-9100	: 7847 W. 47th St., Lyons, IL 60534.
PAS	: Penwalt Corp-----	: 215-587-7000	: Three Parkway, Philadelphia, PA 19102.
WTL	: Lucidol Div-----	: 716-877-1740	: 1740 Military Rd., Buffalo, NY 14240.
MOR	: Pennzoil Co., Pennzoil Morco Co-----	: 713-337-1534	: P. O. Drawer C, Dickinson, TX 77539.
PAR	: Pennzoil Co., Penreco Div-----	: 412-283-5600	: Union Bank Bldg. Butler, PA 16001.
PKI	: Perkins Industries, Inc-----	: 913-677-5831	: 6405 Metcalf St., Suite 422, Overland Park, KS 66202.
BPT	: Permuthane, Inc-----	: 617-531-1880	: Corwin St., Peabody, MA 01960.
PER	: Perry & Derrick Co., Inc-----	: 513-351-5800	: 2510 Highland Ave., Cincinnati, OH 45212.
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.
UDI	: Petrochemicals/Desoto, Inc-----	: 817-625-2111	: 510 E. Central St., Fort Worth, TX 76113.
PFN	: Pfanstiehl Laboratories, Inc-----	: 312-623-0370	: 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. 42d St., New York, NY 10017.
PHR	: Pfizer Pharmaceuticals, Inc-----	: 809-846-4300	: P. O. Box 628, Barceloneta, PR 00617.
PLB	: Pharmachem Corp-----	: 215-867-4654	: 719 Stefko Blvd., Bethlehem, PA 18016.
PLB	: Pharmacia P-L Biochemicals, Inc-----	: 414-225-2600	: 2202 N. Bartlett Ave., Milwaukee, WI 53202.
PDI	: Phelps Dodge Industries, Inc., : Phelps Dodge Magnet Wire Co. Div. -----	: 219-456-4444	: 4300 New Haven Ave., Fort Wayne, IN 46803.
PPX	: Phillips Paraxylene, Inc-----	: 809-864-1515	: P. O. Box 1166, Guayama, PR 00655.
PLC	: Phillips Petroleum Co-----	: 918-661-6600	: 15 Al Phillips Bldg., Bartlesville, OK 74004.
PPR	: Phillips Puerto Rico Core, Inc-----	: 809-864-1515	: P. O. Box 1166, Guayama, PR 00655.
PHC	: Phthalchem, Inc-----	: 513-681-0099	: 6675 Beechlands Dr., Cincinnati, OH 45237.
PCI	: Piedmont Chemical Industries, Inc-----	: 919-885-5131	: 331 Burton Ave., High Point, NC 27260.
PIC	: Pierce Chemical Co-----	: 815-968-0747	: 3747 N. Meridian Rd., Rockford, IL 61103.
PIL	: Pilot Chemical Co-----	: 213-723-0036	: 11756 Burke St., Santa Fe Springs, CA 90670.
PEL	: Pioneer Plastics Div. of LOF : Plastics, Inc. -----	: 207-784-9111	: Pionite Rd., Auburn, ME 04210.
PKL	: Plaskolite, Inc-----	: 614-294-3281	: P. O. Box 1497, Columbus, OH 43216.
PSL	: Plaskok 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.
SYP	: Plastics Specialities & Technology, : Inc., Synthetic Products Co. -----	: 216-531-6010	: 16601 St. Clair Ave., Cleveland, OH 44110.
PTC	: Polycast Technology Corp-----	: 203-327-6010	: 69 Southfield Ave., Stamford, CT 06902.
PAI	: Polymer Applications, Inc-----	: 716-875-0775	: 3445 River Rd., Tonawanda, NY 14150.
PYI	: Polymer Industries-----	: 803-244-5351	: P. O. Box 2184, Roberts Rd., Greenville, SC 29602.
PVZ	: Polyrez Co., Inc-----	: 609-845-1813	: S. Columbia St. & R.R., Woodbury, NJ 08096.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
PLR	: Polysar, Inc.:	:	:
	: Latex Div-----	: 216-836-0451	: 1795 W. Market St., Akron, OH 44313.
	: Plastics Div-----	: 671-537-9901	: 29 Fuller St., Leominster, MA 01453.
PVI	: Polyvinyl Chemical Industries-----	: 617-658-6600	: 730 Main St., Wilmington, MA 01887.
POP	: Pope Chemical Corp-----	: 201-279-2702	: 33 - 6th Ave., Paterson, NJ 07524.
PRT	: Pratt & Lambert, Inc., Paint Div-----	: 716-873-6000	: 75 Tonawanda, Buffalo, NY 14207.
JLP	: J. L. Prescott Co-----	: 201-777-4200	: 27 - 8th St., Passaic, NJ 07055.
PG	: Procter & Gamble Co., Procter & Gamble Mfg. Co.:	: 513-627-5194	: P. O. Box 599, Cincinnati, OH 45201.
PRC	: Products Research & Chemical Corp-----	: 818-240-2060	: 5430 San Fernando Rd., P. O. Box 1800, Glendale, CA 91209.
QKO	: QO Chemicals, Inc-----	: 312-850-2330	: 823 Commerce Dr., Suite 200, Oak Brook, IL 60521.
QCP	: Quaker Chemical Corp-----	: 215-828-4250	: Elm & Lee Sts., Conshohocken, PA 19428-0809.
QUN	: K. J. Quin & Co., Inc-----	: 617-321-3200	: 195 Canal St., Malden, MA 02148.
RSA	: R.S.A. Corp-----	: 914-693-1818	: 690 Saw Mill River Rd., Ardsley, NY 10502.
RCN	: Racon, Inc-----	: 316-524-3245	: 6040 S. Ridge Rd., P. O. Box 198, Wichita, KS 67201.
RAS	: Raffi and Swanson, Inc-----	: 617-933-4200	: 100 Eames St., Wilmington, MA 01887.
BLC	: Ranbar Technology, Inc., Ball Chemical Co.:	: 412-486-1111	: 1114 William Flinn Highway, Glenshaw, PA 15116.
RAB	: Raymark Corp-----	: 203-371-0101	: 1204 Darlington Ave., Crawfordsville, IN 47933.
MAR	: Reed Lignin, Inc-----	: 203-625-0710	: 81 Holly Hill Lane, Greenwich, CT 06830.
RBI	: Reeves Brothers, Inc-----	: 803-576-1210	: P. O. Box 1898, Spartanburg, SC 29304.
REG	: Regis Chemical Co-----	: 312-967-6000	: 8210 Austin Ave., Horton Grove, IL 60053.
RCI	: Reichhold Chemicals, Inc-----	: 914-682-5700	: 525 N. Broadway, White Plains, NY 10603.
RIL	: Reilly Tar & Chemical Corp-----	: 317-247-8141	: 1510 Market Square Center, 151 N. Delaware St., Indianapolis, IN 46204.
REL	: Reliance Universal, Inc., Louisville Resins Div.:	: 502-459-9110	: P. O. Box 37510, Louisville, KY 40232.
REM	: Remington Arms Co., Inc-----	: 203-333-1112	: 939 Barnum Ave., Bridgeport, CT 06601.
RDA	: Rhone-Poulenc, Inc-----	: 201-846-7700	: 120 Jersey Ave., New Brunswick, NJ 08903.
RCD	: Richardson Polymer Corp-----	: 203-245-0441	: 17 Woodland Rd., Madison, CT 06443.
AMS	: Ridgway Color Co-----	: 814-776-2151	: 75 Front St., Ridgway, PA 15853.
ETC	: Riegel Textile Corp., Riechem Div-----	: 803-242-6050	: P. O. Box 3478, Greenville, SC 29602.
RIK	: Riker Laboratories, Inc. Sub. of 3M Co.:	: 818-341-1300	: 19901 Nordhoff St., Northridge, CA 91324.
RSN	: Rilsan Corp-----	: 201-447-3300	: 266 Harristown Rd., Glen Rock, NJ 07452.
RIV	: Riverdale Chemical Co-----	: 312-756-2010	: 220 E. 17th St., Chicago Heights, IL 60411.
ROB	: Robeco Chemicals, Inc., Div. of Aceto Corp.:	: 212-986-6410	: 99 Park Ave., New York, NY 10016.
ORT	: Roehr Chemicals, Inc-----	: 718-784-8473	: 52-20 - 37th St., Long Island City, NY 11101.
RH	: Rohm & Haas Co-----	: 215-592-3000	: Independence Mall West., Philadelphia, PA 19105.
ROM	: Roma Color, Inc-----	: 617-676-3481	: 749 Quequechan St., P. O. Box 268, Fall River, MA 02722.
RUC	: Rubicon, Inc-----	: 302-575-3596	: P. O. Box 751, Wilmington, DE 19897 and P. O. Box 517, Geismar, LA 70734.
RUO	: Ruco Polymer Corp-----	: 516-931-8104	: New South Rd., Hicksville, NY 11804.
NES	: Ruetgers-Nease Chemical Co-----	: 814-238-2424	: 201 Struble Rd., College, PA 16801.
SBP	: SBS Products Inc-----	: 517-799-4941	: 302 Waller St., P. O. Box 1387, Saginaw, MI 48605.
SCM	: SCM Corp.:	:	:
	: Coatings & Resins Div-----	: 216-344-8000	: 925 Euclid Ave., Cleveland, OH 44115.
	: Organic Chemicals Div-----	: 904-764-1711	: P. O. Box 389, Jacksonville, FL 32201.
	: PCR, Inc-----	: 904-764-1711	: P. O. Box 389, Jacksonville, FL 32201.
SDS	: S.D.S. Biotech Corp-----	: 216-357-3000	: 7528 Auburn Rd., P. O. Box 348, Painesville, OH 44077.



## APPENDIX

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TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
SOS	: SSC Industries, Inc-----	: 404-762-9651	: 1550 E. Taylor Ave., East Point, GA 30344.
NPR	: Safeway Stores, Inc-----	: 415-944-4473	: 2800 Ygnacio Valley Rd., Walnut Creek, CA 94598.
STX	: St. Croix Petrochemical Corp-----	: 809-778-6450	: P. O. Box 6801, Christiansted, St. Croix, U.S., VI 00820.
SLM	: Salem Oil & Grease Co-----	: 617-745-0585	: 60 Grove St., Salem, MA 01970.
SAL	: Salsbury Laboratories, Inc-----	: 515-257-2422	: 2000 Rockford Rd., Charles City, IA 50616.
SBG	: Samuel Bingham Co-----	: 312-298-6777	: 11101 W. Franklin Ave., Franklin Park, IL 60131.
SDC	: Sandoz Chemicals Corp-----	: 704-372-0120	: 4000 Monroe Rd., Charlotte, NC 28205.
S	: Sandoz, Inc., Colors & Chemicals Div-----	: 704-372-0210	: 4000 Monroe Rd., Charlotte, NC 28205.
SCN	: Schenectady Chemicals, Inc-----	: 518-370-4200	: P. O. Box 1046, Schenectady, NY 12306.
SBC	: Scher Chemicals, Inc-----	: 201-471-1300	: Industrial West, Clifton, NJ 07012.
SCH	: The Schering Corp-----	: 201-558-4000	: 1011 Morris Ave., Union, NJ 07083.
SCO	: Scholler, Inc-----	: 215-739-0900	: P. O. Box 26968, Philadelphia, PA 19134.
SFR	: Scientific Protein Laboratories-----	: 608-849-5944	: 700 E. Main St., Wauskeane, WI 53597.
SFA	: Scott Paper Co-----	: 215-521-5000	: P. O. Box 925, Everett, WA 98206.
SEA	: Seaboard Chemicals, Inc-----	: 617-745-1915	: 30 Foster St., P. O. Box 707, Salem, MA 01970.
SRL	: G. D. Searle & Co-----	: 312-982-7000	: 5200 Old Orchard Rd., Skokie, IL 60076.
SKP	: Shakespeare Monofilament Div-----	: 803-754-7011	: 6111 Shakespeare Rd., Columbia, SC 29223.
SHO	: Shell Oil Co-----	: 713-241-5105	: P. O. Box 3105, Houston, TX 77002.
SHC	: Shell Chemical Co-----	: 713-241-5105	: P. O. Box 3105, Houston, TX 77002.
SGO	: Shenango, Inc-----	: 412-771-4400	: 200 Neville Rd., Pittsburgh, PA 15225.
SHP	: Shepherd Chemical Co-----	: 513-731-1110	: 4900 Beech St., Cincinnati, OH 45212.
SHX	: Sherex Chemical Co., Inc-----	: 614-764-6500	: P. O. Box 646, Dublin, OH 43017.
	: The Sherwin-Williams Co.:		
BAL	: Consumer Div-----	: 301-837-3030	: 2325 Hollins Ferry Rd., Baltimore, MD 21230.
SHT	: Shintech, Inc-----	: 713-965-0713	: 24 Greenway Plaza, Suite 811, Houston, TX 77046.
SMP	: J. R. Simplot Co-----	: 208-336-2110	: 151 North 3rd Ave., Pocatello, ID 83204.
SIM	: Simpson Timber Co-----	: 503-289-1111	: 2301 N. Columbia Blvd., Portland, OR 97217.
GFS	: G. Frederick Smith Chemical Co-----	: 614-881-5501	: P. O. Box 23214, Columbus, OH 43223.
SK	: SmithKline Beckman Corp., SmithKline Chemicals Div.-----	: 215-270-7000	: P. O. Box 900, 900 River Rd., Conchohocken, PA 19428.
SMO	: Smooth-On, Inc-----	: 201-647-5800	: 1000 Valley Rd., Gillette, NJ 07933.
SLT	: Soltex Polymer Corp-----	: 713-522-1781	: P. O. Box 1000, Deer Park, TX 77536.
SLC	: Soluol Chemical Co., Inc-----	: 401-821-8100	: Green Hill & Market Sts., P. O. Box 112, W. Warwick, RI 02893.
SAC	: Southeastern Adhesives Co-----	: 704-754-3493	: P. O. Box 2070, Lenoir, NC 28645.
SOP	: Southern Chemical Products Co-----	: 912-746-5147	: 430 Lower Boundary St., P. O. Box 205, Macon, GA 31202.
	: Southland Corp.:		
ACT	: Chemical Div-----	: 312-458-8450	: 7666 W. 63d St., Summit, IL 60501.
SOL	: Fine Chemical Div-----	: 214-828-7011	: 2828 N. Haskell Ave., Dallas, TX 75204.
SWR	: Southwestern Refining Co., Inc-----	: 512-884-8863	: P. O. Box 9217, Corpus Christi, TX 78469.
SPL	: Spaulding Fibre Co., Inc., Industrial Plastics Div.-----	: 716-692-2000	: 310 Wheeler St., Tonawanda, NY 14150.
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	: Spectrachim Corp-----	: 201-595-8181	: 200 Sheridan Ave., Paterson, NJ 07502.
TRD	: Squibb Manufacturing, Inc-----	: 809-852-1255	: P. O. Box 609, Humacao, PR 00661.
SCC	: Standard Chlorine of Delaware, Inc-----	: 201-997-1700	: 1015 Belleville Turnpike, Kearny, NJ 07032.
SOH	: Standard Oil Chemical Co-----	: 216-575-4141	: 200 Public Square, Cleveland, OH 44114.
SIO	: Standard Oil Co-----	: 216-586-5180	: 200 Public Square, Cleveland, OH 44114.
SIF	: Standard Oil Co., Filon Div., Engineered Materials Co.-----		: 12333 S. Van Ness Ave., Hawthorne, CA 90250.
SIC	: Standard Oil Co., Silmer Div., Engineered Materials Co.-----		: 12333 S. Van Ness Ave., Hawthorne, CA 90250.
	: Stauffer Chemical Co.:		
SFA	: Agricultural Product Div-----	: 203-222-3521	: Nyala Farm Rd., Westport, CT 06881.
SFC	: Calhio Chemicals, Inc-----	: 203-222-3521	: Nyala Farm Rd., Westport, CT 06881.
SFI	: Chlor Alkali Products-----	: 203-222-3000	: Nyala Farm Rd., Westport, CT 06880.
SFS	: Specialty Group-----	: 203-222-3000	: Nyala Farm Rd., Westport, CT 06881.
SWS	: Stauffer-Wacker Silicones Corp-----	: 517-263-5711	: 3301 Sutton Rd., Adrian, MI 49221.

## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
STP	: Stepan Chemical Co-----	: 312-446-7500	: RR #1, Elwood, IL 60421 and 100 W. Henter Ave., Haywood, NJ 07607.
SD	: Sterling Drug, Inc-----	: 212-907-2000	: 2144 E. State St., Trenton, NJ 08619.
SDH & TMS	: Hilton Davis Chemical Co. Div-----	: 513-841-4000	: 2235 Langdon Farm Rd., Cincinnati, OH 45237.
SDW	: Sterling Organics Div-----	: 212-907-2000	: 90 Park Ave., New York, NY 10016.
SD	: Sterling Pharmaceuticals, Inc-----	: 212-907-2000	: P. O. Box 11247, Barcelonita, PR 00617.
CIN	: Stockhausen, Inc-----	: 919-378-9393	: P. O. Box 16025, Greensboro, NC 27406.
	: Sun Chemical Corp.:		
SNW	: Chemicals Div-----	: 201-224-4600	: P. O. Box 70, Chester, SC 29706.
SNA	: Pigments Div-----	: 212-986-5500	: 411 Sun Ave., Cincinnati, OH 45232.
SUN	: Sun Company, Inc-----	: 215-293-6600	: 100 Matsonford Rd., Radnor, PA 19087.
SNO	: SunOlin Chemical Co-----	: 302-792-3100	: P. O. Box 609, Claymont, DE 10703.
IOC, JSC & TCC	: Sybron Chemical, Inc-----	: 609-893-1100	: P. O. Box 66, Birmingham Rd., Birmingham, NJ 08011.
SYL	: Sylvachem Corp-----	: 904-764-1711	: P. O. Box 690, Jacksonville, FL 32218.
INF	: Synair Corp-----	: 615-698-8801	: 2003 Amnicola Hwy., P. O. Box 5269, Chattanooga, TN 37406.
BUC	: Synalloy Corp., Blackman Uhler Chemical Div-----	: 803-585-3661	: P. O. Box 5627, Craft Industrial Park, Spartanburg, SC 29304.
SPO	: Synpol, Inc-----	: 409-722-8321	: P. O. Box 667, Port Neches, TX 77651.
SRV	: Synray Corp-----	: 201-245-2600	: 209 N. Michigan Ave., Kenilworth, NJ 07033.
HFT	: Syntex Agribusiness, Inc., Nutrition & Chemical Div-----	: 417-866-7291	: P. O. Box 1246 S.S., Springfield, MO 65805.
ARA	: Syntex Chemicals, Inc-----	: 303-443-1926	: 2075 N. 55th St., Boulder, CO 80302.
SYT	: Synthron, Inc-----	: 704-437-8611	: P. O. Box 1111, Morganton, NC 28655.
TEK	: Teknor Apex Co-----	: 401-725-8000	: 505 Central Ave., Pawtucket, RI 02861.
TLI	: Teledyne Industries, Inc., Teledyne McCormick Selph-----	: 408-637-3731	: 3601 Union Rd., Hollister, CA 95024-8006.
TOC	: Tenneco Oil Co-----	: 713-757-2635	: P. O. Box 2511, Houston, TX 77001.
HN	: Tenneco Polymers, Inc-----	: 713-475-5000	: 1149 Ellsworth Dr., Pasadena, TX 77501.
TEN	: Tennessee Chemical Co-----	: 615-496-3331	: 1 Ocoee St., Copperhill, TN 37317.
TVA	: Tennessee Valley Authority, NFDC, TVA, OACD, Div. of Developmental Production-----	: 205-386-2377	: Muscle Shoals, AL 35660.
TU	: Tenn-USS Chemicals Co-----	: 713-884-4400	: P. O. Box 600, Pasadena, TX 77501.
TER	: Terra International, Inc-----	: 712-277-1340	: Terra Centre, 600 - 4th St., Sioux City, IA 51101.
TER	: Terra Nitrogen, Inc-----	: 712-277-1340	: Terra Centre, 600 - 4th St., Sioux City, IA 51101.
GOO	: Terrell Corp-----	: 616-658-3351	: 820 Woburn St., Wilmington, MA 01887.
TX	: Texaco, Inc., Texaco Chemical Co-----	: 713-666-8000	: 4800 Fournace Place, Bellaire, TX 77401.
TUS	: Texaco Butadiene Co-----	: 713-666-8000	: P. O. Box 430, Bellaire, TX 77401.
TSA	: Texas Alkyls, Inc-----	: 713-479-8411	: P. O. Box 600, Deer Park, TX 77536.
TCR	: Texas City Refining, Inc-----	: 409-945-4451	: P. O. Box 1271, Texas City, TX 77592-1271.
TPC	: Texas Petrochemicals Corp-----	: 713-477-9211	: 8600 Park Place Blvd., Houston, TX 77017.
TXS	: Textstyrene Plastics, Inc-----	: 817-831-0533	: 3607 N. Sylvania Ave., Fort Worth, TX 76111.
TMH	: Thompson Hayward Chemical Co-----	: 913-321-3131	: 5200 Speaker Rd., Kansas City, KS 66106.
TRI	: Triad Chemical-----	: 504-473-9231	: P. O. Box 310, Donaldsonville, LA 70346.
TRO	: Troy Chemical Co-----	: 201-589-2500	: One Avenue L, Newark, NJ 07105.
TUL	: Tull Chemical Co., Inc-----	: 205-831-1154	: P. O. Box 3246, Oxford, AL 36203.
TLC	: Twin Lake Chemical, Inc-----	: 716-433-3824	: 540 Mill St., P. O. Box 411, Lockport, NY 14094.
UPH	: UOP, Inc., UOP Process Div-----	: 312-391-2000	: Box 5017, Des Plaines, IL 60017.
UHL	: Paul Uhlich & Co., Inc-----	: 914-478-2000	: 1 Railroad Ave., Hastings-on-Hudson, NY 10706.
UNG	: Ungerer & Co-----	: 201-628-0600	: 4 Bridgewater Lane, Lincoln Park, NJ 07035.
DRL	: Unichema Chemical, Inc-----	: 201-327-6100	: 4650 S. Racine Ave., Chicago, IL 60609.
WTH	: Union Camp Corp-----	: 201-628-2000	: P. O. Box 220, Dover, OH 44622.
NCI	: Chemical Products Div-----	: 201-628-2000	: 1600 Valley Rd., Wayne, NJ 07470.
NCI	: Terpene & Aromatics Div-----	: 201-628-2000	: P. O. Box 60369, Jacksonville, FL 32236.

## APPENDIX

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TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,  
BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
UCC	Union Carbide Corp-----	203-794-3113	39 Old Ridgebury Rd., Danbury, CT 06817.
UOC	Union Oil Co. of California-----	213-977-7746	461 S. Boylston St., Los Angeles, CA 90017.
USR	Uniroyal, Inc., Uniroyal Chemical Div-----	203-573-3886	World Headquarters, Middlebury, CT 06749
UNN	United Chemical Corp. of Norwood-----	617-762-4057	P. O. Box 367, Endicott St., Norwood, MA 02062.
UNO	United Erie, Inc-----	814-456-7561	438 Huron St., Erie, PA 16502.
VAL	United Merchants & Manufacturers, Inc., Valchem Div.-----	201-837-1700	1650 Palisades Ave., Teaneck, NJ 07666.
USB	U.S. Borax & Chemical Corp., U.S. Borax Research Corp.-----	213-381-5311	3075 Wilshire Blvd., Los Angeles, CA 90010.
USS	U.S. Steel Corp.: Clairton Plant-----	412-433-5425	600 Grant St., Rm. 1937, Pittsburgh, PA 15230.
	Gary Works-----	412-433-5425	600 Grant St., Rm. 1937, Pittsburgh, PA 15230.
	Geneva Plant-----	412-433-5425	600 Grant St., Rm. 1937, Pittsburgh, PA 15230.
ARM	USS Agri-Chemicals Div-----	404-572-4000	P. O. Box 1685, Atlanta, GA 30301.
	USS Chemicals Div-----	412-433-7636	600 Grant St., Rm. 2880, Pittsburgh, PA 15230.
UPJ	The Upjohn Co-----	616-323-4000	7000 Portage Rd., Kalamazoo, MI 49001 and 555 Alaska Ave., Torrance, CA 90503.
CWN	Fine Chemicals-----	203-281-2722	410 Sackett Point Rd., North Haven, CT 06473.
UPJ	Polymer Chemical Div-----	713-479-1541	P. O. Box 685, LaPorte, TX 77571.
VSV	Valentine Sugars, Inc., Valite Div-----	504-532-2541	Rt 2, Box 625, Lockport, LA 70374.
VCM	Vanchem, Inc-----	716-434-2624	1 North 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., P. O. Box 20, Bethel, CT 06801 and Rt. #2, Box 54, Penny Rd., Murray, KY 42071.
		203-853-1400	
VND	Van Dyk, Div. of Mallinckrodt, Inc-----	201-759-3225	Main & William Sts., Belleville, NJ 07109.
INL	Van Leer Containers, Inc-----	312-568-3535	4300 W. 130th St., Chicago, IL 60658.
VEL	Velsicol Chemical Corp-----	312-670-4500	341 E. Ohio St., Chicago, IL 60611.
VTC	Vertac Chemical Corp-----	901-767-6851	P. O. Box 69, Jacksonville, AR 72076.
	West Helena Plant-----	501-572-3701	Hwy. 242 S., West Helena, AR 72390.
GRL	Vestal Laboratories, Inc-----	314-535-1810	5035 Manchester Ave., St. Louis, MO 63110.
VIK	Viking Chemical Co-----	612-333-0394	838 Baker Bldg., Minneapolis, MN 55402.
VIN	Vineland Chemical Co., Inc-----	609-691-3535	W. Wheat Rd., Vineland, NJ 08360.
VCC	Vinings Chemical Co-----	404-436-1542	3950 Cumberland Pkwy., Atlanta, GA 30339.
VGC	Virginia Chemicals, Inc-----	804-483-7000	801 Water Street, Portsmouth, VA 23704.
VST	Vista Chemical Co-----	713-531-3200	15990 N. Barker's Landing Rd., P. O. Box 19029, Houston, TX 77224.
VST	Vista Polymers, Inc-----	713-531-3200	15990 N. Barker's Landing Rd., P. O. Box 19029, Houston, TX 77224.
VTM	Vitamins, Inc-----	312-861-0700	200 E. Randolph Dr., Chicago, IL 60601.
VIT	Vititek Corp-----	805-725-5637	Rt. #2, P. O. Box 580, Delano, CA 93215.
FRO	Vulcan Materials Co., Chemicals Div-----	205-877-3000	P. O. Box 7689, Birmingham, AL 35208.
WJ	Warner-Jenkinson Mfg. Co-----	314-658-7315	2526 Baldwin St., St. Louis, MO 63106.
WCA	West Coast Adhesives Co-----	503-286-3515	11104 NW Front Ave., Portland, OR 97231.
EW	Westinghouse Electric Corp., Insulating Materials Div.-----	412-864-7960	Manor, PA 15665.
WAG	West Design Chemical, Inc-----	913-384-4646	4350 Johnson Drive, Suite 280, Fairway, KS 66205.
WPG	West Point-Pepperell, Inc., Griffitex Chemical Co. Sub.-----	404-645-4000	1900 Cunningham Dr., Opelika, AL 36801.
WVA	Westvaco Corp-----	212-688-5000	P. O. Box 70848, Charleston Heights, SC 29415.
WRD	Weyerhaeuser Co-----	715-384-2141	1401 E. 4th St., Marshfield, WI 54449.
WPS	Wheeling-Pittsburgh Steel Corp-----	412-288-3600	Four Gateway Center, Pittsburgh, PA 15230.
WBG	The White & Bagley Co-----	617-791-3201	P. O. Box 706, Worcester, MA 01613.
WCC	White Chemical Corp-----	201-621-4100	660 Frelinghuysen Ave., Newark, NJ 07114.
WHL	Whitmoyer Laboratories, Inc-----	717-866-2151	99 S. Fairlane Ave., Myerstown, PA 17067.



## SYNTHETIC ORGANIC CHEMICALS, 1985

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,  
BY COMPANY, 1985--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
WTK	: Whittaker Corp., Heico Chemicals Div---	: 717-476-0353	: Rt. 611, Delaware Water Gap, PA 18327.
WHW	: Whitmore-Wright Co., Inc-----	: 617-242-1180	: 62 Alford St., Boston, MA 02129.
WLN	: Wilmington Chemical Corp-----	: 302-658-3515	: Pyles Lane, Wilmington, DE 19899.
WTC	: Witco Chemical Corp-----	: 201-573-2800	: 155 Tice Blvd., Woodcliff Lake, NJ 07675.
WCL	: Wright Chemical Corp-----	: 919-655-2263	: P. O. Box 402, Riegelwood, NC 28456.
WYK	: Wyckoff Chemical Co., Inc-----	: 616-637-8474	: 1421 Kalamazoo St., S. Haven, MI 49090.
WYC	: Wycon Chemical Co-----	: 307-637-2700	: P. O. Box 1287, Cheyenne, WY 82003.
WYT	: Wyeth Laboratories, Inc., Wyeth	: 215-644-8000	: P. O. Box 831, Lancaster Pike, Paoli, PA
	: Laboratories Div. of American Home	:	: 19301.
	: Products Corp.	:	:
	:	:	:
ZOC	: Zoecon Corp-----	: 415-847-1130	: P. O. Box 10975, 975 California Ave., Palo
	:	:	: Alto, CA 94301.
	:	:	:

TABLE 2.--CYCLIC INTERMEDIATES: GLOSSARY OF SYNONYMOUS NAMES

COMMON NAME	STANDARD (CHEMICAL ABSTRACTS) NAME
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	$\alpha, \alpha$ -Dichlorotoluene.
Benzanthrone	7H-Benz[de]anthracen-7-one.
Benzotrichloride	$\alpha, \alpha, \alpha$ -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'-k]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'-Iminodanthraquinone.
Dibenzanthrone	Violanthrone.
Dichlone	2,3-Dichloro-1,4-naphthoquinone.
4,4'-Dihydroxydiphenylsulfone	4,4'-Sulfonyldiphenol.
Dimethyl POPOP	1,4-Bis[2-(4-methyl-5-phenyloxazolyl)]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.
F Acid	7-Hydroxy-2-naphthalenesulfonic acid.
Fast Red G base	2-Nitro-p-toluidine [ $\text{NH}_2=1$ ].
Fast Scarlet R base	5-Nitro-o-anisidine [ $\text{NH}_2=1$ ].
Fischer's aldehyde	1,3,3-Trimethyl- $\delta^2, \alpha$ -indolineacetaldehyde.
Fischer's base	1,3,3-Trimethyl-2-methyleneindoline.
Freund's acid	4-Amino-2,7-naphthalenedisulfonic acid.



TABLE 2.--CYCLIC INTERMEDIATES: GLOSSARY OF SYNONYMOUS NAMES--CONTINUED

COMMON NAME	STANDARD (CHEMICAL ABSTRACTS) NAME
G salt	7-Hydroxy-1,3-naphthalenedisulfonic acid.
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-naphthanilide.
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-phenyloxazolyl)]benzene.
Pseudocumene	1,2,4-Trimethylbenzene.
Pyrazoleanthrone	Anthra[1,9-cd]pyrazol-6(2H)-one.
Pyrazoleanthrone yellow	[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione.
Pyrazolone T	5-Oxo-1-(p-sulfophenyl)-2-pyrazolone-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.

TABLE 2.--CYCLIC INTERMEDIATES: GLOSSARY OF SYNONYMOUS NAMES--CONTINUED

COMMON NAME	STANDARD (CHEMICAL ABSTRACTS) NAME
Tetralin-----	1,2,3,4-Tetrahydronaphthalene.
Thioindoxyl-----	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.
Vinyltoluene-----	ar-Methylstyrene.
Violet acid (RG Acid)-----	4-Hydroxy-2,7-naphthalenedisulfonic acid.



**SYNTHETIC ORGANIC CHEMICALS, U.S. PRODUCTION AND SALES, 1985,  
HARMONIZED SYSTEM BASIS**

The following table contains 1985 U.S. production and sales data for synthetic organic chemicals in the proposed 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.





## APPENDIX

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TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
151800	Chemically modified fats and oils and their fractions (except those of heading 1516)	122,807,141	73,388,784	123,356,180	73,388,784
151919	Other industrial monocarboxylic fatty acids nspf	.....	30,940,155	78,949,001	30,940,155
220720	Ethyl alcohol and other spirits, denatured, of any strength	648,784,109	.....	.....	.....
271113	Butanes, liquefied	3,853,212,562	240,840,411	2,018,651,787	240,840,411
271114	Ethylene, propylene, butylene and butadiene, liquefied	2,076,792,925	237,764,042	1,418,842,149	237,764,042
271119	Other petroleum gases and other gaseous hydrocarbons nspf, liquefied	5,631,262,233	185,230,581	2,769,056,755	185,230,581
271129	Other petroleum gases and other gaseous hydrocarbons nspf, in gaseous state	10,305,103,235	685,713,446	6,240,393,468	685,713,446
290110	Acyclic hydrocarbons, saturated	1,886,147,097	167,179,173	759,382,864	167,179,173
290121	Ethylene	29,846,725,767	1,527,216,484	9,728,703,105	1,527,216,484
290122	Propene (Propylene)	14,886,848,689	1,183,802,614	7,677,850,673	1,183,802,614
290123	Butene (Butylene) and isomers thereof	.....	66,057,409	303,384,313	66,057,409
290124	Buta-1,3-diene and isoprene	2,406,060,505	693,468,280	2,084,241,947	693,468,280
290129	Unsaturated acyclic hydrocarbons nspf	2,467,226,243	368,130,008	1,362,274,895	368,130,008
290211	Cyclohexane	1,657,169,298	317,680,579	1,264,448,976	317,680,579
290219	Other cyclohexanes, cyclohexenes and cyclohexenes nspf	225,582,382	58,623,600	132,027,875	58,623,600
290220	Benzene	9,389,805,477	.....	.....	.....
290230	Toluene	5,073,965,774	.....	.....	.....
290250	Styrene	7,622,245,000	930,288,000	3,842,582,000	930,288,000
290260	Ethylbenzene	7,386,036,846	32,962,268	185,808,806	32,962,268
290270	Cumene	2,626,548,725	253,969,464	1,228,011,867	253,969,464

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
290290	Other cyclic hydrocarbons nsf	2,623,309,790		2,014,389,410	522,192,345
290311	Chloromethane (Methyl chloride) and chloroethane (Ethyl chloride)			256,703,017	49,846,407
290312	Dichloromethane (Methylene chloride)	467,118,422		502,502,540	94,519,356
290313	Chloroform (Trichloromethane)	275,255,111		383,722,660	54,507,729
290314	Carbon tetrachloride	645,617,544		360,327,642	58,219,847
290315	1,2-Dichloroethane (Ethylene dichloride)	12,100,887,859		409,989,526	38,775,916
290319	Other saturated chlorinated derivs of acyclic hydrocarbons nsf	1,699,151,778		1,159,567,835	316,855,579
290321	Vinyl chloride (Chloroethylene)	9,462,978,782		2,868,762,390	459,809,976
290329	Other unsaturated chlorinated derivs of acyclic hydrocarbons nsf			105,706,000	61,857,506
290330	Fluorinated, brominated or iodinated derivs of acyclic hydrocarbons	163,883,375		88,770,832	74,003,149
290340	Halogenated derivs of acyclic hydrocarbons containing two or more different halogens	963,161,784		777,950,943	602,838,575
290369	Other halogenated derivs of aromatic hydrocarbons nsf	169,596,768		115,727,929	115,791,976
290410	Hydrocarbon derivs containing only sulfo groups, their salts and ethyl esters	797,881,980		358,953,022	182,090,334
290420	Hydrocarbon derivs containing only nitro or only nitroso groups	1,721,667,356		432,073,737	129,607,394
290490	Other sulfonated, nitrated or nitrosated derivs of hydrocarbons nsf, whether or not halogenated	189,091,160		41,537,028	27,038,504
290511	Methanol (Methyl alcohol)	5,002,918,000		2,656,904,000	192,377,000
290512	Propan-1-ol (Propyl alcohol) and propan-2-ol (Isopropyl alcohol)	1,379,836,327		937,504,486	231,599,302
290513	Butan-1-ol (n-Butyl alcohol)	716,241,905		459,627,954	100,957,875

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
290514	Other butanols nsf-----	2,127,454,015	.....	.....	.....
290519	Other saturated cyclic monohydric alcohols nsf-----	635,563,692	292,999,985	114,871,219	
290522	Acyclic terpene alcohols-----	1,841,840	1,729,986	5,681,930	
290531	Ethylene glycol (Ethanediol)-----	4,178,310,455	2,896,756,605	500,861,744	
290532	Propylene glycol (Propane-1,2-diol)-----	499,529,000	466,912,690	148,351,507	
290539	Other acyclic diols nsf-----	2,382,474,677	1,586,358,568	927,618,978	
290542	Pentaerythritol-----	93,725,650	116,551,000	59,072,000	
290544	D-glucitol (Sorbitol)-----	179,087,065	133,998,380	49,884,961	
290549	Other acyclic polyhydric alcohols nsf-----	947,205,748	894,852,353	67,291,721	
290550	Halogenated, sulfonated, nitrated or nitrosated derivs of acyclic alcohols-----	48,913,807	18,354,011	19,293,536	
290629	Other aromatic cyclic alcohols and their halo, sulfo, nitro or nitroso derivs nsf-----	1,080,431	460,181	2,527,174	
290711	Phenol (Hydroxybenzene) and its salts-----	2,840,712,000	1,431,310,000	403,389,000	
290723	4,4'-Isopropylidenediphenol (Bisphenol A, Diphenylpropane) and its salts-----	949,253,000	329,739,000	158,439,000	
290810	Derivatives of phenols or phenol-alcohols containing only halogen substituents and their salts-----	80,208,229	53,199,180	40,710,088	
290820	Derivatives of phenols or phenol-alcohols containing only sulfo groups, their salts and esters-----	6,362,821	3,227,371	2,462,912	
290890	Other halo, sulfo, nitro or nitroso derivs of phenols or phenol-alcohols nsf-----	60,233,610	29,896,484	32,180,739	
290919	Other acyclic ethers, and their halo, sulfo, nitro or nitroso derivs-----	2,050,320,216	1,640,488,447	411,917,685	
290930	Aromatic ethers and their halo, sulfo, nitro or nitroso derivs-----	143,215,034	94,702,228	73,571,772	

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (\$)	QUANTITY (POUNDS)	VALUE (\$)
290941	2,2'-Oxydiethanol (Diethylene glycol, Digol)-----	440,549,038		336,662,377	53,952,582
290942	Monomethyl ethers of ethylene glycol or of diethylene glycol-----	123,659,643		110,542,992	32,489,244
290943	Monobutyl ethers of ethylene glycol or of diethylene glycol-----	347,182,096		332,103,089	103,868,428
290944	Other monoalkyl ethers of ethylene glycol or of diethylene glycol nspf-----	165,809,063		98,246,031	35,265,169
290949	Other ether-alcohols and their halo, sulfo, nitro or nitroso derivs nspf-----	602,877,188		435,909,540	240,879,914
290950	Ether-phenols, ether-alcohol-phenols and their halo, sulfo, nitro or nitroso derivs-----	348,865,826		319,573,125	141,081,255
290960	Alcohol-, ether- and ketone peroxides and their halo, sulfo, nitro or nitroso derivs-----	66,580,824		36,376,718	53,818,882
291010	Oxirane (Ethylene oxide)-----	5,430,359,182		615,170,283	130,971,316
291090	Other epoxides, epoxyalcohols, epoxyphenols and epoxyethers, with 3-membered ring, and halo, sulfo, nitro or nitroso derivs-----	20,028,504		13,296,720	27,199,315
291211	Methanal (Formaldehyde)-----	5,606,139,746		1,742,408,655	108,780,083
291213	Butanal (Butyraldehyde, normal isomer)-----	1,286,228,576		38,258,061	6,380,895
291219	Other acyclic aldehydes without other oxygen function nspf-----	681,654,217		94,127,452	51,446,910
291229	Other cyclic aldehydes without other oxygen function nspf-----	8,193,404		5,961,840	17,588,173
291230	Aldehyde-alcohols-----	.....		2,303,313	9,608,364
291411	Acetone-----	1,787,800,192		1,533,978,283	266,656,640
291413	4-Methylpentan-2-one (Methyl isobutyl ketone)-----	144,300,469		146,142,855	55,879,567
291422	Cyclohexanone and methycyclohexanones-----	790,825,388		.....	.....



TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
291430	Aromatic ketones without other oxygen function-----	3,819,584	5,109,033	2,289,337	5,109,033
291441	4-Hydroxy-4-methylpentan-2-one (Diacetone alcohol)-----	36,924,700	12,468,079	30,636,885	12,468,079
291521	Acetic acid-----	2,897,465,000	141,730,000	1,027,636,000	141,730,000
291522	Sodium acetate-----	13,195,004	.....	.....	.....
291529	Acetic acid salts nspf-----	5,766,569	6,846,960	6,446,850	6,846,960
291531	Ethyl acetate-----	191,981,484	44,573,044	178,402,921	44,573,044
291532	Vinyl acetate-----	2,112,433,487	278,455,035	1,309,337,594	278,455,035
291533	n-Butyl acetate-----	179,140,127	48,479,055	112,601,064	48,479,055
291534	Isobutyl acetate-----	76,732,292	17,121,773	57,032,551	17,121,773
291535	2-Ethoxyethyl acetate (Ethylene glycol, Monoethyl ether acetate)-----	103,037,675	43,776,417	101,556,889	43,776,417
291539	Other esters of acetic acid nspf-----	198,024,966	106,582,093	172,961,808	106,582,093
291540	Mono-, di- or trichloroacetic acids, their salts and esters-----	14,737,079	.....	.....	.....
291550	Propionic acid, its salts and esters-----	147,496,663	42,905,279	93,156,004	42,905,279
291570	Palmitic acid, stearic acid, their salts and esters-----	195,605,441	134,105,420	176,234,507	134,105,420
291590	Other saturated acyc monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids; halo, sulfo, nitro, nitroso derivs nspf-----	371,014,188	156,937,724	208,081,347	156,937,724
291611	Acrylic acid and its salts-----	795,014,900	63,505,800	142,677,105	63,505,800
291612	Esters of acrylic acid-----	902,584,789	264,860,727	550,052,940	264,860,727
291614	Esters of methacrylic acid-----	969,503,877	169,175,414	204,409,148	169,175,414
291615	Oleic, linoleic or linolenic acids, their salts and esters-----	77,791,590	39,668,412	70,485,081	39,668,412



TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
291619	Other unsaturated ayc monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids nspf; halo, sulfo, nitro, nitroso deriv-----	43,088,958		40,509,815	53,909,694
291620	Cyclanic, cyclenic or cycloterpene monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids and their derivs-----	22,964,220		20,417,930	98,291,554
291639	Other aromatic monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids and their derivs nspf-----	14,748,173		12,108,191	43,648,343
291719	Other ayc. polycarboxylic acids, their anhydrides, halides, peroxides, peroxyacids nspf; halo, sulfo, nitro or nitroso derivs-----	584,310,281		464,955,374	265,804,879
291732	Dioctyl orthophthalates-----	275,391,735		288,312,758	87,724,202
291734	Esters of orthophthalic acid nspf-----	414,803,348		381,861,447	154,571,258
291735	Phthalic anhydride-----	820,222,394		523,568,910	134,447,113
291739	Other aromatic polycarboxylic acids, their anhydrides, halides, peroxides, peroxyacids nspf and their derivs-----	3,728,897,758		711,743,938	298,316,461
291819	Other carbox. acids w/ add alcohol function only, anhydrides, halides, peroxides, peroxyacids nspf; halo, sulfo, nitro, nitroso derivs-----	32,310,642		16,774,124	22,503,476
291822	O-Acetylsalicylic acid (Aspirin), its salts and esters-----	28,159,765		.....	.....
291829	Other carboxylic acids w/ add phenol funct only, anhydrides, halides, peroxides, peroxyacids nspf; halo, sulfo, nitro, nitroso derivs-----	3,206,195		2,877,171	9,006,418
291830	Other carboxylic acids with add aldehyde or ketone function only, anhydrides, halides, peroxides, peroxyacids nspf; halo, etc. derivs-----	540,358,405		29,308,138	18,900,499
291890	Other carboxylic acids w/ add oxygen function, anhydrides, halides, peroxides, peroxyacids nspf; halo, sulfo, nitro, nitroso derivs-----	105,928,563		114,346,178	293,902,926
291900	Phosphoric esters and their salts, incl. lactophosphates; their halo, sulfo, nitro, nitroso derivs-----	161,219,360		131,813,915	149,498,899

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALTS, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
292010	Thiophosphoric esters (phosphorothioates), their salts; their halo, sulfo, nitro, nitroso derivs-----	126,397,564		96,803,620	186,651,106
292090	Other esters of inorg. acids (excl. esters of hydrogen halides) nsf, their salts; halo, sulfo, nitro, nitroso derivs-----	219,279,505		152,308,013	189,575,979
292111	Methylamine, di- or trimethylamine, and their salts-----	147,809,861		112,644,332	45,055,893
292112	Diethylamine and its salts-----	19,882,661		6,465,212	4,876,086
292119	Other acyclic monoamines and their derivs nsf; salts thereof-----	261,593,588		217,116,919	154,875,497
292129	Other acyclic polyamines and their derivs nsf; salts thereof-----	120,167,605		109,633,328	129,874,074
292130	Cyclamic, cyclenic, cycloterpene mono- or polyamines and their derivs; salts thereof-----	21,275,212		21,938,818	47,659,405
292141	Aniline and its salts-----	716,035,849		309,442,004	98,131,656
292211	Monoethanolamine and its salts-----	215,593,185		154,496,829	41,684,869
292212	Diethanolamine and its salts-----	168,458,008		159,220,887	43,192,648
292213	Triethanolamine and its salts-----	176,637,251		211,799,509	53,456,600
292219	Other amino-alcohols nsf, their ethers and esters, containing only one kind of oxygen function; salts thereof-----	109,089,464		88,116,988	96,949,352
292229	Other amino-naphthols and amino-phenols nsf, their ethers, esters, containing only one kind of oxygen function; salts thereof-----	5,243,003			
292230	Amino-aldehydes, amino-ketones and amino-quinones, containing only one kind of oxygen function; salts thereof-----			16,808	310,672
292249	Other amino-acids nsf and their esters, containing only one kind of oxygen function; salts thereof-----	90,972,369		56,362,454	144,451,653

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
292250	Amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function-----	33,448,407	59,428,390	26,898,053	49,386,901
292390	Other quaternary ammonium salts and hydroxides nspf-----	37,930,240	160,784,585	35,183,750	98,870,204
292410	Acyclic amides (including acyclic carbamates), and their derivs; salts thereof-----	264,047,827	181,335,188	181,335,188	507,549,440
292421	Ureines and their derivs; salts thereof-----	39,286,814	27,615,041	27,615,041	18,825,334
292429	Other cyclic amides nspf (including cyclic carbamates) and their derivs; salts thereof-----	178,264,145	161,511,732	161,511,732	87,494,841
292519	Other imides nspf and their derivs; salts thereof-----	10,784,822	7,481,750	7,481,750	704,850,455
292520	Imines and their derivs; salts thereof-----	257,703,469	148,301,939	148,301,939	41,955,863
292690	Other nitrile-function compounds nspf-----	4,136,751,238	1,733,334,976	1,733,334,976	12,910,386
292700	Diazo-, azo-, or azoxy-compounds-----	16,609,754	11,157,928	11,157,928	952,799,104
292800	Organic derivs of hydrazine or of hydroxylamine-----	3,750,142	4,031,348	4,031,348	34,963,237
292910	Isocyanates-----	1,355,957,038	1,228,086,536	1,228,086,536	238,725,336
292990	Other compounds nspf with other nitrogen functions-----	102,574,963	66,497,513	66,497,513	350,591,581
293020	Thiocarbamates and dithiocarbamates-----	73,421,216	92,902,261	92,902,261	789,506,096
293090	Other organo-sulfur compounds nspf-----	626,484,978	209,918,347	209,918,347	43,279,019
293100	Other organo-inorganic compounds-----	547,736,230	152,535,404	152,535,404	71,530,007
293211	Tetrahydrofuran-----	120,208,627	46,250,746	46,250,746	211,228,374
293229	Other lactones nspf with oxygen hetero-atom(s) only-----	113,310,805	23,375,972	23,375,972	.....
293290	Other heterocyclic compounds with oxygen hetero atom(s) only nspf-----	74,562,183	42,217,808	42,217,808	.....
293319	Other heterocyclic cmpds with nitrogen hetero-atom(s) only nspf, with unfused pyrazole ring (hydrogenated or not) in structure-----	225,252	.....	.....	.....

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U.S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
293329	Other heterocyclic cmpds with nitrogen hetero-atom(s) only nsfp, with unfused imidazole ring (hydrogenated or not) in structure-----	3,689,326	.....	.....	.....
293339	Other heterocyclic cmpds with nitrogen hetero-atom(s) only nsfp, with unfused pyridine ring (hydrogenated or not) in structure-----	94,588,787	62,718,754	387,834,984	.....
293359	Heterocyc cmpds w/ nitrogen hetero-atom(s) only, pyrimidine (hydrogenated or not) or piperazine ring in struct; nucleic acids, salts-----	34,877,633	16,309,968	111,151,378	.....
293369	Other heterocyc cmpds w/ nitrogen hetero-atom(s) only nsfp, with unfused triazine ring (hydrogenated or not) in the structure-----	438,726,672	270,616,727	689,943,480	.....
293371	6-Hexanelactam (epsilon-Caprolactam)-----	1,089,497,100	.....	.....	.....
293390	Other heterocyclic compounds with nitrogen hetero atom(s) only nsfp-----	167,368,798	95,441,648	147,694,332	.....
293420	Heterocyclic compounds containing a benzothiazole ring-system (hydrogenated or not), not further fused-----	82,411,510	44,277,895	107,104,563	.....
293490	Other heterocyclic compounds nsfp-----	72,777,699	47,091,994	208,214,100	.....
293500	Sulfonamides-----	14,193,130	9,239,114	56,360,038	.....
293722	Halogenated derivs of adrenal cortical hormones-----	25,959	.....	.....	.....
293799	Other hormones, natural or synthetic nsfp, derivs used primarily as hormones; steroids used primarily as hormones-----	.....	10,440	39,227,650	.....
294110	Penicillins and their derivs with a penicillanic acid structure; salts thereof-----	6,749,329	1,623,665	37,178,890	.....
294190	Other antibiotics nsfp-----	4,438,774	2,684,853	261,010,643	.....
294200	Organic compounds nsfp-----	394,990,206	354,894,211	260,634,581	.....
310210	Urea, whether or not in aqueous solution-----	11,136,899,409	9,099,806,645	664,198,976	.....
320411	Disperse dyes and preparations based thereon-----	25,091,100	25,734,531	94,318,078	.....



TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
320412	Acid dyes, premetalized or not, mordant dyes and preparations based thereon-----	19,374,237	84,963,131	33,188,310	84,963,131
320413	Basic dyes and preparations based thereon-----	11,661,379	56,146,356	11,156,290	56,146,356
320414	Direct dyes and preparations based thereon-----	29,661,057	79,393,941	56,414,838	79,393,941
320415	Vat dyes (including those useable in that state as pigments) and preparations based thereon-----	36,330,312	84,095,008	39,089,976	84,095,008
320417	Pigments and preparations based thereon-----	85,681,716	453,003,006	73,306,952	453,003,006
320419	Other synth. organic coloring matter nsfp and preparations based thereon, incl mixtures of subheadings 3204.11 thru 3204.19-----	35,400,557	127,948,152	33,434,150	127,948,152
320420	Fluorescent brightening agents-----	58,028,454	73,884,103	61,369,944	73,884,103
380610	Rosin-----	169,420,597	49,187,646	150,708,734	49,187,646
380630	Ester gums-----	170,976,264	109,379,574	165,351,810	109,379,574
380991	Other finishing agents, dye carriers, like products nsfp, for textile industry use-----	40,996,359	19,396,954	39,567,256	19,396,954
380999	Other finishing agents, dye carriers, like products nsfp, for leather industry use-----	23,535,159	15,548,763	24,407,708	15,548,763
381121	Lubricating oil additives containing petroleum oils or oils obtained from bituminous minerals-----	1,468,680,460	798,961,636	1,042,502,300	798,961,636
381210	Prepared rubber accelerators-----	.....	7,516,209	2,870,862	7,516,209
381230	Antioxidizing preps and compound stabilizers for rubber or plastics-----	35,548,755	42,251,046	29,575,676	42,251,046
381590	Reaction initiators, reaction accelerators, and catalytic preps, nsfp-----	87,917,577	32,352,467	12,761,389	32,352,467
382220	Naphthenic acids, their water-insoluble salts and their esters-----	69,162,172	20,400,105	69,250,631	20,400,105
382390	Other chemical products, preparations, and residual products of the chemical or allied industries nsfp-----	8,732,418,924	739,534,977	3,472,445,116	739,534,977



TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U. S. PRODUCTION AND SALES, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	QUANTITY (POUNDS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
390110	Polyethylene having a specific gravity of less than 0.94-----	8,804,592,087	7,687,157,549	2,645,416,856	
390120	Polyethylene having a specific gravity of 0.94 or more-----	6,513,464,986	6,172,680,297	1,879,478,567	
390210	Polypropylene-----	5,654,450,319	4,393,155,314	1,489,417,572	
390311	Polystyrene, expandable-----	513,238,333	479,756,659	227,026,522	
390319	Polystyrene, other than expandable-----	3,415,665,710	2,799,178,822	982,133,026	
390320	Styrene-acrylonitrile (SAN) copolymers-----	769,561,699	598,128,778	251,563,332	
390330	Acrylonitrile-butadiene-styrene (ABS) copolymers-----	1,347,657,836	1,038,888,525	846,227,987	
390390	Other polymers of styrene nsfp, in primary forms-----	1,167,245,448	1,062,834,541	729,046,759	
390461	Polytetrafluoroethylene (PTFE)-----	25,493,750	20,017,035	126,933,447	
390511	Polymers of vinyl acetate in aqueous dispersion-----	635,589,415	495,603,278	301,834,117	
390520	Polyvinyl alcohols, whether or not containing unhydrolyzed acetate groups-----	166,819,000	143,391,267	119,638,444	
390590	Polymers of vinyl esters nsfp, in primary forms; other vinyl polymers nsfp, in primary forms-----	569,172,221	497,213,058	428,853,632	
390610	Polymethyl methacrylate-----	482,612,049	336,887,004	358,136,178	
390690	Other acrylic polymers nsfp in primary forms-----	1,943,105,890	1,034,350,903	1,089,524,011	
390730	Epoxide resins-----	420,760,000	323,332,000	389,781,000	
390750	Alkyd resins-----	830,372,000	458,565,000	296,297,000	
390760	Polyethylene terephthalate-----	3,663,183,411	.....	.....	
390791	Other polyesters nsfp, unsaturated, in primary forms-----	1,358,912,021	1,278,995,353	828,861,667	
390799	Other polyesters nsfp, saturated, in primary forms-----	218,168,021	156,361,405	194,418,368	
390890	Other polyamides nsfp in primary forms-----	395,364,085	316,884,013	527,291,985	
390920	Urethane resins-----	208,316,034	177,353,893	154,623,201	

TABLE 3.--SYNTHETIC ORGANIC CHEMICALS: U.S. PRODUCTION AND SALTS, 1985, HARMONIZED SYSTEM BASIS--CONTINUED

HS NUMBER	DESCRIPTION	PRODUCTION		SALES	
		QUANTITY (POUNDS)	VALUE (DOLLARS)	QUANTITY (POUNDS)	VALUE (DOLLARS)
390940	Phenolic resins-----	1,713,618,000	1,206,766,000	1,206,766,000	659,773,000
390950	Polyurethanes-----	339,717,786		230,954,383	373,572,251
391290	Cellulose and its chemical derivatives nspf, in primary forms-----	813,064,898		165,512,057	137,455,225
400219	Styrene-butadiene rubber (SBR), carboxylated styrene butadiene rubber (XSBR), except latex-----	1,456,171,872		691,010,118	379,574,512
400299	Other synthetic rubber nspf-----	1,177,268,110		712,478,295	918,936,884

## 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.



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Accelerators, activators, and vulcanizing agents, cyclic, other	09	49,000	N-[(Acetylamino)methyl]-2-chloro-N-(2,6-diethylphenyl)acetamide	13	168,995
Acetanide	06	378,100	Acetyl-n-butyl (2,3-hexanedione)	07	126,100
Acetaldehyde	15	782,000	Acetyl cedrene (Vertoflex)	07	93,550
Acetamide	08	19,000	Acetyl chloride	15	49,000
Acetamide hydrochloride	15	227,000	Acetylcyclohexane sulfonyl peroxide	02	38,000
Acetamidodethanol (N-Acetyl-ethanolamine)	12	219,000	Acetylene (For chemical use only)	07	126,500
3-Acetamido-N-(2-succinimidodethyl)-N-ethylaniline	03	220,375	N-Acetyl methyl anthranilate	07	93,555
Acetanilide, tech.	06	392,000	Acetyl peroxide	07	1282,000
Acetoxaldehyde	03	7,000	2-Acetylpyridine (2,3-Fentanedione)	07	126,600
Acetic acid, amides with polyalkylene polyamines, salt	06	736,000	5-Acetylsalicylamide	03	19,450
Acetic acid, Benzyl ester (100%)	12	357,900	Acid black 1	04	19,470
Acetic acid, butyl ester (100%)	03	8,000	Acid black 14	04	206,000
Acetic acid, methyl ester (100%)	15	485,000	Acid black 24	04	211,000
Acetic acid, synthetic (100%)	15	608,000	Acid black 52	04	213,000
Acetic anhydride from acetaldehyde (100%)	15	485,000	Acid black 58	04	214,000
Acetic anhydride from acetic acid, other than recovered, by the vapor-phase process (100%)	15	487,000	Acid black 69	04	214,063
Acetic anhydride from acetic acid, recovered, by vapor-phase process	15	488,000	Acid black 63	04	215,000
Acetoacetamide	03	12,000	Acid black 107	04	216,000
Acetoacetone	03	1,500	Acid black 172	04	218,172
Acetoacetone (p-methyl naphthyl ketone)	15	809,000	Acid black 194	04	219,000
Acetoacetone, tech.	15	806,000	Acid black dyes, all other	04	132,000
Acetone	15	809,000	Acid black 9	04	136,000
Acetone-formaldehyde resins	08	807,000	Acid blue 15	04	137,000
Acetone from isopropyl alcohol	15	428,500	Acid blue 25	04	138,000
Acetone sodium bisulfite	15	432,000	Acid blue 27	04	140,000
Acetonitrile	13	169,000	Acid blue 49	04	141,000
3-(o-Acetylbenzyl)-4-hydroxycoumarin (Warfarin)	03	14,000	Acid blue 41	04	143,000
Acetophenone, tech.	03	15,000	Acid blue 45	04	157,000
1-Acetyl-2-butanone	07	93,500	Acid blue 80	04	156,000
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 104	04	157,000
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 113	04	158,000
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 118	04	161,000
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 195	04	162,000
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 156, 158, 158-1, and 158-2	04	168,277
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 277	04	168,283
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 283	04	168,283
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 298	04	168,326
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 321	04	168,326
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 334	04	168,326
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 330	04	168,330
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue 335	04	168,330
1-Acetyl-2-butanone (2-butanone)	07	93,500	Acid blue dyes, all other	04	169,000



Table 4.---Alphabetical Chemical Index

CHEMICAL NAME	SECT: NO.	ITEM NO.	CHEMICAL NAME	SECT: NO.	ITEM NO.
Acid Brown 14	04	189,000	Acid Red 114	04	92,000
Acid Brown 19	04	190,000	Acid Red 119	04	94,000
Acid Brown 45	04	194,000	Acid Red 137	04	97,000
Acid Brown 50	04	194,050	Acid Red 151	04	99,000
Acid Brown 97	04	196,000	Acid Red 167	04	100,170
Acid Brown 98	04	197,000	Acid Red 174	04	103,000
Acid Brown 147	04	199,160	Acid Red 182	04	105,000
Acid Brown 160	04	199,161	Acid Red 194	04	107,000
Acid Brown 165	04	199,165	Acid Red 213	04	110,000
Acid Brown 227	04	200,227	Acid Red 225	04	110,226
Acid Brown 239	04	200,239	Acid Red 257	04	110,257
Acid Brown 264	04	200,264	Acid Red 266	04	111,000
Acid brown dyes, all other	04	202,000	Acid Red 296	04	111,296
(Acid Green 3)	05	230,003	Acid Red 327	04	114,000
Acid Green 1	04	172,000	Acid Red 364	04	115,361
Acid Green 2	04	172,000	Acid Red 392	04	115,364
Acid Green 20	04	179,000	Acid Red 396	04	115,392
Acid Green 70	04	184,000	Acid Red 408	04	115,408
Acid green dyes, all other	04	186,000	Acid Red 410	04	115,410
Acid Orange 7	04	43,000	Acid Red dyes, all other	04	116,000
Acid Orange 10	04	45,000	Acid Red dyes, all other	04	116,000
Acid Orange 23	04	47,000	Acid Violet 9	04	118,000
Acid Orange 57	04	49,049	Acid Violet 10	04	119,000
Acid Orange 60	04	50,000	Acid Violet 12	04	120,000
Acid Orange 64	04	50,000	Acid Violet 17	04	121,000
Acid Orange 69	04	57,000	Acid Violet 49	04	126,000
Acid Orange 85	04	58,000	Acid Violet dyes, all other	04	126,000
Acid Orange 86	04	61,000	Acid Violet 49	04	126,000
Acid Orange 89	04	61,089	(Acid Yellow 1)	05	204,001
Acid Orange 116	04	62,000	(Acid Yellow 23)	05	204,023
Acid Orange 128	04	64,000	Acid Yellow 3	04	6,000
Acid Orange 152	04	65,152	Acid Yellow 17	04	7,000
Acid Orange 153	04	65,153	Acid Yellow 18	04	8,000
Acid Orange 161	04	65,161	Acid Yellow 23	04	11,000
Acid orange dyes, all other	04	66,000	Acid Yellow 34	04	11,000
Acid Red 1	04	67,000	Acid Yellow 36	04	12,000
Acid Red 4	04	68,000	Acid Yellow 40	04	14,000
Acid Red 14	04	69,000	Acid Yellow 49	04	17,000
Acid Red 18	04	71,000	Acid Yellow 54	04	18,000
Acid Red 57	04	79,000	Acid Yellow 59	04	21,000
Acid Red 62	04	83,000	Acid Yellow 95	04	22,000
Acid Red 63	04	83,000	Acid Yellow 96	04	22,000
Acid Red 67	04	84,000	Acid Yellow 87	04	24,000
Acid Red 88	04	85,000	Acid Yellow 89	04	25,087
Acid Red 97	04	87,000	Acid Yellow 119	04	26,119

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Acid yellow 127	04	29,000	Alcohols, monohydric, and their esters, C <sub>8</sub> and higher, mixed	15	1425,200
Acid yellow 129	04	31,000	Alcohols and phenols, alkoxylated and phosphated or polyphosphated, all other	12	91,000
Acid yellow 135	04	32,000	Alcohols, unalked C11 or lower, all other	15	870,000
Acid yellow 151	04	33,000	Aldehyde-amine reaction products, cyclic, other	05	80,000
Acid yellow 159	04	34,000	Aldehydes, acyclic, all other	05	80,000
Acid yellow 174	04	35,000	Alkane-amine condensates, all other	14	253,000
Acid yellow 198	04	37,000	Alkanolamine condensates, all other	12	575,000
Acid yellow 216	04	37,216	Alkanyl thiophosphate	14	265,000
Acid yellow 219	04	37,219	Alkanyl succinimide	14	245,000
Acid yellow 226	04	24,096	3-Alkyl-2-hydroxypropyl trimethyl ammonium chloride	13	245,021
Acid yellow 239	04	37,239	Alkyl phenol	08	1,905
Acid yellow dyes, all other	04	38,000	Alkyl copolymers, all other	08	3,900
Acromethasone	06	548,100	Alkyl alcohol ethoxylated and carbonated, sodium salt	12	318,600
Acrolein (acrylaldehyde)	15	783,000	M-alkylamine bismethylamphosphonic acid	15	307,950
Acrylamide-2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	14	395,000	M-alkylamine bis(methylene phosphonic acid salts)	14	28,000
Acrylamide-acrylic acid copolymer	14	395,000	Alkyl aromatics; all other	02	4,000
Acrylamide-acrylic acid copolymer, sodium salt	14	397,000	Alkylaryl-p-phenylenediamines	09	55,100
Acrylamide-N-dimethylaminomethylacrylamide copolymer	14	399,000	Alkylaryl phosphites mixed	09	84,800
Acrylamide monomer	15	228,000	Alkylbenzene all other (except dodecyl, tridecyl and straight-chain)	03	23,000
Acrylate-alkyl copolymer resins	08	1,900	Alkylbenzene straight-chain (except dodecyl and tridecyl)	03	23,000
Acrylic acid	15	491,000	Alkylbenzoyl sulfonates, all other	03	22,000
Acrylic monomers, mixed	15	884,000	Alkylbenzothiazones, all other	12	142,000
Acrylonitrile-butadiene-styrene (ABS) terpolymer resins	08	42,000	Alkyl glycidyl ethers, C <sub>8</sub> -C <sub>11</sub>	12	423,200
Acrylonitrile, monomer, reactive agents, all other	15	49,000	Alkyl glycidyl ethers, C <sub>12</sub> -C <sub>16</sub>	15	137,320
Acrylic herbicides, all other	13	195,000	3-(C12-18 alkylalkoxy)-1-propanamine	12	321,045
Acrylic plasticizers, all other	13	212,000	N-(C12-18 alkylalkoxy)-1-propanamine	12	321,050
Acryloxy plasticizers, all other	11	130,000	Alkylphenol formaldehyde condensates, alkoxylated, all other	15	3,450
Adipic acid	06	186,800	Alkylphenol formaldehyde copolymer	15	726,000
Adipic acid, ammonium salt	15	613,000	Alkylphenols, mixed	14	219,000
Adipic acid-crosslinked polyacrylate	15	492,000	Alkylphenols, mixed	14	219,000
Adipic acid esters, all other	15	883,100	Alkylpyridines, mixed	03	23,100
Adipic acid terephthaloyl polyether	14	153,000	Alkyl succinic anhydride	03	23,350
Adipic acid type complex linear polyesters and polymeric plasticizers	11	566,000	Alkyl terphthalamate	14	269,000
Adiponitrile	11	131,100	All other (specify)	14	252,000
Alkamine	15	434,000	All other acyclic flavor and perfume materials	07	12,000
Alkamine	06	163,000	All other benzene or naphthalenoid chemicals	14	452,000
Alkamine	06	574,800	All other organic acid esters	04	125,000
C <sub>12</sub> -C <sub>15</sub> Alcohol lactates	15	1432,000	Allo-oicimene	11	89,900
Alcohol mixtures, other	15	883,100		07	126,800
Alcohol mixtures, C-19 and C-20 only	15	883,300			
Alcohol mixtures, C-12 through C-18 only	15	883,200			

Table 4. --Alphabetical Chemical Index

CHEMICAL NAME	SECT: NO.	ITEM NO.	CHEMICAL NAME	SECT: NO.	ITEM NO.
Allopurinol	06	829,000	alkacain sulfate	06	38,500
all other products from petroleum and natural gas, cyclic	02	36,000	alkoxide hydrochloride	06	736,500
all other terpenoid, heterocyclic, or allycyclic flavor and perfume chemicals	07	126,000	amine oxides and oxygen-containing amines (Except those with amide linkages), acyclic, all other	12	341,000
Allyl alcohol	15	840,000	amine oxides and oxygen-containing amines (Except those having amine linkages), cyclic, all other	12	357,000
Allyl amines	05	258,000	amines, all other	15	307,000
Allyl amine	07	2,605	amine salts (Not containing oxygen), all other	12	403,000
Allyl anthranilate	07	93,560	amine salts of fatty, rosin, and tall oil acids, all other	12	35,000
Allyl cyclohexyl propionate	07	4,000	3'-Aminoacetamide	03	26,000
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)	07	126,900	4'-Aminoacetamide (Acetyl-p-Phenylenediamine)	03	27,000
Allyl disulfide	15	1317,330	3-Amino-p-acetansilide	03	27,100
Allyl glycidyl ether (allyloxy-2,3-epoxypropane)	07	126,990	Amino acids and salts, acyclic, all other	14	22,000
Allyl heptanoate	07	127,000	Amino acids and salts, cyclic, all other	14	23,000
Allyl isovalerate	07	127,260	2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid	03	34,000
Allyl isocyanate	07	127,260	3-Amino-p-anisamide and salt	03	35,000
Allyl methacrylate	15	885,000	5-Amino-p-anisamide and salt	03	37,000
4-Allyl-2-methoxyphenol (Eugenol)	07	5,100	6-Amino-p-anisamide and sulfonic acid (C.I. Acid Yellow 6)	03	44,000
4-Allyl-2-methoxyphenol acetate (Eugenol acetate)	07	127,270	p-Aminobenzamide	03	45,100
Allyl octanoate (Allyl caprylate)	08	4,000	3'-Aminobenzamide	03	50,500
Allyl resins	07	127,290	o-Aminobenzenethiol	06	53,000
Allyl sulfonate, sodium salt	12	209,500	Aminobenzoic acid	06	59,000
Allylsulfonic acid, sodium salt	15	614,000	p-Aminobenzoic acid, tech.	03	56,000
Allyl sulfonate, C <sub>8</sub> -C <sub>10</sub>	02	62,100	2-Amino-6-benzothiazolesulfonic acid	03	58,090
Alpha olefins, C <sub>4</sub> and higher	02	62,100	1-Amino-4-bromo-2,10-dihydro-9,10-dioxo-2-oxo-1,2-dihydro-4-hydroxyanthraquinone	03	61,000
Alprazolam	06	466,500	1-Amino-2-bromo-4-hydroxyanthraquinone	03	62,000
Alprostadiol	06	679,100	7-Aminocephalosporanic acid	03	64,500
Aluminum acetate	15	587,000	2-Amino-5-chlorobenzophenone	03	72,200
Aluminum acetylacetonate complex	15	1355,200	2-Amino-5-chloro-p-toluenesulfonic acid [SO <sub>2</sub> H=1]	03	82,000
Aluminum di-sec-butoxide acetoacetic ester chelate	15	1355,560	6-Amino-5-chloro-m-toluenesulfonic acid (28 Acid)	03	83,000
Aluminum diisopropoxide acetoacetic ester chelate	15	1355,560	p-Aminoethylmethane carbonate	09	156,100
Aluminum diisobutoxide	15	746,000	3-Amino-2,5-dichlorobenzoic acid, ammonium salt (2,5-Substituted)	13	40,600
Aluminum diisobutoxide complex	15	1355,600	4-Amino-N,N-dif(4-hydroxyethyl)amine sulfate	03	91,503
Aluminum ethyl-3-oxobutanoate-01,03-dihydroxy T-4	15	1355,600	2-Amino-4,5-dimethoxybenzoic acid, methyl ester	03	92,300
Aluminum isopropoxide (Aluminum isopropylate)	15	747,000	5-Amino-2,3-dimethylbenzenesulfonamide	03	92,503
Aluminum monostearate	15	713,000	4-Amino-6-(1,1-dimethylsilyl)-3-(methylthio)-1,2,4-triazin-5-(NH)-one	13	40,600
Aluminum octanoate	15	1355,590	2-Aminoethanol hydrochloride	15	309,900
Aluminum (2-ethyl hexanoato)-oxo-homopolymer	15	728,000	2-Aminoethanol (monoethanol amine) sulfate	15	310,000
Aluminum palmitate	06	522,000	Aminoethoxyethanol	15	311,000
Aluminum phenolsulfonate	15	1355,750	3-Amino-9-ethylthiazole	03	92,000
Aluminum tri-sec-butoxide	15	768,000	3-Amino-9-ethylthiazole	03	92,000
Aluminum trisulfate	15	257,000			
Aluminum sulfate	15	257,000			
Amides, all other	15	228,300			
Amido amine salts as curing agents	15	228,300			



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
(2-Aminoethyl)ethylenediamine			P-[(p-Aminophenyl)azo]benzenesulfonic acid	03	188.000
2-Hydroxyethylammonium ethyl sulfate	12	448.000	2-(4-Aminophenylazo)-4-methylphosphorothioic acid	03	188.500
2-Thioethylammonium acetate (Monoethanolamine)	15	313.000	7-[(4-Aminophenyl)azo]-1,3-naphthalenesulfonic acid	03	189.000
1-(2-Aminoethyl)-2-nor(ethyl allyl)-2-imidazole	12	406.000	2,2'-(4-Aminophenylamino)diethanol diacetate ester	03	190.500
1-(2-Aminoethyl)pyrazine, technical	15	4.000	2-(p-Aminophenyl)-6-methyl-7-benzothiazosulfonic acid and salt	03	192.000
1-(2-Aminoethyl)pyrazine, technical	15	314.000	1-(3-Aminopropyl)morpholine	15	6.000
Aminoglutethimide	06	417.000	2-Aminopropyltriethoxysilane	15	1378.700
Aminoguanidine hydrochloride	15	315.020	4-Aminopyridine	03	194.000
N-Amino-N-methylamine	03	99.100	Amino resins, all other	03	195.000
2-Aminopropionic acid	06	574.900	5-Aminotetrazole	06	142.000
(Tris(hydroxyethyl)-1,3-propanediol	15	316.000	4-Aminothiazole nitrate	03	200.000
2-(2-Amino-5-hydroxy-1-naphthalenyl)sulfonic acid	03	109.000	6-Amino-m-toluenesulfonic acid [50,H=1]	03	202.000
nitrobenzoic acid	03	113.500	m-[(4-Amino-3-tolyl)azo]benzenesulfonic acid	03	203.000
2-Amino-5-mercapto-1,3,4-thiadiazole	14	320.000	3-Amino-3,5,6-trichloropicolinic acid (picloram)	13	41.000
4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5-	03	115.800	Amiripryline phosphonic acid	14	30.000
ethyl-o-anisidinesulfonic acid)	03	116.803	Amiripryline hydrochloride	06	524.900
2-Amino-3-methoxyphenylazobenzenesulfonic acid	03	118.000	Ammonium acetate	06	525.000
2-Amino-2-methyl-1,3-butene diol	15	316.700	Ammonium benzoate	15	568.000
2-Amino-2-methyl-1-propanol	15	317.000	Ammonium citrate	15	621.000
2-Amino-2-methyl-1-propanol hydrochloride	15	319.000	Ammonium heparin	06	623.000
2-Amino-2-methylpropyl 8-bromotheophyllinate	03	130.100	Ammonium mercaptacetate	15	691.000
2-Amino-3-methylpyridine	03	133.500	Ammonium oxalate	15	722.000
2-Amino-4-methylpyridine	03	133.550	Ammonium phenolsulfonate	06	553.000
2-Amino-5-methylpyridine	03	133.600	Ammonium stearate	14	426.000
7-Amino-5-methylpyridine	03	134.000	Ammonium stearate	15	749.000
6-Amino-2-naphthalenesulfonic acid (Amino G acid)	03	150.000	Ano-barbital	15	443.000
8-Amino-2-naphthalenesulfonic acid (Brommar's acid)	03	159.000	Ano-barbital, sodium	06	444.000
5-(and 8)-Amino-2-naphthol	03	162.000	Amo-diquine hydrochloride	06	163.000
8-Amino-2-naphthol	03	166.000	Amoxicillin (trihydrate)	06	164.000
2-Amino-6-nitrobenzothiazole	03	169.890	Amoxicillin (anhydrous)	06	9.500
2-Amino-4-nitrophenol	03	171.202	Amphetamine	06	512.000
2-Amino-4-nitrophenylamino-2-hydroxyethyl-1,3-propanediol	03	175.000	Amphetamine sulfate	06	513.000
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	03	176.200	Ampicillin (anhydrous)	06	1.000
4-Amino-5-nitrothiazole	03	177.000	Ampicillin (trihydrate)	06	10.100
2-Amino-4-nitrotoluene hydrochloride	03	178.400	Amprilium, sodium	06	156.000
3-Amino-2-oxazolidinone	03	182.100	Amyl acetate (n-Pentyl acetate)	15	885.000
6-Aminopenicillanic acid	03	182.100	Amyl acetate, all other	15	888.000
p-Aminophenol	03	186.000	Amyl alcohol, ethoxylated and phosphated	12	76.050
			Amylases, all other	14	98.000
			c-Amyl cinnamic aldehyde	07	5.550





Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Basic Diazo Component 34, salt	04	285,000	Basic Green 6	04	354,000
Basic Diazo Component 35, salt	04	287,000	Basic Green dyes, all other	04	355,000
Basic Diazo Component 36, salt	04	291,000	(Basic Green 1, PMA)	05	330,101
Basic Diazo Component 42, salt	04	293,000	Basic Orange 1	04	326,000
Basic Diazo Component 48, salt	04	294,000	Basic Orange 2	04	327,000
Basic Diazo Component 49, salt	04	296,000	Basic Orange 21	04	372,000
Basic diazo components, salt, all other	04	224,000	Basic orange dyes, all other	04	329,000
Azoic Red 1	04	227,000	(Basic Red 1)	05	381,000
Azoic Red 2	04	228,000	Basic Red 12	04	313,000
Azoic Red 6	04	229,000	Basic Red 14	04	383,000
Azoic Red 7	04	230,000	Basic Red 15	04	384,000
Azoic violet 1	04	235,000	Basic Red 17	04	386,000
Azoic violet compositions, all other	04	236,000	Basic Red 18	04	387,000
Aztreonam	06	220,000	Basic Red 22	04	389,000
Bacillus thuringiensis	13	166,010	Basic Red 23	04	389,023
Bacitracin (medicinal grade)	06	59,000	Basic Red 29	04	390,000
Bacitracin (animal feed grade)	06	63,000	Basic Red 46	04	591,046
Bacterial amylase	14	59,000	Basic Red 49	04	592,000
Bacterial cellulase	14	59,000	Basic Red 51	04	592,051
Bacterial chitinase	14	677,000	Basic Red 52	04	592,052
Bacterial collagenase	14	677,000	Basic Red 73	04	592,073
Bacterial lipase	14	677,000	Basic Red 74	04	592,074
Bacterial pectinase	14	677,000	Basic Red 104	04	592,104
Bacterial protease	14	677,000	Basic red dyes, all other	04	334,000
Bacterial trypsin	14	677,000	Basic red dyes, all other, modified	04	393,000
Bismuth subnitrate	15	750,000	(Basic Red 81, PMA)	05	210,050
Bismuth stearate	15	750,000	(Basic Violet 1)	05	221,001
Basic black dyes, all other	04	359,999	(Basic Violet 4)	05	221,004
Basic black dyes, all other, modified	04	420,000	(Basic Violet 10)	05	221,010
(Basic Blue 7)	05	123,007	Basic Violet 1	04	325,000
Basic blue 1	04	343,000	Basic Violet 2	04	326,000
Basic blue 2	04	344,000	Basic Violet 4	04	338,000
Basic blue 3	04	345,000	Basic Violet 10	04	339,000
Basic blue 4	04	347,000	Basic Violet 16	04	342,000
Basic blue 7	04	347,000	Basic Violet dyes, all other	04	396,000
Basic blue 21	04	401,000	Basic Yellow 2	04	323,000
Basic blue 26	04	350,000	Basic Yellow 11	04	360,000
Basic blue 41	04	404,000	Basic Yellow 13	04	361,000
Basic blue 54	04	407,000	Basic Yellow 15	04	362,000
Basic blue 60	04	408,000	Basic Yellow 24	04	363,000
Basic blue 69	04	409,000	Basic Yellow 25	04	365,000
Basic blue 77	04	412,000	Basic Yellow 28	04	367,000
Basic blue 140 and 94:1	04	414,098	Basic Yellow 29	04	368,000
Basic blue dyes, all other	04	351,000	Basic Yellow 37	04	324,000
Basic blue dyes, all other, modified	04	415,000	Basic Yellow 49	04	370,049
(Basic Blue 14, PMA)	05	227,014	Basic Yellow 53	04	370,053
(Basic Blue 14, PTA)	05	227,011			
Basic Brown 1	04	355,000			
Basic Brown 4	04	357,000			
Basic brown dyes, all other	04	358,000			
Basic Green 1	04	352,000			

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Basic Yellow 58	04	370,058	Benzoic acid, tech.	03	275,000
Basic Yellow 65	04	370,065	Benzoin isobutyl ether	03	277,000
Basic Yellow 76	04	370,076	Benzoin isobutyl ether	03	277,100
Basic Yellow 79	04	370,079	Benzoin isobutyl ether	06	425,000
Basic Yellow 92	04	370,083	Benzoin isobutyl ether	03	278,000
Basic yellow dyes, all other	04	370,096	Benzoin isobutyl ether	07	8,000
Basic yellow dyes, all other, modified	04	325,000	Benzothiazole	15	15,000
Basic yellow 21, fugitive	05	371,000	2-Benzothiazolethiol, sodium salt	03	278,200
Benzal acetone	07	7,400	1H-Benzotriazole	03	281,000
Benzaldehyde glyceryl acetal	07	7,500	Benzotriazole, substituted	03	283,200
Benzaldehyde, tech.	03	624,500	2-Benzoselenathiol	03	286,000
Benzalkonium Neparin	03	624,500	Benzyl chloride	15	16,000
Benzamide hydrochloride	03	248,700	Benzyl chloride	06	535,000
Benzamide hydrochloride	03	256,000	Benzhexamine hydrochloride	06	718,000
Benzamide hydrochloride	03	259,000	Benzthiazide	06	308,000
Benzamide hydrochloride	03	260,000	Benztopine mesylate	07	9,000
7H-Benzimidanthracen-7-one (Benzanthrone)	03	261,000	Benzyl acetate	15	17,000
Benzamine 4,4'-[(2-chlorophenyl)-methylene]bis(N,N-dimethyl)-	01	2,000	Benzyl alcohol	15	17,000
Benzene (Benzol) 99-100%	02	5,500	Benzyl alcohol	12	289,000
Benzene High purity (98-100%)	02	448,400	Benzylamine	02	289,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	12	448,400	2-(Benzylamino)ethanol	02	289,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	12	448,400	Benzylamine	03	290,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	12	448,400	Chloride with benzylpolyoxyethylene, tallouamine	12	453,230
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	12	448,410	Benzyl benzoate	07	11,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	02	6,500	Benzyl butyrate	07	12,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	15	9,250	Benzyl chloroformate	15	71,115
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	15	9,252	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	13	175,012
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	264,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	07	13,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	264,200	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	15	17,200
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	12	142,900	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	449,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	12	137,700	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	509,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	266,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	510,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	02	33,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	512,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	268,100	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	512,800
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	269,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	513,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	273,100	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	514,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	06	704,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	514,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	273,500	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	03	292,200
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	06	134,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	07	15,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	274,850	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	13	166,016
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	03	274,903	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	515,000
Benzene-methanamonium-M-(3-aminopropyl)-N,N-dimethyl-N-chloride	15	13,000	Benzyl 2-chloro-4-(trifluoromethyl)-5-thiazolecarboxylate	12	515,000

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Benzyl(hydrogenated tallow allyl)dimeethylammonium chloride			Bis(N-amiidopropyl)-N,N-dimethyl-N-ethylammonium ethyl	12	467,500
2-Benzyl-2-hydroxy-5,9-dimethyl-6,7-benzomorphanhydrobromide	12	516,000	Bis(p-aminocyclohexyl)acetane	03	309,100
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazole	03	294,950	2,6-Bis(p-azido)benzylidene-4-methylcyclohexanone	03	311,400
Benzyl isobutyrate	12	433,000	1,3-Bis(2-benzothiazolyl)marcaptoethyl uraa	09	24,000
Benzyl isopentyl ether	07	15,400	4,4'-Bis(2-benzoxazolyl)stilbene	14	474,000
Benzyl isovaleate	07	15,700	Bis(2-bis(2-hydroxyethyl)amino)ethylallopopyl titanate		
Benzyl laurate	07	15,900	Bis-1,4-bromonacetoxy-2-butene	15	1063,100
1-Benzyl-2-bis(hydrogenated tallow)ammonium chloride	12	516,500	2,2-Bis(bromomethyl)-1,3-propanediol	13	176,000
1-(Benzyl-2-methoxy-4-propenyl)benzene (Benzyl isoeugenyl ether)	07	16,000	Bis(methoxyethyl)ether, diethylene glycol di-n-butyl chloride, disodium salt	15	1071,000
p-(Benzyl)phenol	03	297,500	1,4-Bis(carboxymethyl)-2-undecyl-2-imidazolium chloride, disodium salt	12	20,000
1-Benzyl phenylacetate	07	17,000	1,1-Bis(carboxymethyl)-2-undacyl-2-imidazolium hydroxide, disodium salt	12	21,500
1-Benzyl-4-phenylisopiperotonitrile	03	298,200	Bis(p-chlorobenzoyl)peroxide	15	17,900
Benzyl picolinum chloride	12	517,100	Bis(2-chloroethyl)ether (Dichlorodiethyl ether)	15	1300,000
Benzyl(polyoxyethylene cococaine) ammonium chloride with benzyl (polyoxyethylene, tallowamine) ammonium			Bis(2-chloroethyl)-2-chloroethylphosphonate	15	1017,000
Benzyl propionate	12	453,200	Bis(coconut oil alkyl)ammonium chloride	12	481,000
1-Benzylpyridinium chloride	12	518,000	Bis(coconut oil alkyl)dimethylammonium nitrate	12	483,025
Benzyl(trosin amine)ammonium chloride, ethoxylated	12	450,500	Bis(cumylphenyl-oxoethylene titanate	12	775,500
Benzyl salicylate	07	19,000	Bis(dibutylthioacetamoyl) disulfide	09	144,950
Benzyl(tallow alkyl)bis(2-hydroxyethyl)ammonium chloride	12	483,500	Bis(2,4-dichlorobenzoyl) peroxide	15	18,000
Benzyltriethylammonium chloride	03	298,400	Bis(diethylthioacetamoyl) disulfide	09	146,000
Benzyltrimethylammonium chloride	12	519,000	Bis(6-dimethylamino)benzylalcohol (Miehler's hydrol)	03	322,000
Benzyltrimethylammonium methoxide	03	301,000	Bis(6-dimethylbenzyl)peroxide	15	19,000
Benzyltrimethylammonium hydroxide	03	300,000	Bis(1,3-dimethylbutyl)phosphorodithioate ester, amine salt	15	232,000
Beta carotene (provitamin A)	06	769,000	N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	09	55,551
Betaine hydrochloride	06	614,000	Bis(dimethylthioacetamoyl) disulfide	09	147,000
Betanehasone	06	649,000	Bis(dimethylthioacetamoyl) sulfide	09	149,000
Betanehasone dipropionate	06	649,500	1,5-Bis(2,4-dinitrophenoxy)-4,8-dinitroanthraquinone	03	325,000
Betanehasone sodium phosphate	06	650,000	Bis(diphenylsulfonophenyl) sulfide	03	325,250
Betanehasone valerate	06	651,000	S-(1,1,2-Bis(ethoxyacetonyl)ethyl)0,0-dimethyl phosphorodithioate (Malathion)	13	215,000
Beta methyl ionone coavr	07	104,100	Bis(ethoxyethyl)ether, diethylene glycol diethyl ether	15	1143,000
Biotin	06	734,000	Bis(2-ethylhexyl)hydrogen phosphate	15	1018,000
Biotin sulfate	06	734,000	Bis(2-ethylhexyl)hexophthalate	11	16,550
Biphenyl	03	307,000	N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylenediamine	09	56,000
4,4'-Biphenyldisulfonylazide	03	307,050	Bis(M,N'-ethyl(stearic/arachidic)benzamide)		
N,N-Bis(2-acetamido)glycine	14	3,000	cycanoethyl ethylammonium ethosulfate	12	476,400
Bis(alkyl-aryl)alcohols, ethoxylated	12	758,800	2,2-Bis(ferrocenyl)propane	15	19,200
Bis(N-amiidopropyl, N,N-dimethyl, N-benzyl ammonium chloride)	12	453,950	Bis-hexamethylenetriamine amine	15	260,000



Table 4.--Alphabetical Chemical Index

SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
	12	Bis(hydrogenated tallow alkyl)amine		432.000	Bis(triphenylsilyl)chromate	15	21.400
	12	Bis(hydrogenated tallow alkyl)dimethylammonium chloride		481.000	Bis(ethylene diisocyanate) (TODI)	03	1017.000
	12	Bis(hydrogenated tallow alkyl)ethylammoniumethyl			Blend of fatty and phosphata esters	12	111.800
	12	Bis-hydroxyethyl coco amine oxide, phosphated potassium salt		482.000	Blend of hydrocarbons and esters	12	318.610
	12	N,N-Bis(2-hydroxyethyl)coconut oil alkylamine oxide		321.095	Bornyl phenylamine	14	271.000
	12	N,N-Bis(2-hydroxyethyl, ethoxylated methyl(9-octadecenyl) ammonium chloride)		321.110	Boron fluoride-ethyl ether complex	15	1368.000
	12	Bis(2-hydroxyethyl, ethoxylated methyloctadecylammonium chloride)		454.000	Bromochloro-phenol complex	06	251.000
	12	Bis(2-hydroxyethyl, ethoxylated methyloctadecylammonium chloride)		455.000	Brominated (Including bromochlorinated) hydrocarbons.	15	1216.000
	12	Bis(2-hydroxyethyl, ethoxylated tallow-ethyl sulfate)		455.500	N-Bromoacetamide	15	230.000
	12	Bis(2-hydroxyethyl)isocyanatopropylamine oxide		321.700	Bromoacetic acid	13	245.017
	12	Bis(2-hydroxyethyl)methyltallow alkyl ammonium chloride		485.540	Bromoacetic acid	15	495.000
	14	N,N-Bis(2-hydroxyethyl)octadecanamide		489.000	p-Bromaniline	03	332.000
	12	N,N-Bis(2-hydroxyethyl)octadecylamine		322.000	Bromobenzaldehyde	03	333.100
	12	N,N-Bis(2-hydroxyethyl)octyl-methyl-p-toluene sulfonate		455.600	Bromobenzene, mono	03	335.000
	12	N,N-Bis(2-hydroxyethyl)tallow alkylamine		325.000	o-Bromobenzoic acid	15	169.500
	12	N,N-Bis(2-hydroxyethyl)tallow alkylamine acetate		325.000	3-[3-(4-bromophenyl)-4-hydroxy-1,4-phenyl]-4-yl]-1,2,3,4-tetrahydro-1,2,3,4-tetrahydropyridine	13	1197.000
	15	N,N-Bis(2-hydroxyethyl)propionic acid		20.500	1-Bromobutane (n-Butyl bromide)	15	496.000
	11	Bis(hydroxypropyl)azalate		494.500	5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	13	42.000
	12	Bis(2-hydroxypropyl)methyl(tallow alkyl)methosulfate		66.600	Bromobutyric acid	15	1198.500
	12	4,6-Bis(isopropylamino)-2-methoxy-s-triazine (Prometon)		455.900	Bromochlorinated paraffin C <sub>10</sub> -C <sub>20</sub>	15	21.800
	13	2,4-Bis(isopropylamino)-6-(methylthio)-s-triazine		118.010	Bromochloro-5,5'-dimethyl hydantoin	15	125.000
	13	Bis(2-methoxyethyl)ether (Tetraethylene ether)		41.500	Bromo-chloro-methane	15	1253.000
	15	Bis(2-methoxyethyl)ether (Diethylene glycol dimethyl ether)		1145.000	2-Bromo-2-chloro-1,1-trifluoroethane	03	343.503
	15	Bis(1,1,3-methyl-butyl-phenyl)ether		1146.000	4-Bromo-3,5-dihydroxybenzoic acid	03	343.700
	09	N,N-Bis(1-methylheptyl-p-phenylene)amine		20.750	2-Bromo-4,6-dinitroaniline	03	344.000
	03	N,N-Bis(4-methylphenyl)sulfonylamine, potassium salt		327.500	2-(2-Bromo-4,6-dinitrophenylazo)-5-diethylaminoacetanilide	03	344.803
	09	Bismuth subsulfate		134.000	1-Bromo-4-ethoxy-2-methylbenzene	03	1202.000
	15	Bis(2-octadecylamidoethyl)-N-(2-cyanoethyl)-N-ethyl bisphenol bis(ether)		229.500	2-Bromo-4-hydroxyacetophenone	15	1242.017
	13	1,3-Bis(phosphonomethyl)glycine		88.100	1-Bromo-2-methyl-2-butene	03	354.000
	12	Bis(tallow alkyl)amine		212.013	α-Bromo-p-nitrotoluene (p-Nitrobenzyl bromide)	15	22.400
	12	Bis(tallow alkyl)dimethylammonium chloride		443.500	1-Bromo-octadecane	03	356.100
	03	1,2-Bis(tribromophenoxy)ethane		330.218	1-Bromopentane (n-Amyl bromide)	15	1206.000
	15	1,1-Bis(3,3,5-trimethylidicyclohexane		21.900	Bromophenamine base	15	358.500
					1-Bromopropane (n-Propyl bromide)	15	403.000
					2-Bromopropane (Isopropyl bromide)	15	1207.000
					3-Bromo-propyl-amine hydrobromide	07	127.450
					2-Bromopyridine	03	359.000
					3-Bromopyridine	03	359.500

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Bromotrifluoromethane	15	1254.000	Butyl alcohol, ethoxylated and phosphated	12	76.100
Brompheniramine maleate	06	85.000	n-Butylamine, mono	03	368.000
Butacarbital	06	447.000	sec-Butylamine, mono	15	264.000
Butacarbital, sodium	06	448.000	tert-Butylamine, mono	15	265.000
1,3-Butadiene	02	48.000	tert-Butylaminoethanol	15	327.400
1,3-Butadiene copolymer (Blastomers)	02	49.000	2-(tert-Butylamino)-4-ethylamino-6-(methylthio)-5-triazine	13	118.017
Butabital	06	446.000	tert-butyldimethylmethacrylate	15	327.455
Butamban	06	700.000	n-Butylamine	03	368.000
n-Butane	02	44.000	n-Butylamine, mono	03	370.000
1,2-(and 1,3)-Butanediol	15	1072.000	n-tert-Butylbenzenesulfonamide	15	23.000
1,4-Butanediol	15	1073.000	n-tert-Butylbenzenesulfonamide	15	23.000
1,4-Butanediol diglycidyl ether	15	1317.400	Butyl benzoate	09	25.000
Butanediol, ethoxylated	12	758.900	n-tert-Butyl-2-benzothiazolesulfenamide	11	17.000
2-Butanol	12	726.900	n-tert-Butyl-4-bis(2-benzothiazolesulfenamide)	15	1284.200
2-Butanol, ethoxylated and propoxylated	12	726.910	n-Butyl-4-bis(tert-butylperoxy)valerate	07	127.500
2-Butanol residue stream	15	1284.000	Butyl butyryl lactate	12	758.920
2-Butanone peroxide	02	45.000	Butyl carbamate, ethoxylated and propoxylated	12	758.920
1-Butene	02	46.000	tert-Butyl chloroacetate	15	898.000
1-Butene and 2-butene, mixed	02	47.000	tert-Butyl chloroacetate	15	898.000
2-Butenedioic acid-(f)-diamine-1-(2-aminoethyl)-2-	12	342.220	methylcyclohexanecarboxylate (Trimedure)	13	119.000
2-Butyl ethyl alkyl-2-midazolone condensate	15	1074.000	3-tert-Butyl-5-chloro-6-methyluracil	13	118.018
2,3,4,5-Tetra-butylene-tetrahydrofurfural	3	165.014	2-tert-Butyl-p-cresol	03	377.000
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	15	1147.000	6-tert-Butyl-m-cresol	03	376.000
2-Butoxyethanol (ethylene glycol monobutyl ether)	15	1147.000	2-tert-Butyl cyclohexanol	07	93.710
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	15	1148.000	p-tert-Butylcyclohexanone	07	93.750
2-(2-Butoxyethoxy)ethoxy ethanol (Triethylene glycol monobutyl ether)	15	1149.000	tert-Butylcyclohexanone	07	93.700
2-(2-(2-Butoxyethoxy)ethoxy)ethoxy ethanol (Tetraethylene glycol monobutyl ether)	15	1150.000	tert-Butylcyclohexyl peroxycarbonate	07	94.000
2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy ethanol (Pentaoxyethylene glycol monobutyl ether)	15	1151.000	tert-Butylcyclohexyl peroxycarbonate	07	94.000
2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Hexaoxyethylene glycol monobutyl ether)	15	1152.000	4-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone (Musk ketone)	15	327.500
2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Heptaoxyethylene glycol monobutyl ether)	15	1153.000	Butylene glycol adipate	07	20.000
2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Octaoxyethylene glycol monobutyl ether)	15	1154.000	Butylene glycol diborate	11	58.750
2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Nonaoxyethylene glycol monobutyl ether)	15	1155.000	1,3-Butylene glycol diborate/hexylene glycol boric	15	1100.150
2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Decaoxyethylene glycol monobutyl ether)	15	1156.000	1,3-Butylene glycol diborate	15	1100.150
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Undecaoxyethylene glycol monobutyl ether)	15	1157.000	Butylene oxide	15	1100.155
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Dodecaoxyethylene glycol monobutyl ether)	15	1158.000	Butylene oxide, ethoxylated	12	758.940
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Tridecaoxyethylene glycol monobutyl ether)	15	1159.000	Butylene oxide, tetra- and higher ethylene glycols (high boiling)	15	1303.000
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Tetradecaoxyethylene glycol monobutyl ether)	15	1160.000	n-Butylethylamine	15	1151.500
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Pentadecaoxyethylene glycol monobutyl ether)	15	1161.000	Butyl 2-ethylamine	15	267.000
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Hexadecaoxyethylene glycol monobutyl ether)	15	1162.000	Butyl 2-ethylmethyl phthalate	11	21.000
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Heptadecaoxyethylene glycol monobutyl ether)	15	1163.000	Butyl ethyl magnesium	15	1374.800
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Octadecaoxyethylene glycol monobutyl ether)	15	1164.000	1-Butyl-3-ethyl-2-thiourea	15	328.000
2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-Butoxyethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy)ethoxy ethanol (Nonadecaoxyethylene glycol monobutyl ether)	15	1165.000	n-Butyl-N-ethyl-2,6-difluoro-2,6-dinitro-p-toluidine (Genezzin)	13	43.000







Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Castor oil, sulfated, sodium salt	12	305 000	Chlorinated paraffins, 65% or more chlorine	15	1220 000
Cationic cellulose ethers	14	406 000	Chloroacetic acid, mono	15	503 000
Cationic surfactants, all other	12	529 000	4-Chloroacetophenone	03	411 000
Cellulose acetate (Anidrate)	07	95 800	K-(Chloroacetyl)-N-(2,6-diethylphenyl)glycine, ethyl ester	13	43 025
Cedrol	07	96 000	1-(3-Chloroallyl)-3,5,7-triazolo-1-azoniaadamantane chloride	15	32 000
Cedyl acetate	07	97 000	o-Chloroaniline	03	414 000
Cedyl formate	06	39 300	m-Chloroaniline	03	413 000
Cefaclor	06	40 000	2-Chloroanthraquinone	03	415 000
Cefamandole	06	40 000	P-Chlorobenzaldehyde	03	422 000
Cefazolin, sodium	06	40 100	Chloro-7-N-benzidylanthracen-7-one (Chlorobenzanthrone)	03	425 000
Cefazolin	14	384 000	Chlorobenzene, mono	03	427 000
Cefixime	06	255 500	P-Chlorobenzenesulfonic acid	03	430 000
Cellulose acetate	14	20 590	4-Chloro-2-benzothiazolemine	03	432 000
Cellulose acetate butyrate	08	21 000	5-Chlorobenzotriazole	09	329 000
Cellulose acetate hexahydrophthalate	15	29 900	4-Chloro-2,6-bis(2-ethyl-4-hydroxyphenyl)phenol	09	124 200
Cellulose acetate phthalate	15	29 900	2-Chloro-4,6-bis(isopropylamino)-s-triazine (Simazine)	13	44 050
Cellulose acetate propionate	08	21 010	(Prepazine)	13	44 100
Cellulose ethylidene acetate, all other	14	413 000	1-Chlorobutane (n-Butyl chloride)	15	1221 000
Cellulose ethylidene acetate, all other	06	635 000	Chlorobutanol	06	257 000
Cellulose esters, all other	08	21 040	2-Chloro-N,N-disopropylethylamine hydrochloride	03	447 010
Cellulose plastics, all other	15	1430 250	2-Chloro-N,N-diallylacetamide (CDAA)	13	447 780
Celtone	06	41 000	2-Chloro-1,4-dibutylbenzene	03	440 803
Cephalexin	06	42 000	1-Chloro-2,5-dibutoxy-4-nitrobenzene	03	440 900
Cephalexin D	03	407 100	2-Chloro-2,5-dibutoxy-4-nitrobenzene	03	441 000
Cephalexin, sodium	06	43 200	3-Chloro-4-diethylaminobenzediazoniun chloride (p-Butschor)	14	330 000
Cephapirin	06	43 300	2-Chloro-2',6'-diethyl-N-(n-butylmethyl)acetanilide (Butschor)	13	44 160
Cephazolin, sodium	06	43 600	2-Chloro-N,N-diethylthylamine hydrochloride	15	333 000
Cerax/nylon polymer	14	385 000	2-Chloro-2',6'-diethyl-N-methoxymethylacetanilide (Alaschor)	13	44 180
Cetyl lactate	15	911 700	Chloro-2,4-difluoroethane (F-22)	15	1255 000
Cetylalcosyl methacrylate	15	912 000	5-Chloro-2',5'-dimethoxyacetanilide	03	448 000
Cetylpyridinium chloride	15	916 000	5-Chloro-2,4-dimethoxyaniline	03	450 000
Chelating agents, nitriolefids and salts, all other	06	256 000	2-(p-Chloro-2-(2-dimethylaminoethyl)benzyl)pyridine	03	451 300
Chemically defined linear alcohol, alkoxylated, all other	14	91 000	2-Chloro-10-(3-(dimethylamino)propyl)phenothiazine	03	451 600
Chemically defined linear alcohol, alkoxylated, all other	14	91 000	2-Chloro-N,N-dimethylthylamine (Dimethylamino ethyl chloride)	15	334 000
Chemical reagents and fine chemicals	12	734 000	2-Chloro-N,N-dimethylpropylamine hydrochloride	15	336 000
Chloramphenicol	06	44 000	1-Chloro-N,N-dimethylpropylamine hydrochloride	15	337 000
Chloramphenicol, monosuccinic acid ester	06	44 500	1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	03	453 000
Chlorhexidine gluconate	06	256 500			
Chlorinated (Not otherwise halogenated) hydrocarbons, all other	15	1252 000			
Chlorinated paraffins, 35-64% chlorine	15	1218 000			
Chlorinated paraffins, less than 35% chlorine	15	1218 000			





Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Chlortetracycline (animal feed grade)	06	64,000	Cobalt linoleate	15	682,000
Chlortetracycline (medicinal grade)	06	31,000	Cobalt manganese acetate	15	593,010
Cholecalciferol (vitamin D <sub>3</sub> )	06	811,000	Cobalt manganese tellurate	15	172,010
Cholesterols and hydrocholesterols, all other	06	604,000	Cobalt naphthenate	14	301,000
Cholesterol esterase	14	110,000	Cobalt neodecanate	15	433,010
Cholesterol oxidase	14	122,000	Cobalt-potassium 2-ethylhexanoate	15	737,600
Choline	15	342,000	Cobalt propionate	15	753,000
Choline bicarbonate	06	607,000	Cobalt tellurate	15	172,000
Choline bitartrate	06	606,000	N-Cococalkyl-1,3-propylenediamine acetate	13	245,011
Choline chloride (animal feed grade)	06	608,000	N-Cococalkyl trimethylenediamine adipate	13	245,020
Choline chloride (medicinal grade)	06	611,000	Cococamidophosphoglycinate	12	9,250
Choline dihydrogen citrate	06	611,000	Cococamidopropyl betaine	12	9,500
Choline magnesium salicylate	06	385,300	Cococamidopropyl dimethyl amine	12	328,265
Chromium acetate	15	592,000	Cococamidopropyl dimethyl ammonio]-2-hydroxypropane sulfonate	12	385,280
Chromium acetylacetonate complex	15	1371,100	ammonium salt	13	9,600
Chromium 2-ethylhexanoate	15	622,500	(3-Cococamidopropyl)-(2-hydroxy-3-sulfo)propyl]dimethyl hydroxide, inner salt	12	384,500
Chromium naphthenate	06	619,600	(3-Cococamidopropyl)-(2-hydroxy-3-sulfo)propyl]-dimethyl ammonium hydroxide, inner salt	12	9,720
Clamidine hydrochloride	07	23,700	3-Cococamidopropyl-2-hydroxy-5-sulfo)propyl]dimethyl ammonium hydroxide, inner salt	12	9,650
Cinnole [sucralptol]	07	24,000	ammonium hydroxide, inner salt	12	587,900
Cinnamyl acetate	07	25,000	Cococamphocarboxyglycinate	12	9,260
Cinnamyl alcohol	07	26,000	Cococamphocarboxypropionate	12	9,265
Cinnamyl butyrate	07	27,200	Cococamphorproionate	12	9,280
Cinnamyl cinnamate	07	28,000	Cocodimethyl ethyl ammonium ethyl sulfate	12	482,750
Cinnamyl nitrate	07	28,000	Cocodimethyl ethyl ammonium ethyl sulfate (20%)	12	437,000
Cinnamyl propionate	07	127,700	Cococut acids, dimethylpropylamine condensate, carbonylated	12	359,950
Citric acid	15	505,000	Cococut oil acids (Ratio = 1/1)	12	569,000
Citric acid 1/1 acetyl	15	627,000	Cococut oil acids (Ratio = 2/1)	12	532,000
Citric acid salts, all other	15	627,000	Cococut oil acids (Ratio = 1/1)	12	546,000
Citric acid, sodium salts (50% in sodium phosphates)	15	627,000	Cococut oil acids (Ratio = 2/1)	12	556,000
Citronallic acid	12	53,500	Cococut oil acids	12	554,000
Citronallic acid acetate	07	127,950	Cococut oil acids, diethanolamine salt	12	29,100
Citronellyl butyrate	07	128,000	Cococut oil acids-dimethylamino)propylamine condensate (amine/acid ratio = 1/1)	12	586,480
Citronellyl ethyl ether	07	131,700	Cococut oil acids-M,N-dimethyltriethylethylamine	12	360,000
Citronellyl isobutyrate	07	130,000	Cococut oil acids-ethanolamine condensate, ethoxylated	12	576,000
Citronellyl propionate	07	131,500	Cococut oil acids, ethanolamine salt	12	29,200
Citronellyl propylate	07	131,500			
Clindamycin	06	445,000			
Clorazepate dipotassium	06	498,000			
Clorazepate, benzachine	06	20,001			
Clonacillin, sodium	06	3,000			
Cobalt acetate	15	592,000			
Cobalt acetylacetonate complex	15	1371,100			
Cobalt acetylacetonate, inner salt	15	669,000			
Cobalt 2-ethylhexanoate	15	633,000			



Table 4.—Alphabetical Chemical Index

SECT. NO.	ITEM NO.	CHEMICAL NAME	CHEMICAL NAME	SECT. NO.	ITEM NO.
		Coconut oil acids-ethanolamine salt, sulfated, potassium salt	Cortisone acetate	06	653.000
	12	248.000	Coumarin	07	29.000
		Coconut oil acids, potassium salt	Coumarone-indene plasticizers	11	1.100
	12	54.000	Coumarone-indene resins	08	22.000
		Coconut oil acids, sodium salt	Creosote oil (Dead oil): creosote content in solution		
	12	198.000	Creosote oil (Dead oil): creosote content in solution (100 percent basis)	01	21.000
		Coconut oil acids, triethanolamine salt	Creosote oil (Dead oil): creosote in coal tar solution		
	12	183.000	Creosote oil (Dead oil): creosote in coal tar solution (100 percent basis)	01	20.000
		M-(Coconut oil acyl)ascorbinic sodium salt	Percent creosote basis	01	19.000
	12	40.000	Creosote tar acid oil	01	21.020
		Coconut oil alcohol, ethoxylated	M-Cresol	03	569.000
	12	785.000	M-Cresol	03	572.000
		M-(Coconut oil alkyl)- $\beta$ -alanine, partial sodium salt	o-Cresol	03	575.000
	12	10.100	o-Cresol, from coal tar	03	574.000
		M-(Coconut oil alkyl)- $\beta$ -alanine, sodium salt	m-Cresol	03	571.000
	12	10.000	m-Cresol	03	575.000
		3-[(Coconut oil alkyl)amido]ethylenes-(2-hydroxyethyl) amino]propionic acid	o-Cresol, from petroleum	03	574.000
	12	418.000	m-Cresol, from petroleum	03	571.000
		(Coconut oil alkyl)amine, ethoxylated	Cr. p-Cresol, from petroleum	06	258.500
	12	326.000	Cr. p-Cresol, from petroleum	06	258.500
		(Coconut oil alkyl)amine, ethoxylated, acetate	Cresosulfonic acid, formaldehyde condensate	03	574.000
	12	327.000	Cresosulfonic acid, formaldehyde condensate	03	574.000
		M-(Coconut oil alkyl)amino butyric acid, sodium salt	m-Cresylglycidyl ether	06	258.500
	12	483.000	m-Cresylglycidyl ether	03	580.500
		(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated) $\beta$ -methylammonium chloride	Cresylic acid (Less than 75 percent distilling over 2159 C)	02	12.000
	12	456.000	Cresylic acid (Less than 75 percent distilling over 2159 C)	02	12.000
		M-(Coconut oil alkyl)sulfosuccinamic and disodium salt	Crotonaldehyde	03	580.000
	12	176.950	Crotonaldehyde	15	786.000
		M-(Coconut oil alkyl)trimethylenediamine	Crotonic acid (2-Butenoic acid)	15	506.000
	12	407.000	Crotonic acid (2-Butenoic acid)	15	506.000
		Coconut oil amide	Crotonitrile	15	438.000
	12	659.200	Crotonitrile	15	438.000
		Coconut oil fatty acid polyoxethylene	Crude acetate mixture (Linallyl, neryl, geranyl acetates)	07	162.100
	12	456.000	Crude acetate mixture (Linallyl, neryl, geranyl acetates)	07	162.100
		Coconut oil and tall oil acid (Ratio = 2/1)	Crude carbonylamine mixture ( $\alpha,\beta$ and 7 isomers)	07	162.130
	12	533.000	Crude carbonylamine mixture ( $\alpha,\beta$ and 7 isomers)	07	162.130
		Coconut oil amidepropyl dimethylamine oxide	Crude coal tar solvent	01	22.030
	06	429.000	Crude coal tar solvent	01	1.000
		Codeine	Crude light oil	01	15.000
	12	298.000	Crude light oil	01	15.000
		Code oil, sulfated, sodium salt	Crude tar acid oils having a tar acid content of 5 percent to less than 24 percent	03	581.000
	06	614.500	Crude tar acid oils having a tar acid content of 5 percent to less than 24 percent	03	581.000
		Complex linear polyesters and polymeric plasticizers, all other	Cumene (Isopropyl benzene)	15	35.000
	11	132.000	Cumene (Isopropyl benzene)	15	35.000
		Collyurathane urea	Cumene hydroperoxide	15	35.000
	14	386.000	Cumene hydroperoxide	15	35.000
		Copper acetate	Cumensulfonic acid, ammonium salt	12	144.000
	15	629.050	Cumensulfonic acid, ammonium salt	12	144.000
		Copper 2-ethylhexanoate	Cumyl alcohol	07	29.200
	15	634.000	Cumyl alcohol	07	29.200
		Copper gluconate	Cumyl formate	07	29.300
	06	762.000	Cumyl formate	07	29.300
		Copper naphthenate	$\alpha$ -Cumyl parokymenocanate	15	35.400
	14	302.000	$\alpha$ -Cumyl parokymenocanate	15	35.400
		Copper oleate	2-[p-(Cyanacetamido)phenyl]-6-methyl-7-benzothiazolesulfonic acid	03	582.000
	15	718.000	2-[p-(Cyanacetamido)phenyl]-6-methyl-7-benzothiazolesulfonic acid	03	582.000
		Copper [2,2',2''',2''''-[59H,31H-Phthalocyanine]pentakis(methylene)]pentakis[1H-indole-1,3(2H)-dionato]]	Cyanacetic acid	15	347.000
	03	566.603	Cyanacetic acid	15	347.000
		Coen oil acids, potassium salt	4-(Cyanacetamido)morpholine	03	582.000
	02	56.000	4-(Cyanacetamido)morpholine	03	582.000
		Coccolactone, all other	Cyanocobalamin (animal feed grade)	06	797.000
	06	692.000	Cyanocobalamin (animal feed grade)	06	797.000
		Corticosteroids, all other	Cyanocobalamin, crystalline	03	582.000
	06	692.000	Cyanocobalamin, crystalline	03	582.000



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT: NO.	ITEM NO.	CHEMICAL NAME	SECT: NO.	ITEM NO.
Dextrothiokone, sodium	06	614.700	2-4-Dibromo-6-nitro-m-cresyl methyl ether	07	29.750
Diacenaphth[1,2-b]1,2-difluoranthene (Decacyclene)	03	605.600	2,3-Dibromophenanol	03	66.800
Dibenzoylthylaminobenzenesulfonamide	03	605.600	2,3-Dibromophenol	03	66.800
Dibenzoylthylaminobenzenesulfonamide	03	608.200	3,5-Dibromo-3'-trifluoromethylsalicylanilide	15	1296.700
Diallyl diacetate	15	968.970	(Fluorophane)	03	663.100
Diallyldithiocarbamic acid derivative	09	127.950	Dibucaine	06	702.000
Di(CS <sub>2</sub> -C6 alkyl)naphthalenesulfonic acid	12	162.500	Dibucaine hydrochloride	06	703.000
Diallyl isophthalate	08	4.030	p-Dibutylbenzene (DBB)	03	665.100
Diallyl maleate	15	913.000	Di(C-12-butoxyethoxyethyl) adipate	11	59.200
Di-amine derivatives of dimer acids	15	298.500	Dibutoxyethyl adipate	11	59.200
Diamines and polyamines, all other	12	617.000	Dibutoxyethyl phthalate	11	59.200
1,5-Diaminocyclohexane	03	616.000	2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate salt	11	111.900
1,3-Diaminocyclohexane	03	618.100	(DBB Sulfate)	03	666.100
1,5-Diamino-4,8-dihydroxyanthraquinone	03	626.000	2,5-Dibutoxy-4-morpholinonitrobenzene	03	666.200
2,6-Diaminopyridine	03	634.000	Di-n-butylamine	15	262.000
3,4-Diaminopyridine	03	634.050	2-Dibutylaminoethanol	15	350.000
4,4'-Diamino-2,2'-stilbenedisulfonic acid	03	635.000	Dibutylaminoethanol	15	350.500
2,5-Diaminonoterephthalic acid	03	640.000	Dibutyl butylphosphonate	15	1022.000
Diarylethylenes, mixed	06	591.000	2,6-Di-tert-butyl-p-cresol (BMT), Food grade	15	52.000
Diazirone, sodium salt	06	583.000	2,6-Di-tert-butyl-p-cresol (BMT), Technical grade	15	52.000
1,4-Diazobicyclo(2,2)octane	15	47.000	2,5-Di-tert-butyl-4-sec-butyldecylhydroquinone	09	88.400
4-Diazo-2,5-dithioxymorpholinobenzene	14	336.000	Di-tert-butyl diperoxophthalate	15	53.200
4-Diazo-2,5-dimethoxyphenolmorpholine	03	642.894	Dibutylidithiocarbamic acid, nickel salt	02	92.000
Diazodinitrophenol	15	48.000	Dibutylidithiocarbamic acid, sodium salt	09	128.100
2-Diazo-1-naphthol-5-sulfonic acid, sodium salt	03	642.922	Dibutylidithiocarbamic acid, zinc salt	09	130.000
N-(4-Diazo phenyl) aniline 1/2 sulfate	03	643.500	Dibutyl fumarate	15	267.800
Diazoxide	03	649.000	Dibutyl fumarate	15	267.800
Dibenzylazoyl peroxyl-2,5-dimethylhexane	15	391.000	Dibutyl hydrogen phosphite	15	1035.000
Dibenzylazodicarbonylate	03	652.500	Dibutyl malate	15	53.000
Dibenzylidithiocarbamic acid, sodium salt	09	9.000	Dibutyl malate	15	916.000
Dibenzylidithiocarbamic acid, zinc salt	09	10.000	2,6-Di-tert-butyl-4-nonylphenol	12	163.000
1,8-Dibenzylglycerol	03	654.300	Di(sec-butyl)peroxydicarbonate	03	667.500
m-Dibromobenzene	14	476.000	2,4-Di-tert-butylphenol	15	917.000
p-Dibromobenzene	03	658.000	2,6-Di-sec-butylphenol	03	667.000
1,4-Dibromo-2,2-dichloroethyl dimethyl phosphate	03	659.000	2,6-Di-tert-butylphenol	03	860.050
(1,2-Dibromo-2,4-dicyanobutane	13	217.000	2,6-Di-tert-butyl-4-sec-butylphenol	03	860.050
(1,2-Dibromoethyl)benzene	03	195.012	Dibutyl phthalate (including diisobutyl phthalate)	14	98.000
Dibromohexadecane	15	1212.995	Dibutyl pyrophosphate	15	1023.000
3,5-Dibromo-4-hydroxybenzotriazole (Bromoxymil)	13	1118.031	Dibutyl sebacate	11	112.000
Dibromonethane (methylene bromide)	15	1213.000	1,3-Dibutyl-3-thiourea	15	351.000
2,6-Dibromo-4-nitroaniline	03	660.100	Dibutyltin bis(butylmaleate)	15	1401.100
			Dibutyltin bis(isooctylmercaptosuccinate)	15	1401.200
			Dibutyltin bis(mercaptolaurate)	15	1402.000



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Diisobutyl di-2-methylhexanoate	15	635.000	2,4-dichlorophenoxyacetic acid, esters and salts, all other	13	99.000
Diisobutyl dilaurate	15	677.500	2,4-dichlorophenoxyacetic acid, ethanalamine and isopropanolamine salts	13	92.000
Diisobutyl oxide	09	1404.000	2,4-dichlorophenoxyacetic acid, isooctyl ester	13	95.000
Di-N-butylamthio disulfide	05	152.000	2,4-dichlorophenoxyacetic acid, isopropyl ester	13	96.000
M-(1,1,2-Dichloroethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt	12	177.000	2,4-dichlorophenoxypropionic acid, isooctyl ester	13	95.000
Diacetohol borate, di-o-tolylguanidine salt	09	507.000	2,4-dichlorophenoxypropionic acid, isooctyl ester	13	53.000
2,2-dichloroacetyl chloride	13	571.500	2,4-dichlorophenyl 0-ethyl S-triethyl phosphorodithioate	13	165.013
2,2-dichloroacetyl diisopropylthiocarbamate	13	200.000	3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)	13	54.000
3,4-dichloroaniline	03	670.000	1,2-dichloropropane (Propylene dichloride)	15	1235.000
3,6-dichloro-2-anisic acid (Dicamba)	13	50.000	1,3-dichloropropane	15	1236.000
o-Dichlorobenzene	03	677.000	2,3-dichloropropane	15	1236.000
m-Dichlorobenzene	03	676.000	3,4'-dichloropropionamide (Propanil) (Dallapon)	13	201.000
p-Dichlorobenzene	03	679.000	2,5-dichlorotetrafluoroethane	15	1263.000
3,3'-dichlorobenzidine base and salts	03	682.000	p,α-dichlorotoluene	03	708.000
2,6-dichlorobenzonitrile	03	682.000	Dichloro-s-triazine-2,4,6(1H,3H,5H)trione	15	55.000
2,6-dichlorobenzothiazole	03	683.000	(Dichloroisocyanuric acids and salts)	15	56.000
3,4-dichlorobenzotrifluoride	03	683.200	4,4'-Dichloro-3-(trifluoromethyl)carbanilide	15	738.000
3,5-dichlorobenzoyl chloride	03	683.150	Dichlorocellulose, sodium	06	130.000
Dichlorobenzyl chloride	03	684.050	Dichloroacetic acid	14	131.000
2,6-Dichlorobenzylidimethyl(mixed alkyl)ammonium chloride	12	519.900	Dibenzylphosphorodithioic acid ammonium salt	14	132.000
(3,4-Dichlorobenzyl)iodocyclodimethylammonium chloride	12	520.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,2-Dichloro-1,1-difluoroethyl methyl ether	15	1308.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
Dichlorodifluoromethane (Y12)	15	4.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
1,3-Dichloro-5,5-dimethylhydantoin (Chloronah)	15	54.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
Dichlorodimethylsilane	15	1382.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
Dichlorodiphenylsilane	03	690.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
4,4'-Dichlorodiphenyl sulfone	03	690.100	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
3,3'-Dichloro-4,4'-(2-hydroxy-3-anilido-1-naphthazo) biphenyl	03	691.250	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,6-Dichloro-3-methylamine	03	694.050	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,6-Dichloro-3-methyl-5-oxo-2-pyrroline-1-yl	03	695.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
Dichloromethylbenzylsilane	03	696.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
Dichloromethylsilane	15	1383.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
Dichloromethylvinylsilane	15	1384.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,6-Dichloro-4-nitroaniline	03	697.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,6-Dichloro-5-nitrobenzene	03	698.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,4-Dichloro-5-nitrotrifluoromethylbenzene	03	699.900	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,4-Dichlorophenol	03	700.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,4-Dichlorophenoxyacetic acid (2,4-DCPA)	13	82.500	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	13	82.500	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	13	90.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	13	91.000	Dibenzylphosphorodithioic acid, sodium salt	14	132.000





Table 4.---Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
0,0-Diethyl 0-[4-(methylsulfinyl)phenyl]phosphorothioate	13	165, 011	Dihydrondicyclopentadienyl acetate (Cycloacet)	07	97, 400
0,0-Diethyl 0-[p-mitrophenyl]phosphorochthoate	13	156, 000	Dihydrondicyclopentadienyl propionate (Cycloprop)	07	97, 420
(Parathion)-----	12	936, 000	Dihydro p-tert-butyl acetate	07	134, 200
Diethyl oxalate (Ethyl oxalate)	15	1027, 000	Dihydro p-tert-butyl andanone	03	761, 400
Diethyl phosphorochloridothionate	11	28, 000	Dihydrophenylglycine diane salt	03	761, 450
Diethyl phosphorochloridothionate	06	544, 000	Dihydrophenylglycine sodium methyl diane salt	03	168, 300
Diethyl sebacate	07	133, 000	1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide) (NH)	13	168, 300
Diethyl succinate	07	134, 000	Dihydrosterepomycin	09	97, 430
Diethyl sulfide (Ethyl sulfide)	02	92, 810	Dihydro terpineol	07	97, 435
1,5-Diethyl 2-thio-4,6-pyrimidinedione	15	57, 750	Dihydroterpinyl acetate	07	166, 367
1,3-Diethyl 2-thiourea	15	361, 000	1,2-Dihydro-2,4,7-tetramethylquinoline	03	761, 700
N,N-Diethyltoluamide (DEET)	03	627, 700	1,2-Dihydro-2,4,7-trimethylquinoline	15	58, 000
3,5-Diethyltoluene 2,5-diamine monohydrochloride	14	342, 000	1,2-Dihydro-2,4-trimethylquinoline	09	69, 000
N,N-Diethyltoluidine	03	739, 500	Dihydroxyaluminum aminoacetate	06	620, 000
N,N-Diethyl-p-toluidine	03	739, 500	1,4-Dihydroxyanthraquinone	03	769, 200
0,0-Diethyl 0-3,5,6-trichloro-2-pyridyl phosphorothioate	13	156, 100	2,4-Dihydroxybenzaldehyde	03	768, 500
3,9-Diethyl 6-tridecyl sulfate, sodium salt	12	242, 000	2,5-Dihydroxy-p-benzenedisulfonic acid, dipotassium salt	15	1059, 500
Diethylzinc	15	1908, 000	3,4-Dihydroxybenzoic acid, methyl ester	03	768, 000
Difluoral	06	553, 500	Di(1-hydroxyethyl)bis(ammoniumlactato) titanium	15	1059, 500
1,1-Difluoroethane	05	1264, 000	3,5-Dihydroxy-3,5-dimethyl-1,2-peroxy-cyclopentane	15	60, 000
Digoch	11	378, 300	1,8-Dihydroxy-4,6-dinitroanthraquinone	03	771, 000
Di-n-hexyl adipate	11	60, 600	N,N-di(hydroxyethyl)-n-carboxymethyl tallow ammonium quat-inner salt	12	10, 320
Di-n-hexyl fumarate	07	134, 020	N,N-di(β-hydroxyethyl)-m-chloroaniline	12	39, 000
Di-n-hexyl magnesium	15	374, 500	N,N-dihydroxyethylglycine dipotassium salt	14	39, 000
d-Dihydroacryol	07	134, 070	Di(oxogenamethyl)phosphorothionium salt	12	10, 310
Dihydroacryone	07	134, 500	Diisocyanate (Methylene iodide)	15	1277, 000
6,11-Dihydrodibenz[ <i>b</i> , <i>e</i> ]oxepin-11-one	03	744, 200	Diisocyanate (Methylene iodide)	15	63, 000
2,3-Dihydro-2,2-dimethyl-7-benzofuranol	03	744, 100	Diisocyanate (Methylene iodide)	15	816, 300
2,3-Dihydro-2,2-dimethyl-7-benzofuranol (dibutylamino)thio methyl carbamate	03	744, 100	Diisocyanate (Methylene iodide)	15	61, 000
2,3-Dihydro-2,2-dimethyl-7-benzofuranol methyl carbamate	13	148, 300	Diisobutyl adipate	11	1388, 000
2-(2,3-Dihydro-1,3-dioxo-1H-inden-2-yl)-(quinolinyl)-6-methylbenzothiazole-7-sulfonic acid	13	148, 400	Diisobutyl aluminum chloride	15	1382, 000
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline (thoxyquin)	03	752, 600	Diisobutylamine	02	79, 000
Dihydro-150-jasmone	09	68, 000	Diisobutylamine (Di-isobutene)	14	256, 000
1,3-Dihydro-4(oxo-5)-methyl-2H-benzimidazole-2-thione	07	97, 380	Diisobutylamine	11	62, 000
2,3-Dihydro-2-[16-methyl-7-sulfo-2-benzothiazolyl]-2-quinolinyl-1,3-dioxo-1H-indene-5-carboxylic acid	09	436, 500	Diisocetyl adipate	11	30, 050
Dihydroxyrene	03	756, 500	Diisocetyl phthalate	11	62, 500
Dihydro myrcenol	15	1137, 500	Diisononyl phthalate	11	39, 000
	07	134, 100	Diiso-octyl adipate	11	69, 000

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Diisooctyl phthalate	11	35,000	Dimethylamine sulfate	15	289,000
Di-isopropene (2,3-Dimethylbutene)	02	64,000	p-(Dimethylamino)benzaldehyde	03	795,250
Diisopropyl adipate	11	63,200	p-Dimethylamino benzeneazolum chloride (p-Diazo-N,N-dimethylamine zinc chloride)	14	346,000
Diisopropylamine	15	286,000	m-(Dimethylamino)benzoic acid	03	796,500
2-Diisopropylaminoethanol (N,N-)	15	408,000	2-(4-(Dimethylamino)benzoyl)benzoic acid	03	365,000
Diisopropylethanolamine	15	362,000	2-Dimethylaminoethanethiol hydrochloride	15	365,000
Diisopropylamine	03	778,000	Dimethylaminoethyl acrylate (Dimethylaminoamine)	15	367,000
Diisopropylbenzene	03	778,100	Dimethylaminoethylacrylate, methyl chloride, quaternary salt	15	367,900
Diisopropylbenzene hydroperoxide	15	64,000	2-[[-(Dimethylamino)ethyl] (p-methoxybenzyl) amino]pyridine	03	800,200
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	15	817,000	Dimethylaminoethyl methacrylate	15	368,000
Diisopropyl methanesulfonic acid, sodium salt	12	166,000	Diethylaminoethyl methacrylate, dimethyl sulfate,	15	368,200
Diisopropyl peroxycarbonate (isopropyl percarbonate)	15	1293,600	quaternary salt	15	369,000
N,N-Diisopropyl phosphorothioic acid	14	181,000	Diethylaminoethyl methacrylate, methyl chloride,	15	369,500
S-(O,O-Diisopropyl phosphorothioic acid) ester of N-(c-mercaptoethyl)benzenesulfonamide (bensulidol)	13	58,000	quaternary salt	15	369,600
Diisopropyl sebacate	11	114,100	Diethylaminoethyl methacrylate, methyl chloride,	15	369,800
1,2-Diisopropylsuccinate	15	1059,450	quaternary salt	15	369,900
Diketene	15	66,000	Diethylaminoethyl methacrylate, methyl chloride,	15	369,900
Dilauryl-3,3'-thiodipropionate	15	940,000	2-Dimethylamino-2-methyl-1-propanol hydrochloride	03	802,000
Dimenhydrinate	06	80,000	m-Dimethylamino-2-propanol	15	369,700
Dimercaptolac	12	419,300	Dimethylaminoethylamine	12	407,730
K-(Dimercaptolacetyl)trimethylenediamine	14	297,700	Dimethylaminoethylamine	15	274,000
Dimer acid esters and polyesters	15	509,000	Dimethylaminoethylamine, propoxylated	15	274,006
Dimer acid esters with polyethylene glycol hydrogen phthalate and castor oil	15	66,900	Dimethylaminoethylamine propyl-6H-hydroxydibenz(b,e)oxepin	03	803,000
2,5-Dimercapto-1,3,4-thiadiazole	09	27,800	Dimethylaminoethyl methacrylamide	05	236,860
Dimethandene maleate	06	94,000	4-Dimethylaminoethylamine	09	81,725
2,5-Dimethoxyaniline, ethoxylated	12	342,250	Dimethylammonium hydrogen isophthalate	03	805,000
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	03	784,000	N,N-Dimethylaniline	03	806,000
Dimethoxyethane (ethylene glycol dimethyl ether)	15	67,000	7,12-Dimethylbenz(a)anthracene	13	166,027
Di-(methoxyethyl)hydroxylamine	15	155,000	N,N-Dimethyl-1,3-benzodioxol-4-yl N-methylcarbamate	03	809,000
Di(2-methoxyethyl) phthalate	11	31,000	N,N-Dimethyl-4,4'-bipyridinium dichloride	13	118,049
1,1-Dimethoxy octane	07	134,250	Dimethyl-2,5-pas(2-ethyl-1-hexenoyl peroxy) hexene	15	1294,000
3-(Dimethoxyphosphoryloxy)-N,N-dimethyl- <i>o</i> s-crotonamide	13	222,000	2,2-Dimethylbutanol (isobutyl alcohol)	15	197,400
1,2-Dimethoxy-4-propenylbenzene (4-Propenylacetrole)	07	30,000	3,3-Dimethylbutane	15	274,995
3,4-Dimethoxyacetamide	15	236,500	N,N-Dimethylbutylamine	15	275,000
N,N-Dimethylacetamide	15	222,500	N-(1,3-Dimethylbutyl)-N-phenyl-p-phenylenediamine	09	59,310
O,S-Dimethylacetylphosphoramide(ethioste) (acetate)	12	393,200	Dimethyl caprylamide capramide	15	236,800
Dimethyl acetate	15	288,000	Dimethyl carbonate	15	941,000
N,N-Dimethyl-N-alkylamine phosphates	12	364,750	N,2-Dimethylchloropropane(pentyl chloride)	15	1239,800
Dimethylamine	15	364,750	N,2-Dimethylchloropropane(pentyl chloride)	15	1239,800
Dimethylamine epichlorohydrin copolymer	15	364,750	N,N-Dimethyl (cocoon) oil alkylamine	12	433,000
Dimethylamine epichlorohydrin ethylenediamine copolymer	14	417,000	N,N-Dimethyl (cocoon) oil alkylamine oxide	12	436,360
			Dimethyl-1,4-cyclohexanedicarbonylate	03	811,500

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Dimethyl cyclohexane methanol	07	97, 436	N,N-Dimethyl(mixed alkyl)amine oxide	12	328, 100
N,N-Dimethylcyclohexylamine	03	813, 000	2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride	03	814, 000
Dimethyl diallyl ammonium chloride polymers	14	418, 000	2,6-Dimethyl-4-naphthalene (Methyl phosphorothioate)	03	819, 750
Dimethyl[di(18)-18]ammonium chloride (mixed straight and branched chains)	12	485, 760	0,0-Dimethyl 0-(p-microphenyl)phosphorothioate	13	158, 000
2,5-Dimethyl-2,5-dimethylhexane	15	1295, 000	N,N-Dimethyl-p-nitrosomillane	03	820, 000
2,5-Dimethyl-2,5-dichloroethyl phosphate (DDVP)	13	223, 000	N,N-Dimethyl-9-octadecanoylamine	12	438, 200
2,5-Dimethyl-2,5-dichloroethyl phosphate (DDVP)	12	485, 000	N,N-Dimethyl-9-octadecanoylamine	12	438, 000
Dimethylidodecylammonium chloride	12	486, 000	3,7-Dimethyl-trans-2,6-octadecanal (Citral a)	07	134, 850
Dimethylidodecylammonium methyl sulfate	12	487, 000	3,7-Dimethyl-trans-2,6-octadecanal (Citral a,b)	07	134, 900
N,N'-Dimethyl-2,3-diphenylacetamide (Diphenamid)	13	59, 000	3,7-Dimethyl-cis-2,6-octadecan-1-ol (Geranol)	07	135, 000
N,N'-Dimethyl-N,N'-diphenylurea	15	67, 800	3,7-Dimethyl-1,6-octadecan-3-ol (Linalol)	07	136, 000
Dimethylidithiocarbamic acid, bisnatch salt	09	138, 000	3,7-Dimethyl-1,6-octadecan-3-ol (Linalol)	07	136, 000
Dimethylidithiocarbamic acid, copper salt	09	140, 000	3,7-Dimethyl-cis-2,6-octadecan-1-ol (Geranyl acetate)	07	135, 100
Dimethylidithiocarbamic acid, lead salt	09	141, 000	3,7-Dimethyl-1,6-octadecan-3-ol, acetate (Linalyl acetate)	07	137, 000
Dimethylidithiocarbamic acid, potassium salt	09	142, 000	3,7-Dimethyl-1,6-octadecan-3-yl isobutyrate (Linalyl isobutyrate)	07	139, 000
Dimethylidithiocarbamic acid, sodium salt	09	143, 000	3,7-Dimethyl-2,6-octadienyl phenylacetate (Geranyl phenylacetate)	07	31, 000
Dimethylidithiocarbamic acid, sodium salt and sodium polysulfide	09	144, 000	3,7-Dimethyl-2,6-octadienyl 3-yl propionate (Linalyl propionate)	07	140, 000
Dimethylidithiocarbamic acid, zinc salt	09	145, 000	3,7-Dimethyl-2,6-octadienyl 3-yl propionate (Linalyl propionate)	07	140, 100
N,N-Dimethyldodecylamine	12	327, 910	Dimethyloctanal	07	140, 500
N,N-Dimethyldodecylamine oxide	12	327, 910	3,7-Dimethyloctanol-1 (Tetrahydrogeraniol)	07	140, 500
Dimethyl dodecylsulfate ether sulfate	12	456, 500	Dimethyloctanoyl acetate	07	140, 600
Dimethylurea	12	456, 500	3,7-Dimethyl-6-octen-1-ol (Citronellal)	07	142, 000
S-[(1,1-dimethylethyl)thio methyl] 0,0-diethyl phosphorodithioate (Turbufos)	13	212, 015	3,7-Dimethyl-6-octen-1-ol, acetate (Citronellal acetate)	07	142, 000
N,N-Dimethylformamide	13	223, 500	3,7-Dimethyl-6-octen-1-ol, acetone (Citronellol)	07	142, 000
N,N-Dimethylglycine	14	5, 000	N,N-Dimethyl-6-octenylamine oxide	14	479, 000
N,N-Dimethylglycine hydrochloride	07	13, 500	N,N-Dimethyl-6-octenylamine oxide	14	479, 000
2,6-Dimethyl-5-hepten-1-ol	07	135, 000	Dimethyl-6-oxo-1,2,3-benzotriazin-3(3H)-yl	15	68, 200
N,N-Dimethylhexadecylamine oxide	12	435, 000	4,4-Dimethyl oxazolone	15	3,660
Dimethyl hexamediol	07	134, 600	0,0-Dimethyl S-[(4-oxo-1,2,3-benzotriazin-3(3H)-yl)] methyl phosphorodithioate (Azinphos-methyl)	13	159, 000
2,5-Dimethyl-3-hexyne-2,5-diol	07	134, 650	a,c-Dimethylphenethyl acetate	07	33, 000
1,1-Dimethylhydantoin	03	816, 000	a,c-Dimethylphenethyl alcohol	07	33, 000
N,N-Dimethylhydrazine	12	436, 000	0,0-Dimethyl phosphorodithioate	13	225, 000
N,N-Dimethyl(hydrogenated tallow alkyl)amine	14	136, 500	0,0-Dimethyl phosphorodithioate	13	229, 012
Dimethyl hydrogen phosphate	15	943, 000	Dimethyl phosphorodithioate	15	1030, 000
Dimethyl isophthalate	12	437, 000	Dimethyl phthalate	11	32, 000
Dimethyl methacrylate	12	437, 000	1,1-Dimethylpiperidinium chloride	13	168, 350
0,0-Dimethyl 0-(4-methylthio)-m-tolyl phosphorothioate (Fenflon)	13	157, 000			
N,N-Dimethyl(mixed alkyl)amine	12	437, 000			



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
N,N-Dimethyl-1,3-propanediamine polymer with epichlorohydrin, sulfate	14	160.000	2,4-dinitrotoluene	03	844.000
2,2-dimethyl-1,3-propanediol (Neopentyl glycol)	15	580.000	2,4-dinitro-2,6-dinitrotoluene	03	845.000
Dimehylpropionic acid	15	510.000	3,5-Dinitro-o-toluic acid	03	846.200
(Propanamide)-2-propynyl)-3,5-dichlorobenzamide	13	118.023	Dimethylhydroxybenzenesulfonic acid	03	846.700
Dimehyl pseudo ionone	07	97.440	Dimethylphenol	12	743.000
Dimehyl sebacate	12	43.900	Dimethylphenol, ethoxylated	12	76.300
N,N-Dimethyl(iso)hean oil alkyl)amine	12	43.900	Dimethylphenol, ethoxylated and phosphated	11	33.000
Dimehyl sulfinate	07	102.700	Dimethyl phthalate	11	33.500
N,N-Dimethyl(tall oil alkyl)amine	02	92.820	Dimethyl undecyl phthalate	06	679.300
N,N-Dimethyl(tallow alkyl)amine	12	439.400	N,N-Diosetone bromothamine	09	150.200
N,N-Dimethyl-3,5-tetrahydroterephthalate (DCPA)	12	439.500	N,N-Dioctyl adipate,N'-diisopropyl thuram disulfide	11	83.300
N,N-Dimethyl-1,3-bis(4-thiadiazol-2-yl)-N,N-dimethylurea (Tebuthauron)	12	440.000	N,N-Dioctyl-N,N-dimethyl ammonium chloride	11	487.150
N,N-Dimethyl-o-toluidine	13	119.061	Dioctyl maleate	12	35.000
N,N-Dimethyl-p-toluidine	03	828.000	Dioctyl phthalates, all other	11	37.000
N-[2,4-dimethyl-5-(trifluoromethyl)sulfonylamino]phenylacetamide,	03	828.000	Dioctyl phthalates, all other	11	37.000
1-dimethyl-3-(6,6,6-trifluoro-m-tolyl)urea	13	168.375	Dioxane (1,4-dithethylene oxide)	15	1031.000
Dimylacetol	13	118.040	1,3-Dioxolendichlorate (Dioxathion)	15	72.000
Dimylacetyl	07	743.800	Dioxolane-2-acetate	13	162.000
N,N'-Di-2-naphthyl-p-phenylenediamine	13	118.040	Di-para-benzoquinone dioxime	15	173.000
Dinitolamide	06	171.000	Di-para-wylene	07	843.850
2,4-Dinitroaniline	03	829.000	Di-M,N'-pentamethylenethiuram tetrasulfide	15	974.058
1,5-(and 1,8)-Dinitroanthraquinone	03	831.000	Dipentylamine	09	42.000
m-Dinitrobenzene	03	834.000	2,4-Di-tert-pentylphenol	15	295.000
Dinitrobenzoyl chloride	03	837.000	Dipropoxydodecamedioic acid	03	847.000
Dinitrobutylphenol	13	63.000	Diphenylamine	06	115.001
Dinitrobutylphenol, triethanolamine salt	13	64.000	Diphenylamine citrate	06	115.001
4,4-Dinitrocabanilide-4,6-dimethyl-2-pyridindiol	13	65.000	Diphenylamine hydrochloride	06	115.001
2,6-Dinitro-N,N-dipropyl cumidine	13	118.039	1,5-Diphenoxanthraquinone	06	95.000
2,4-Dinitro-4-isopropylphenol	03	839.300	Diphenoxylate	03	846.500
2,4-Dinitrophenol, tech.	03	840.000	Diphenoxylate	03	846.500
Dinitrophenoxycybenol	03	840.500	Diphenoxylate-1,3-indandione and sodium salt	06	620.300
3,5-Dinitrosalicylic acid (mixture)	03	842.000	Diphenylacetate	13	171.010
3,5-Dinitrosalicylic acid, methyl ester	03	842.200	Diphenylacetate-1,3-indandione	03	852.500
p-Dinitrosobenzene	03	842.600	Diphenylamine (Mixture)	03	853.000
Dinitrosopentamethylenetetramine	09	702.600	Diphenylamine	09	52.700
4,4'-Dinitrosilbene-2,2'-disulfonic acid	03	843.000	Diphenylamine-acetone condensate	09	53.000
			Diphenylamine-styrenated sulfate	14	350.000
			Diphenylamine-4,4'-diphenylmethylenediacetate	09	70.300
			Diphenylidylsulfide	03	855.250
			Diphenylmercuric dodeceny succinate	13	7.500
			Diphenylmethane	03	856.100
			Diphenylmethane-4,4'-diisocyanate (HDI)	03	1020.000
			Diphenyl octyl phosphate	11	12.000

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
M,N'-Diphenyl-p-phenylenediamina	09	62,000	Direct Blue 267	04	570,267
Diphenylsulfide	03	845,400	Direct Blue 268	04	570,268
Diphenylsulfone	02	855,400	Direct Blue 269	04	570,279
Diphenylsulfone sulfonic acid, potassium salt	02	858,313	Direct Blue 281	04	570,281
1,3-Di-4-piperidylpropane	12	205,910	Direct Blue 283	04	570,283
Dipolyetheridic sulfonic acid, diethanolamine salt	11	4,000	Direct Blue 286	04	570,286
Dipropyl adipate	11	63,350	Direct blue dyes, all other	04	571,000
Dipropylamine	15	300,000	Direct Brown 44	04	597,290
Dipropylene glycol	15	1156,000	Direct Brown 45	04	606,230
Dipropylene glycol monomethyl ether	15	1156,500	Direct Brown 530	04	606,231
Dipropylene glycol salicylate	15	274,000	Direct Brown 532	04	606,232
Dipropylmethanamine	15	148,500	Direct Brown 538	04	606,233
Di-n-propylisocinchonemionate	15	1296,300	Direct brown dyes, all other	04	607,000
Di-n-propyl paroxydicarbonate	14	234,000	Direct Green 1	04	573,000
Di-n-propylparoxydicarbonate	14	234,435	Direct Green 92	04	586,092
Dipyrrolidone	04	608,000	Direct green dyes, all other	04	587,000
Dipyrrolidonyl ethylamine	04	612,000	Direct Orange 6	04	461,000
Direct Black 4	04	613,000	Direct Orange 15	04	462,000
Direct Black 19	04	623,000	Direct Orange 26	04	464,000
Direct Black 22	04	623,175	Direct Orange 34	04	464,000
Direct Black 80	04	623,175	Direct Orange 39	04	466,000
Direct Black 765	04	625,000	Direct Orange 72	04	470,000
Direct Black 170	04	534,000	Direct Orange 80	04	475,000
Direct Black dyes, all other	04	535,000	Direct Orange 102	04	479,000
Direct Blue 1	04	537,000	Direct Orange 104	04	479,000
Direct Blue 2	04	538,000	Direct Orange 105	04	479,118
Direct Blue 8	04	540,000	Direct orange dyes, all other	04	483,000
Direct Blue 14	04	540,000	Direct Red 9	04	483,009
Direct Blue 15	04	540,000	Direct Red 16	04	488,000
Direct Blue 22	04	544,000	Direct Red 23	04	490,000
Direct Blue 25	04	545,000	Direct Red 33	04	492,000
Direct Blue 67	04	547,000	Direct Red 34	04	492,000
Direct Blue 71	04	548,000	Direct Red 44	04	497,000
Direct Blue 75	04	548,079	Direct Red 56	04	499,000
Direct Blue 76	04	550,000	Direct Red 88	04	500,000
Direct Blue 79	04	552,000	Direct Red 89	04	503,000
Direct Blue 80	04	552,000	Direct Red 91	04	504,000
Direct Blue 86	04	558,000	Direct Red 92	04	505,000
Direct Blue 91	04	558,000	Direct Red 93	04	506,000
Direct Blue 98	04	557,108	Direct Red 149	04	517,000
Direct Blue 108	04	559,000	Direct Red 153	04	519,236
Direct Blue 150, 120.1, 120.2, and 120.3	04	564,000	Direct Red 236	04	521,236
Direct Blue 160	04	565,000	Direct Red 238	04	521,238
Direct Blue 189	04	566,000			
Direct Blue 191	04	567,000			
Direct Blue 199	04	568,000			
Direct Blue 218	04	569,261			
Direct Blue 261	04	569,261			



Table 4. --Alphabetical Chemical Index

CHEMICAL NAME	SECT' NO.	ITEM NO.	CHEMICAL NAME	SECT' NO.	ITEM NO.
Direct Red 239	04	521.239	Disperse Blue 73	04	729.000
Direct Red 253	04	521.253	Disperse Blue 77	04	730.000
Direct Red 254	04	521.254	Disperse Blue 79	04	732.000
Direct Red dyes, all other	04	522.000	Disperse Blue 81	04	732.086
Direct Violet 14	04	525.000	Disperse Blue 86	04	734.000
Direct Violet 66	04	525.000	Disperse Blue 95	04	735.000
Direct Violet 99	04	531.000	Disperse Blue 102	04	739.000
Direct Yellow 4	04	421.000	Disperse Blue 118	04	739.122
Direct Yellow 5	04	422.000	Disperse Blue 142	04	742.148
Direct Yellow 6	04	423.000	Disperse Blue 165	04	743.165
Direct Yellow 11	04	423.000	Disperse Blue 183	04	743.200
Direct Yellow 28	04	427.000	Disperse Blue 200	04	743.281
Direct Yellow 48	04	438.000	Disperse Blue 281	04	743.284
Direct Yellow 49	04	438.000	Disperse Blue 284	04	743.337
Direct Yellow 50	04	439.000	Disperse Blue 291	04	743.337
Direct Yellow 84	04	445.000	Disperse Blue 337	04	743.338
Direct Yellow 105	04	445.000	Disperse Blue 338	04	746.000
Direct Yellow 106	04	446.000	Disperse Brown 2	04	747.000
Direct Yellow 107	04	447.000	Disperse Brown 2	04	747.018
Direct Yellow 118	04	450.000	Disperse Brown 2	04	748.000
Direct Yellow 119	04	451.000	Disperse Brown 10	04	745.999
Direct Yellow 137	04	453.000	Disperse Brown 18	04	748.000
Direct Yellow 138	04	453.000	Disperse Brown 22	04	747.022
Direct Yellow 133	04	454.133	Disperse Brown dyes, all other	04	748.000
Direct Yellow 137	04	454.137	Disperse Green 9	04	745.009
Direct Yellow 147	04	454.147	Disperse Green 9	04	745.009
Direct Yellow 148	04	454.148	Disperse Green 9	04	745.009
Direct Yellow 150	04	454.150	Disperse Orange 5	04	653.000
Direct Yellow 152	04	454.152	Disperse Orange 5	04	654.000
Direct yellow dyes, all other	04	455.000	Disperse Orange 17	04	654.000
Disodiumsulphide-1,2-propanediamine	13	179.000	Disperse Orange 25 and 25:1	04	656.000
Disopyramide phosphate	13	179.000	Disperse Orange 29	04	659.000
Disperse Black 1	06	378.500	Disperse Orange 30	04	660.000
Disperse Black 9	04	752.000	Disperse Orange 37	04	661.000
Disperse Black 33	04	751.000	Disperse Orange 41	04	662.000
Disperse Black dyes, all other	04	752.000	Disperse Orange 44 and 14:1	04	663.000
Disperse Blue 3	04	717.000	Disperse Orange 73	04	667.073
Disperse Blue 7	04	717.000	Disperse Orange 88	04	668.079
Disperse Blue 27	04	719.026	Disperse Orange 89	04	668.086
Disperse Blue 29	04	719.026	Disperse Orange 94	04	668.084
Disperse Blue 56	04	722.000	Disperse Orange 129	04	668.159
Disperse Blue 60	04	725.000	Disperse Orange 136	04	668.136
Disperse Blue 62	04	725.000	Disperse Orange 138	04	668.138
Disperse Blue 64	04	727.000	Disperse Orange 145	04	668.145
Disperse Blue 72	04	728.072	Disperse Orange dyes, all other	04	669.000
			Disperse Red 1	04	670.000









Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Ethoxylated and propoxylated glycerol mono- and diesters of tallow acids	12	708.700	3-(N-Ethylamino)propionitrile	03	886.000
Ethoxylated, quaternized(C12-18 alkyl) oxypropyl trimethylene diamine	12	488.200	2-(N-Ethylamino)ethyl methanesulfonic acid	07	897.000
Ethoxylated and quaternized hydrogenated tallow alkyl amine	12	336.010	2-Ethylanthranquinone	03	891.000
Ethoxylated, quaternized reaction product of ethoxyethylmorpholine diamine	12	489.250	5-Ethyl-1-aza-3,7-dioxabicyclo[3.3.0]octane	15	76.900
Ethoxylated sorbitol heptaester	12	657.000	Ethyl benzoate	07	35.900
Ethoxylated sorbitol hexaester of tall oil acids	12	657.000	Ethyl benzoyl chloride	03	894.000
Ethoxylated sorbitol hexaoleate	12	628.000	N-Ethyl-N,N-bis(2-propylthio)ethylene(tallow ammonium ethyl)	12	527.000
Ethoxylated sorbitol lanolin ester	12	629.000	Ethyl butyrate	07	144.000
Ethoxylated sorbitol mono-oleate	12	630.000	Ethyl caprylate	07	214.000
Ethoxylated sorbitol oleate, acetylated	12	631.500	Ethyl cellulose	08	21.030
Ethoxylated sorbitol tetraoleate	12	633.000	Ethyl chloride (Chloroethane)	15	1223.000
Ethoxylated sorbitol tetraester of lauric and oleic acids	12	635.000	Ethyl chloroformate	15	958.000
Ethoxylated sorbitol tetraoleate	12	636.400	Ethyl chloroethanol	15	959.600
Ethoxylated sorbitol trioleate	12	636.500	Ethyl chrysanthemate	15	77.150
Ethoxylated tallow amine, potassium propionate derivative	12	465.958	Ethyl crotonate	07	38.000
1-Ethoxy-3-methylbenzene	03	877.700	Ethyl cyanoacetate	15	387.000
2-Ethoxy-2-ethyl-N-phenylamine	03	877.900	2-(N-Ethyl-N, $\beta$ -cyanoethyl)-4-acetaminomiso	15	895.100
2-Ethoxy-1-naphthoic acid	07	35.000	5-Ethyl cyclohexylethylthiocarbamate	13	69.100
2-Ethoxy-1-naphthol chloride	03	879.000	Ethyl 4,4'-dichlorobenzilate (Chlorobenzilate)	13	135.700
3-Ethoxypropionitrile	15	440.000	S-Ethyl disobutylthiocarbamate (Butylate)	13	896.150
Ethyl acetate (100% basis)	15	954.001	Ethyl dimethylamined alkylammonium ethyl sulfate	12	499.500
Ethyl acetate	15	955.000	5-Ethyl 3,5-dipropyl phosphorodithioate	13	243.010
Ethyl acrylate	08	19.962	Ethylene bis(2-propylthiocarbamate (EPIC))	02	266.000
Ethyl alcohol, synthetic only	15	130.000	Ethylene bis(dithiocarbamic acid),disodium salt (Naban)	08	31.900
Ethylaluminum sesquichloride	15	1361.000	Ethylene bis(dithiocarbamic acid),manganese salt (Maneb)	13	183.000
Ethylamine, mono	15	278.000	Ethylene bis(dithiocarbamic acid), manganese salt with zinc ions	13	184.500
3-(Ethylamino)acetanilide	03	880.200	Potassium salt	14	45.000
2-(Ethylamino)ethanol (Ethylmonoethanolamine)	15	385.000	N,N'-Ethylenebis-oleamide (Oleic acid-ethylene diamine condensate (Amine/acid ratio = 1/2))	15	240.000
o-Ethylamine (Acetazyme)	13	69.000	Ethylene carbonate	15	961.000
N-Ethylamine, refined	03	882.500	Ethylendiamine	15	280.000
2-(N-Ethylamino)ethanol	03	884.000	Ethylendiamine, alkoxylated	12	328.450
			Ethylendiamine dihydroiodate	06	583.000



Table 4.—Alphabetical Chemical Index

CHEMICAL NAME		SECT. NO.	ITEM NO.	CHEMICAL NAME		SECT. NO.	ITEM NO.
	Ethylendiamine dihydrochloride	15	387,990		Ethyl heptanoate	07	145,000
	Ethylene dibromide	14	182,000		Ethylhexadecylmethacrylamonium bromide	12	493,000
	Ethylene dichloride	15	123,000		Ethylhexylaluminum ethyl sulfate	12	461,000
	Ethylendinitrilo)tetraacetic acid	14	47,000		S-Ethyl-hexacyclo-18-azepine-carbothioate (Mollinate)	13	70,000
	(Ethylendinitrilo)tetraacetic acid, (EP7)	14	47,000		2-Ethylhexanal (α-Ethylcaproaldehyde)	15	789,000
	(Ethylendinitrilo)tetraacetic acid, calcium disodium salt	14	49,000		2-Ethyl-1,3-hexanediol	15	1082,000
	(Ethylendinitrilo)tetraacetic acid, diammonium salt	14	50,000		Ethyl hexanoate	07	146,000
	(Ethylendinitrilo)tetraacetic acid, disodium copper salt, dihydrate	14	54,000		2-Ethylhexanoic acid (α-Ethylcaproic acid)	15	519,000
	(Ethylendinitrilo)tetraacetic acid, disodium zinc salt, dihydrate	14	53,000		2-Ethylhexanoic acid, potassium salt	12	647,300
	(Ethylendinitrilo)tetraacetic acid, disodium zinc salt, dihydrate	14	56,000		2-Ethyl-1-hexanol	12	647,300
	(Ethylendinitrilo)tetraacetic acid, manganese salt	14	58,000		2-Ethylhexanol and ethoxylated nonylphenol	15	854,000
	(Ethylendinitrilo)tetraacetic acid, monosodium iron salt	14	60,000		2-Ethylhexanol and ethoxylated nonylphenol	12	80,090
	(Ethylendinitrilo)tetraacetic acid, tetramonium salt	14	61,000		polyphosphated, sodium salt	12	80,100
	(Ethylendinitrilo)tetraacetic acid, tetrapotassium salt	14	62,000		2-Ethylhexanol, ethoxylated and phosphated	12	80,000
	(Ethylendinitrilo)tetraacetic acid, tetrasodium salt	14	63,000		2-Ethyl hexanol, phosphated, potassium salt	12	80,050
	(Ethylendinitrilo)tetraacetic acid, trisodium salt	14	64,000		2-Ethylhexanoyl chloride	12	80,210
	1,1-Ethyleneurea	15	1081,000		2-Ethyl-1-nonyl acetate	15	962,000
	Ethylene glycol adipate	15	1081,000		2-Ethylhexyl acrylate-methyl methacrylate copolymer resins	08	19,970
	Ethylene glycol diacetate	15	63,450		(2-Ethylhexyl)amine, mono-	15	281,000
	Ethylene glycol dimaleate	15	1106,000		(2-Ethylhexyl)benzoate	15	79,000
	Ethylene glycol dimercaptoacetate	15	1107,000		N-(2-Ethylhexyl)bicyclo(2,2,1)-5-heptene 2,3-dicarboximide	13	173,000
	Ethylene glycol dimethacrylate	15	1108,000		2-Ethylhexyl chloroformate	15	953,600
	Ethylene glycol distearate	12	638,000		2-Ethylhexyl p-dimethylaminobenzoate	15	953,600
	Ethylene glycol di- <i>t</i> -butyl ether	15	1161,700		2-Ethylhexyl epoxytallates	15	77,000
	Ethylene glycol esters, all other	12	642,000		2-Ethylhexyl hydrogen phosphate	15	1317,500
	Ethylene glycol hydroxyacetate	15	1162,000		2-Ethylhexyl methacrylate	15	1032,000
	Ethylene glycol monoisobutyl ether	15	1162,000		2-Ethyl-1-hexyl oleate	15	964,000
	Ethylene glycol monoacetate	12	639,000		2-Ethylhexyl oleate	11	90,600
	Ethylene glycol monoacetate	12	640,000		2-Ethylhexyl palmitate	11	96,900
	Ethylene glycol phosphate	15	1109,700		2-Ethylhexyl phosphate	12	96,800
	Ethylene oxide	15	1312,000		2-Ethylhexyl phosphate, potassium salt	12	96,900
	Ethylene-propylene (EP) type copolymer resins	10	31,000		2-Ethylhexyl phosphate, sodium salt	12	96,900
	Ethylene-vinyl acetate (EVA) copolymer resins	08	10,700		2-Ethylhexyl polyphosphate, sodium salt	12	96,000
	Ethyl- $\alpha$ , $\beta$ -epoxy- $\gamma$ -methylcrotonamate	07	37,000		2-Ethylhexyl polyphosphate, sodium salt	12	99,000
	Ethyl ether, U.S.P.	15	1315,000		2-Ethylhexyl stearate	07	37,400
	Ethyl ether, absolute	15	1315,000		2-Ethylhexyl stearate	11	119,000
	Ethers of ethyl and higher ethylene glycols (high boiling)	15	1315,000		2-Ethylhexyl sulfate	12	243,000
	Ethyl ether, tech.	15	1161,400		2-Ethylhexyl sulfate, sodium salt	12	408,500
	Ethyl formate	15	1314,000		N-(Ethylhexyl)trimethylethylenediamine	12	408,500
	Ethyl glycol monochloroacetate	07	134,000		P-[Ethyl(12-hydroxyethyl)amino]benzenediazonium chloride	14	352,000
	1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	11	107,500		5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	15	321,000
		12	460,000				

Table 4.—Alphabetical Chemical Index

CHEMICAL NAME	SECT: NO.	ITEM NO.	CHEMICAL NAME	SECT: NO.	ITEM NO.
(N-Ethyl-N-(2-hydroxyethyl)-3-methyldehydrogen sulfate)			2-Ethylthio-4,6-bis(isopropylamino)s-triazine	13	118-016
p-phenylenediamine	14	353,000	N-Ethylthioethanol	02	93,100
N-Ethyl-N-hydroxyethyl-1,4-pentanediamine	15	392,100	N-Ethyl-3-toluidine sulfonamide	11	5,000
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	14	354,000	3-(N-Ethyl-m-toluidino)propionitrile	03	908,000
Ethyl hydroxyethyl oleyl oxazoline	15	79,700	Ethyl trimethyl cyclopentyl buterol	07	150,250
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol			Ethyl 3,7,11-trimethyldodeca-2,4-dienoate	13	231,016
(Trimethylolpropane)	15	1083,000	Ethyl valerate	07	150,300
Ethyl-2-hydroxypropyl-1,3-propanediol trimethacrylate	15	1110,000	Ethyl vinyl ether	15	1316,000
Ethyl-2-hydroxypropyl-1,3-propanediol	15	80,000	Ethyl xanthogen disulfide	15	203,000
1-Ethyl-2-isobutylacetyl-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	12	460,020	Etidonate, disodium	06	837,001
Ethyl isovalerate	07	146,500	Extradon, polystyrene beads	08	44,010
Ethyl laurate	07	147,000	External Drug and Cosmetic Vehicle 3	04	827,000
N-Ethylmaleimide	03	896,600	External Drug and Cosmetic Vehicle 7	04	837,000
Ethyl mercaptan (Ethaneethiol)	02	93,000	Fats and oils, chemically modified, all other	12	527,900
2-Ethylmercaptoethanol	15	1327,000	Fatty acid alkenolamide	15	1434,000
N-Ethyl-N-(6-methane sulfonamidoethyl)toluene-2,5-			Fatty acid amide mixtures	15	981,000
1-Ethyl-3-methylglutolin	14	355,000	Fatty acid esters, not included with plasticizers	15	280,000
N-Ethyl-2-methylallilamine	02	897,030	Surface-active agents, all other	14	280,000
6-Ethyl-2-methylallilamine	03	897,000	Fatty acid polyamine condensate	15	1434,300
Ethyl-2-methyl butyrate	07	147,700	Fatty acid residues	15	521,000
1-Ethyl-2-methylindole	03	897,050	Fatty acids, hydrogenated	05	522,000
Ethyl-2-methyl pentanoate	07	147,760	Fatty acids, hydrogenated	05	522,000
N-(3-(1-Ethyl-1-methylpropyl)-5-isoxazolyl)-2,6-dimethoxybenzamide (Fieksidor)	07	147,760	Fenoprofen	15	784,000
0-phosphorodithiophenyl S-propyl	13	118,062	Ferrocene polymer with 2-propanone in chlorinated wax	15	81,600
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	13	165,012	Fish oil fatty acid amide	15	243,000
2-Ethylhexanol, phosphated, potassium salt	12	284,900	Flavonate acetate	06	745,500
4-Ethylmorpholine	15	81,000	Flecanide	06	378,001
Ethyl myristate	07	148,000	Flotation agents, all other	14	197,000
9-Ethyl-3-nitrocarbazole	03	899,000	Fluorobutene acetate, KM, FKFR type	06	656,000
0-Ethyl 0-(p-nitrophenyl)phenylphosphonothoate (EPN)	13	163,000	Fluorescent Brightener 230	10	81,000
2-Ethyl-2-nitro-1,3-propanediol	15	392,250	Fluorescent Brightener 24	04	758,200
Ethyl octanoate	07	149,000	Fluorescent Brightener 22	04	759,000
Ethyl phenylacetate	07	150,000	Fluorescent Brightener 28	04	761,000
N-Ethyl-N-phenylbenzylamine	03	37,600	Fluorescent Brightener 46	04	765,000
0-Ethyl-S-phenylsilylphosphonodithioate	13	163,300	Fluorescent Brightener 49	04	766,000
Ethyl propionate	12	458,830	Fluorescent Brightener 52	04	767,000
Ethyl propylate	07	150,200	Fluorescent Brightener 61	04	770,000
N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzamine	13	183,030	Fluorescent Brightener 102	04	771,000
Ethyl salicylate	07	39,000	Fluorescent Brightener 128	04	778,000
Ethyl salicylate ammonium alkylmorpholinium ethyl sulfate	12	463,000	Fluorescent Brightener 134	04	780,000
N-Ethyl-N-(3-sulfobenzyl)aniline	15	966,000	Fluorescent Brightener 191	04	780,191
	03	908,103	Fluorescent Brightener 200	04	780,200
			Fluorescent brighteners, all other	04	781,000







Table 4.—Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic anhydride (Chlorendic anhydride)	03	925-100	Hexylalcohol, ethoxylated and phosphated	12	80-500
Hexadecane	15	1342-000	Hexylalcohol, phosphated, K salt solubilized	12	80-550
1-Hexadecanethiol	15	831-750	n-Hexylamine	15	284-000
1-Hexadecanethiol (Cetyl alcohol)	15	893-000	Hexyl carboxate	07	195-710
Hexadecanediol	07	97-550	Hexyl carbamate	15	1238-100
n-Hexadecylsuccinic anhydride	15	559-000	Hexyl chloride	15	57-560
Hexadecyl alcohol, ethoxylated	12	730-000	2-Hexylcinnamaldehyde	07	41-000
Hexadecylamine	12	421-000	2-Hexyl-2-cyclopenten-1-one	07	97-600
tert-Hexadecyl mercaptan	09	171-100	n-Hexyl-1-decanol	15	875-000
n-Hexadecylmorpholine	12	347-000	Hexyl n-decyl phthalate	11	63-600
Hexadecyl stearate	11	121-310	1-Hexyl-1,2-dichloroethane	11	44-000
Hexadecyl sulfate, sodium salt	12	435-000	Hexylisononyl amide, carboxylic acid, triethanol-	15	1368-500
Hexadecyl sulfonate, sodium salt	12	435-000	Hexyl mercaptan	15	57-565
Hexamethoxyethylene, monomer	15	1267-000	Hexyl 2-methylbutyrate	09	171-150
Hexahydro dimethyl methano-indenol-1,1-dimethylurea (Noraa)	07	97-570	Hexyl nitrate	07	155-715
Hexahydro-1,3,5-triethyl-s-triazine	13	72-000	2-(2-(Hexyloxy)ethoxy)ethanol	14	149-000
Hexahydro-1,3,5-tri(2-hydroxyethyl)-s-triazine	13	40-012	Hexyloxypropyl amine	15	1164-000
Hexamethyldisilazane	13	40-022	Hexyl phosphate	12	328-600
Hexamethylendiamine adipate (Nylon salt)	15	1387-500	Hexyl polyphosphate, potassium salt	12	99-900
Hexamethylendiamine, monomer	15	397-000	Hexyl sulfate, potassium salt	12	100-000
Potassium salt	14	68-000	Hexyl sulfite, potassium salt	07	40-900
Hexamethylenamine	03	927-870	Homomethyl salicylate	12	231-000
Hexamethylenetetramine, tech.	15	88-000	Hydroalazine hydrochloride	15	89-000
Hexane	02	65-000	Hydratropaldehyde	06	357-000
1,6-Hexanediamine (Hexamethylenediamine)	15	283-000	Hydratropaldehyde dimethyl acetal	07	42-000
1,6-Hexanediol	15	1095-000	1,2-Hydrazinedicarboxylic acid, bis(1-methylethyl) ester	09	185-040
1,6-Hexanediol diacrylate	15	117-000	Hydrandatin	14	205-000
Hexanoic acid (Caproic acid)	12	530-000	Hydrocarbon carboxylic acid derivatives (specify)	15	14-000
2-Hexenal	07	155-300	Hydrocarbon carboxylic acid derivatives, all other hydrocarbon derivatives	02	97-000
Hexenes, mixed	02	67-020	Hydrocarbon phosphorus acid, barium salt	14	206-000
2-Hexeno1	07	155-400	Hydrocarbon phosphoryl derivatives	14	207-000
cis-3-Hexenyl acetate	07	155-650	Hydrocarbons, C <sub>6</sub> , all other	15	1349-000
cis-3-Hexenyl benzoate	07	155-652	Hydrocarbons, C <sub>7</sub> , all other	02	52-000
cis-3-Hexenyl butyrate	07	155-653	Hydrocarbons, C <sub>8</sub> , all other	02	59-000
cis-3-Hexenyl methyl carbonbate	07	155-654	Hydrocarbons, C <sub>9</sub> , all other	02	53-000
cis-3-Hexenyl propylate	07	155-656	Hydrocarbons, C <sub>10</sub> , all other	02	77-000
Hexoxyacetaldhyde dimethyl acetal	07	155-700	Hydrocarbons, C <sub>11</sub> and above, all other, including mixtures	02	89-000
Hexyl acrylate	15	984-000	Hydrocarbons, C <sub>12</sub> fraction	02	51-200
n-Hexyl alcohol	15	857-000	Hydrocarbons, C <sub>13</sub> mixtures	02	43-000
n-Hexyl alcohol, ethoxylated	12	729-900	Hydrocarbons, C <sub>14</sub> mixtures	02	49-600



Table A.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Hydrocarbons, C <sub>5</sub> mixtures	02	58,500	Hydroxyethane-1-diphosphonic acid	14	69,000
Hydrocarbons, C <sub>5</sub> -C <sub>6</sub> mixtures	02	67,030	4-Hydroxy-3-ethoxybenzaldehyde (Ethylvanillin)	07	44,100
Hydrocarbons, C <sub>5</sub> -C <sub>7</sub> mixtures	02	67,040	Hydroxyethyl acrylate	15	119,000
Hydrocarbons, C <sub>5</sub> -C <sub>8</sub> mixtures	02	89,010	2,2'-[4-(2-Hydroxyethylamino)-3-nitrophenyl]imino diethanol	03	955,700
Hydrochlorothiazide	06	72,000	3-[N-(2-Hydroxyethyl)anilino]propionitrile	03	408,000
Hydrochloric acid	06	43,300	Hydroxyethyl-2-methyl-2-dihydroxybenzamide	03	958,000
Hydrochloric acid, fuming	06	43,300	(2-Hydroxyethyl)dimethyl(2-stearamidopropyl)ammonium dihydrogen phosphate	12	472,000
Hydrochloric acid, fuming, (Ratio = 2/1)	06	660,000	(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)ammonium nitrate	12	474,000
Hydrochloric acid, fuming, (Ratio = 2/1)	07	44,000	(N-(2-Hydroxyethyl)-1,2-diphenylethyl)enediamine	12	351,000
Hydrogenated (tallow acids) aminoethylthanolamine condensate (amine/acid ratio 1/2)	12	575,300	(N-Hydroxyethyl)ethylenedinitrilo triacetic acid, iron salt	14	72,000
Hydrogenated castor oil, ethoxylated	12	670,000	(N-Hydroxyethyl)ethylenedinitrilo triacetic acid, sodium salt	14	73,000
Hydrogenated tallow acids, aminoethylthanolamide, (Hydrogenated tallow acids)	12	558,000	(N-Hydroxyethyl)ethylenedinitrilo triacetic acid, potassium salt	14	74,000
Hydrogenated tallow alkylamine	12	575,280	(N-Hydroxyethyl)ethylenedinitrilo triacetic acid, sodium salt	14	74,000
Hydrogenated tallow alkylamine acetate	12	492,000	N-(6-Hydroxyethyl)-N-ethyl- $\alpha$ -toluidine	03	958,302
Hydrogenated tallow alkylamine, ethoxylated	12	329,000	1-(2-Hydroxyethyl)-2-heptyl-3-carboxyethyl-imidazoline, sodium salt	12	26,500
Hydrogenated tallow alkyltrimethylammonium chloride	12	498,000	1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonopropyl)-2-capryl-2-imidazolinium hydroxide	12	26,600
Hydrogenated tallow fatty acid aminoethylthanolamine condensate products	14	488,000	1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonopropyl)-2-capryl-2-imidazolinium hydroxide	12	26,700
Hydrogenated tallow glycerides diethyleneetriamine condensate	15	1359,000	1-nor-coconut oil-(2-hydroxy acid)aldazine hydroxide	12	26,800
Hydrogenated tallow glycerides diethyleneetriamine condensate	12	587,945	1-oleyl-2-imidazolinium hydroxide	12	26,800
Hydrogenated tallow glycerides diethyleneetriamine condensate	14	113,000	1-oleyl-2-imidazolinium hydroxide	12	26,800
Hydroquinone (Hydroquinol)	14	357,000	Hydroxyethylidene-1,1-diphosphonic acid	15	531,000
Hydroquinone, di(6-hydroxyethyl) ether	14	357,000	Hydroxyethylidene diphosphonic acid, potassium salt	14	76,000
Hydroquinone, tech.	03	94,250	Hydroxyethyl methacrylate	15	119,200
p-Hydroxybenzenesulfonic acid	03	934,000	p-[[2-(2-Hydroxyethyl)methylamino]benzenediazonium]chloride (p-Diazo-N-hydroxyethyl-N-methylamine)-zinc chloride	14	359,000
p-Hydroxybenzoic acid, benzyl ester	15	91,900	1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	12	348,000
p-Hydroxybenzoic acid, butyl ester	15	92,000	Imidazoline	12	349,000
p-Hydroxybenzoic acid, methyl ester	15	93,000	1-(2-Hydroxyethyl)-2-nor(ova oil alkyl)-2-imidazoline	12	351,600
p-Hydroxybenzoic acid, methyl ester	15	95,000	1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	12	350,000
4-Hydroxy-2H-1,2-benzothiazine-3-carboxylic acid, methyl ester, 1,1-dioxide	03	947,000	2-Hydroxyethyl N-ocyl sulfide	13	238,010
4-Hydroxybenzylbenzene	03	948,000	3-Hydroxy-2-ethyl-4-pyrene (thylnalcol)	15	97,000
Hydroxychloroquine sulfate	06	175,000	carboxymethylphenylsulfonamide-2-nor-coconut oil fatty acid	12	26,900
2-Hydroxychloroquine	03	952,650			
Hydroxycyclonellal	07	44,050			
Hydroxycyclonellal methyl anthranilate	07	156,500			
Hydroxy-5,7-dimethyl-6,7-benzomorphan-2-ylmethanol	03	933,350			
7-Hydroxy-5,7-dimethyl-6,7-benzomorphan-2-ylmethanol (Hydroxycyclonellal, dimethyl acetal)	07	156,000			
	07	157,000			

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
1-(2-Hydroxyethyl)-2-(tall oil allyl)imidazoline, fatty acid salt	12	351,700	Hydroxypropyl acrylate	15	1120,000
N-(2-Hydroxyethyl)-N,N',N''-tris(2-hydroxypropyl)-ethylenediamine	12	330,000	Hydroxypropylammonium acetate	12	464,120
Hydroxyethyl-2-undecyl-2,3-imidazoline	12	464,000	Hydroxypropyl guar gum	14	421,000
4-Hydroxyethanamide	03	965,000	Hydroxypropyl methacrylate	15	1121,000
4-Hydroxy-3-methoxybenzaldehyde (Vanillin)	07	44,300	N-2-Hydroxypropyl-N-methyl-N-bis(tallow amide ethyl) ammonium ethyl sulfate	12	474,190
2-(Anilino)acetone	07	44,800	8-Hydroxy-5-sulfonatesulfonic acid	07	501,000
4-Hydroxy-2-methylpropanol	13	245,014	4-Hydroxyundecanoic acid, $\gamma$ -lactone (7-Undecalactone)	06	101,000
4-Hydroxy-2-methyl-2-methylpropanol-3-carboxylic acid, methyl ester, 1,1-dioxide	03	969,050	Hydroxyamine	06	502,000
2-Hydroxyethylene-17 $\alpha$ -ethynylandroster-17 $\beta$ -ol-4-en-3-one	03	969,010	Hydroxyamine B	06	66,000
N-(Hydroxymethyl)formamide	13	245,012	Thioprofen	06	401,500
Hydroxymethyl-5,5-hydantoin	15	244,950	Imidazole from tall oil fatty acids and diethylenetriamine	14	164,000
4-Hydroxy-N-methylacetamide	03	99,500	Iminoacetic acid	15	403,000
Hydroxymethyl(methyl)dithiocarbamic acid, potassium salt	03	126,000	Impresene	06	52,100
4-Hydroxy-2-methyl-4-methyl-1-phenyl-3-pyrazolidone	03	970,502	Impresamine hydrochloride	06	52,100
2-(Trimethylolthane)	14	360,000	1,2,3-Indantrione monohydrate (Mibhydrin)	15	103,000
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris)	15	1086,000	3-Indolbutyric acid	06	577,000
(Hydroxymethyl)nitromethane	15	401,000	Indomethacin	06	402,000
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	15	823,000	Insect attractants, all other	13	120,000
4-(4-Hydroxy-4-methyl pentyl)-3-cyclohexene-10-carboxaldehyde (Lyral)	07	97,830	Insulin	06	694,000
3-Hydroxy-2-methyl-4-hydroxypentane	15	99,600	Intermediate light oil, coke-oven operators	06	694,000
3-Hydroxy-N-(3-N-morpholino-7-propyl)-2-naphthimide	07	98,000	Iodinated (Not otherwise halogenated) hydrocarbons, all other	06	586,000
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt	03	972,500	Iodochloroxyquin	15	1271,300
3-Hydroxy-2-naphthoic acid (R.O.N.)	03	992,000	Iodoethane (Ethyl iodide), non-medical	06	176,000
3-Hydroxy-2-naphthoic acid, aminoxyimorpholide	03	992,152	Iodomethane (Methyl iodide)	06	262,000
3-Hydroxy-2-naphthoic acid, ethanamide	03	992,302	3-Iodo-2-propynyl butylcarbamate	15	1280,000
3-Hydroxy-2-naphthoic acid, methyl ester	03	990,300	Ionene ( $\alpha$ - and $\beta$ -)	13	245,013
3-Hydroxy-2-naphthoic acid, methyl ester	03	994,802	$\alpha$ -Ionene	07	102,000
2-Hydroxy-2-naphthoic acid, sodium salt	03	994,802	Ionene	07	103,000
2-Hydroxy-1,4-naphthoquinone	14	359,000	Ionalgin acid	06	568,000
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-hydroxynaphthalene-4-sulfonic acid	03	994,903	Ionalginic acid	06	570,000
Hydroxynaphthalene-4-sulfonic acid	03	997,100	Iprimidazole	06	176,300
4-Hydroxynaphthalene-7-lactone (7-Nonalactone)	07	99,000	Iron acetylacetonate complex	15	1371,750
a-D-P-Hydroxyphenylglycine methyl ester K	15	100,200	Iron t-alkylcarboxylate	15	670,000
p-Hydroxyphenyl-3-methylbutyric acid	03	1001,227	Iron 2-ethylhexanoate	15	636,000
Hydroxypropanoic acid	06	679,800	Iron naphthenate	03	1016,700
2-Hydroxy-3-(2-propenyl)-1-propanesulfonic acid, sodium salt	15	666,015	Isatoic anhydride (2-Hydroxyethanesulfonic acid)	15	532,000
			Isatoic acid, sodium salt	15	666,910





Table 4. -- Alphabetical Chemical Index

CHEMICAL NAME	ITEM NO.	SECT. NO.	CHEMICAL NAME	ITEM NO.	SECT. NO.
Isoprene (2-Methyl-1,3-butadiene)	02	51	Isocyanic acid, phenyl ester	03	1043
Isopropamide iodide	02	290	Isocyanic acid, propyl ester	12	330
Isopropylamine condensates, all other	12	574	Isocyanic acid, t-butyl ester	12	330
Isopropylaluminum	15	3362	M-Isotridecylpropyl trimethylene diamine	12	824
Isopropoxy-tris(2-ethylendiamino)ethyl titanate	12	330	Isovalerone (Diisobutyl ketone)	15	169
Isopropyl acetate	15	993	2-Isovaleryl-1,3-indandione	13	402
Isopropyl alcohol	15	866	Isoclicam	15	539
Isopropylamine, mono	15	287	Isoconic acid (Methylsuccinic acid)	15	133
2-Isopropylaminoethanol	15	411	Ivermectin	06	437
2-Isopropyl-N-2,1,3-benzothiadiazir-4(3H)-one 2,2'-diol	13	73	Kanamycin	06	114
Isobutylaldehyde	03	1035	Ketamine hydrochloride	15	414
Isopropyl benzyl	15	993	Ketamine tetrafluoride	15	414
Isopropyl borate	15	994	Ketones, all other	15	839
Isopropyl chloroformate	13	74	Lactic acid, edible, 100%	15	541
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)	07	106	Lactic acid salts, all other	15	675
2-Isopropylcyclohexanol	15	319	Lactones, all other	15	104
Isopropyl ether	15	412	Lactonitrile	15	445
Isopropyl ethylthioacetate	03	1036	Lanolin acid	15	104
4,4'-Isopropylidenebis(2,6-dibromophenol)	03	1037	Lanolin acid, isopropyl ester	15	104
5,5'-Isopropylidenebis(2-hydroxy-m-xylene-4,4'-diol)	03	1038	Lanolin alcohol, ethyl	15	104
4,4'-Isopropylidenediphenol (Bisphenol A)	03	1039	Lanolin alcohol, isopropyl	15	104
4,4''-Isopropylidenediphenol, ethoxylated	03	1040	Lanolin alcohol, methyl	15	104
Isopropyl lanolinolate	15	971	Lanolin acid	15	104
Isopropyl lanolate	15	972	Lanolin acid, isopropyl ester	15	104
Isopropyl mercaptan (2-Propanethiol)	02	96	Lanolin alcohol, ethyl	15	104
Isopropyl-11-methoxy-3,7,11-trimethyldodeca-2,4-dienoate	12	231	Lanolin alcohol, isopropyl	15	104
Isopropyl-methoxy-3,7,11-trimethyldodeca-2,4-dienoate	12	231	Lanolin alcohol, methyl	15	104
Isopropyl-1-cyclohexylcyclohexanone (Cyclan aldehyde)	07	49	Lanolin alcohol, propoxylated	12	736
Isopropyl myristate	11	88	Lanolin, ethoxylated	12	671
Isopropylnaphthalenesulfonic acid	12	170	Lard oil acids	12	533
Isopropyl oleate, sulfated, sodium salt	12	260	Lard oil and tall oil acids	12	533
Isopropyl palmitate	11	98	Lard, sulfated, sodium salt	12	293
o-Isopropylphenol	03	1041	Lasaloid	06	66
Isopropylphenol	03	1041	Latic type polyvinylidene chloride resins	09	450
Isopropylphenylmethane	13	75	Lauraldehyde, N-dimethylpropylamine oxide	12	387
N-Isopropyl-N-phenyl-p-phenylenediamine (IPC)	09	63	Lauric acid	12	475
Isopuleyol acetate	07	106	Lauric acid (Ratio = 1/1)	12	570
Isostearic acid, aminoethylethanolamide, acetate salt	12	575	Lauric acid (Ratio = 2/1)	12	547
Isostearic acid, isopropyl titanium salt	12	576	Lauric acid ester of glycerol and ethoxylated	12	534
Isostearic acid, trichloroalana salt	12	29	Lauric acid - ethanolaniline condensate, ethoxylated	12	711
Isostearic amphoriponate	12	131	Lauric acid salts, all other	12	578
Isostearyl alcohol, ethoxylated	12	730	Lauric acid, all other	12	578
Isostearyl neopentanoate	12	995	Lauric acid, ethoxylated	12	178
			Lauric acid, propoxylated	12	547
			Lauric acid, myristic acid (Ratio = 1/1)	12	571
			Lauric acid, myristic acids	12	571
			Lauric acid, myristic acids (Ratio = 2/1)	12	535
			Lauric acid, myristic acids (Ratio = 1/1)	12	564
			Lauronitrile (Dodecyl nitrile)	15	446
			Lauronyl chloride	15	543
			N-Lauroyl imanoacetate acid	12	40
			2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride	12	476

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT: ITEM NO.	CHEMICAL NAME	SECT: ITEM NO.
Lauroyl peroxide	15 1351.000	Leuco Sulfur Red 14	04 1070.014
N-lauroyl sarcosine	12 43.900	Leuco Sulfur Yellow 17	04 1059.000
N-lauroyl sarcosine, ammonium salt	12 43.910	Leuco Sulfur Yellow 21	04 1064.017
N-lauroyl sarcosine, sodium salt	12 44.000	Leuco Sulfur Yellow 22	04 1064.022
Lauryl acrylate	15 995.270	Leuco Sulfur Brown 95	04 1104.095
Lauryl alcohol, ethoxylated	12 730.500	Levodopa	06 835.000
Laurylamidopropyl betaine	12 13.400	Levotiroxime, sodium	06 894.500
Laurylamphoglycolate	15 1239.000	Lidocaine	06 706.000
Lauryl lactate	15 997.000	Lidocaine hydrochloride	06 706.100
Lauryl methacrylate	08 19.980	Light-oil distillates, all other	01 9.000
Lauryl methacrylate-stearyl methacrylate copolymer	12 231.700	Ligninsulfonic acid propoxylated, sodium salt	12 157.800
Lauryl sulfate, sodium salt	15 595.000	Lignin, ethoxylated	12 337.010
Lead acetate	15 670.500	Lignin, sodium salt	12 318.000
Lead t-alkylcarboxylate	15 706.000	Ligninsulfonic acid, aluminum salt	12 152.000
Lead-cobalt neodecanoate	15 637.000	Ligninsulfonic acid, ammonium salt	12 153.000
Lead limonene	15 684.000	Ligninsulfonic acid, calcium salt	12 154.000
Lead manganese tellate	15 362.000	Ligninsulfonic acid, chromium salt	12 155.000
Lead naphthenate	15 707.000	Ligninsulfonic acid, iron salt	12 156.000
Lead neodecanoate	15 756.000	Ligninsulfonic acid, magnesium salt	12 157.000
Lead salts of menhaden fish oil, C-14 to C-22(lead fishate)	15 757.000	Ligninsulfonic acid, potassium salt	12 158.000
Lead stearate	15 596.000	Ligninsulfonic acid, sodium salt	12 158.500
Lead tellurate	15 176.000	Ligninsulfonic acid, zinc salt	07 50.100
Lead tetracetate	15 1067.000	Linamene	07 50.200
Lead tetrastearate	04 1110.000	1-Limonene	07 49.500
Leuco quinizarin (1,4,9,10-anthracetrol)	04 1115.018	Linanyl anthranilate	06 51.000
Leuco Sulfur Black 1	04 1075.000	Lincomycin (medical grade)	06 67.000
Leuco Sulfur Black 2	04 1075.000	Lincomycin (animal feed grade)	06 67.500
Leuco Sulfur Black 18	04 1075.000	Linear polyhydroxyfatty acids, all other	12 20.000
Leuco Sulfur Blue 7	04 1075.000	Linear saturated polyester	12 307.000
Leuco Sulfur Blue 13	04 1089.000	Linear saturated polyester, all other	12 307.800
Leuco Sulfur Brown 1, 1,1	04 1089.000	Linoleic acid (Ratio = 1/1)	12 536.000
Leuco Sulfur Brown 3	04 1091.000	Linoleic acid dimers, alkoxylated	12 711.200
Leuco Sulfur Brown 30	04 1091.000	Linoleic acid, oxygenated	15 1323.400
Leuco Sulfur Brown 31	04 1091.000	Lipasa	12 114.000
Leuco Sulfur Brown 37	04 1101.052	Lithium heparin	14 114.000
Leuco Sulfur Brown 52	04 1101.936	Lithium naphthenate	06 627.000
Leuco Sulfur Brown 96	04 1084.000	Lithium stearate	15 307.000
Leuco Sulfur Green 2	04 1084.000	Lithium stearate, all other	15 308.000
Leuco Sulfur Green 3	04 1085.000	Lubricating oil and grease additives, cyclic, all other	14 293.000
Leuco Sulfur Green 16	04 1087.000	Lubricating oil and grease additives, cyclic, all other	14 294.000
Leuco Sulfur Green 34	04 1087.034	3,5-Lutidina	03 1048.503
Leuco Sulfur Green 35	04 1087.035	Mafenide	06 202.900
Leuco Sulfur Green 36	04 1087.036	Mafenida acetate	06 203.000



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Magnesium acetate	15	598,000	p-Mentha-6,8-dien-2-yl acetate (Carvone, Carvyl)	07	107,000
Magnesium gluconate	06	764,000	1-p-Mentha-6,8-dien-2-yl acetate (Carvyl acetate)	07	107,100
Magnesium stearate	15	759,000	Menthallylidene diacetate	15	1000,000
Magnesium stearic acid tall oil	12	318,470	p-Menth-8-en-3-ol (Isopulegol)	15	105,000
Maleated linseed oil	12	548,475	p-Menth-1-en-3-one (Piperitone)	07	108,300
Maleic acid	15	711,700	p-Menth-4-(8)-en-3-one (Pulegone)	07	108,400
Maleic anhydride, polypropylene glycol copolymer	12	711,700	1-p-Menth-8-yl-1-propanone	07	108,600
Maleic anhydride and copolymers	15	599,000	d-Menthyl acetate	07	110,000
Maleic acid	15	1324,000	Menthyl acetate	07	111,000
Malonaldehyde bis(dimethyl) acetal	03	1048,930	1-Menthyl acetate	07	111,100
Maltol	14	97,000	Menthyl butyrate	07	111,130
D-Maltose	14	459,000	8-p-Menthyl hydroperoxide	15	106,000
D-Mandelic acid	03	1048,940	Mepredina hydrochloride	15	404,000
Manganese acetate	15	599,000	Mepivacaine	06	662,500
Manganese acetylacetonate complex	15	1371,800	Meprednisone	06	662,500
Manganese t- $\alpha$ -alkylcarboxylate	15	571,000	Meprednisone acetate	06	594,000
Manganese 2-ethylhexanoate	02	725,000	Meprobenzoic acid (Thioglycolic acid)	15	549,000
Manganese gluconate	14	309,000	Mercaptoacetic acid (Thioglycolic acid) salts, all other	15	698,000
Manganese naphthoate	02	725,000	2-Mercaptobenzothiazole, copper salt	09	30,000
Manganese stearate	15	709,000	2-Mercaptobenzothiazole, derivative	09	30,500
Mannitol	15	1077,000	2-Mercaptobenzothiazole, sodium salt	13	40,084
Meprotiline hydrochloride	06	529,000	2-Mercaptobenzothiazole, zinc chloride	13	40,011
Mecizoline hydrochloride	06	81,000	2-Mercaptobenzothiazole, zinc salt	09	32,000
Meclofenamate, sodium	06	402,500	2-Mercaptobenzothiazole, zinc salt	09	32,000
Meclofenamic acid	06	837,000	2-Mercaptobenzothiazole, zinc salt	09	32,000
Medicinal chemicals, all other	06	682,000	N-(Mercaptomethyl)phthalimide S-(0,0-dimethylphosphorodithioate)	13	165,024
Mecoryprogesterone acetate	06	660,000	3-Mercapto-1,2-propanediol (Thioglycerol)	15	1088,000
Mefenamic acid	06	403,000	Mercaptopropionic acid	15	550,000
Mefenamic acid	06	680,500	Mercaptopropionic acid, dibutyltin salt	15	699,000
Melamine	03	1050,000	Mercaptopropionic acid, dimethyltin salt	05	279,000
Melamine formaldehyde methanol polymer	14	483,000	Mercaptopropyltrimethoxysulfane	06	551,000
Melamine formaldehyde resins	08	8,000	Mercaptopyrimidine	15	41,475
Melamine formaldehyde triethanolamine mixed fatty alcohol polymer	14	484,000	Mercaptosuccinic acid (Thiomalic acid)	09	41,475
Melamine stearate	14	490,000	Mercaptothiazole, zinc salt	13	24,000
Melamine stearate	14	681,000	Mercaptothiazole, zinc salt	13	24,000
Mendione sodium bisulfite (anhydrous)	06	826,000	Methacrolein (methacrylaldehyde)	15	788,500
Mendione sodium bisulfite (tetrahydrate)	06	826,100	Methacrylamide	15	1459,600
p-Mentha-1,3-diene (c- $\alpha$ -Terpinene)	07	107,600	Methacrylate based cationic polyacrylates	15	467,000
p-Mentha-1,4-diene (c- $\beta$ -Terpinene)	07	107,600	Methacrylic acid	15	352,000
p-Mentha-1,8-diene (Limonene)	07	107,600	$\alpha$ -Methacryloxypropyltrimethoxysulfane	06	405,000
di-p-Mentha-1,8-diene (Limonene)	07	50,000	Methadone hydrochloride	06	519,800
p-Mentha-6,8-dien-2-ol (Carveol)	07	108,300	Methamphetamine hydrochloride	06	520,000



Table 4.---Alphabetical Chemical Index

SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
		2-Methylbutyl isovalerate			2,2'-Methylenebis(6-tert-butyl-p-cresol)		
		Methyl butyl phosphate ethylenedioxy titanium salt/m,n-	07	162,015	2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)	09	90,000
		dimethyl amino ethyl methacrylate salt	12	100,205	2,2'-Methylenebis(4-chlorophenol) (dichlorophene)	09	91,000
		Methyl butyrate	07	162,020	4,4'-Methylenebis(2,6-di-tert-butylphenol)	13	40,025
		Methyl butyryl acetate	15	420,000	4,4'-Methylenebis(N,N-dimethylaniline)	03	1088,100
		Methyl N-( $\alpha$ -carboxydihydrobenzyl)- $\beta$ -amino crotonate, sodium salt	03	1081,200	4,4'-Methylenebis(N,N-dimethylaniline) (Methane base)	03	1088,000
		Methyl cellulose	14	411,000	Methylene-bis(dimethylhydantoin and derivatives)	14	166,000
		Methyl chloroacetate	15	1007,000	2,2'-Methylenebis(4-methyl-6-nonyl-p-cresol)	03	1089,100
		Methyl chloroformate	15	1008,000	4,4'-Methylene-bis-orthoethylamine	03	1089,100
		2-(2-Methyl-4-chlorophenoxy)propionic acid, iso-octyl diethanolamine salt	13	118,056	2,2'-Methylenebis(4,9-cyclohexanone)	13	195,010
		1-(2-Methyl-4-chlorophenoxy)propionic acid, iso-octyl	13	118,057	Methylene-bridged polyalkyl phenols	15	114,000
		1-Methyl-4-(3-chloropropyl)piperazine	03	1081,310	Methylene chloride (Dichloromethane)	14	208,000
		1-Methyl-4-(3-chloropropyl)piperazine hydrochloride	03	1081,300	4,4'-Methylenediamine	15	1234,000
		$\alpha$ -Methylcinnamaldehyde	07	59,000	1,2-Methylenedioxy-4-propylene benzene (isoSaffrole)	03	1691,000
		Methyl cinnamate	07	60,000	5,5'-Methylenedisalicylic acid	07	60,600
		6-Methylcoumarin	07	60,200	Methyl esters of coconut oil	02	1092,000
		Methyl crotonate	07	152,457	Methyl esters of lauric acid	12	974,500
		Methyl cyclohexane	07	152,458	Methyl esters (Diethyl ether)	15	975,000
		1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	03	1084,000	Methyl ethyl ketone	15	1321,000
		Methyl cyclopentadienyImanganese tricarboxyl	02	65,500	Methyl ethyl sulfide	15	826,500
		2-Methyl decanal	14	185,000	Methyl formate	02	93,800
		Methyl 3-(2,2-dichloroethyl)-2,2-dimethyl-3-cyano-3-phenoxycyclopropanecarboxylate	13	76,000	Methyl formate	15	1010,000
		Methyl 3-(2,2-dichloroethyl)-2-nitrosocrotonate	02	65,500	Methyl formal	15	1450,000
		Methyl 3-(2,2-dichloroethyl)-2,8-dimethylcyclopropane	07	162,040	Methyl glucoside dioleate	12	712,950
		1-(2-Methylcyclohexyl)-3-phenylurea	13	76,050	Methylglucoside laurate	12	713,000
		Methyl 5-(2,4-dichlorophenoxy)-2-nitrosocrotonate	13	166,035	Methylglucoside sesquiterate	12	713,000
		Methyl 3-(2,2-dichloroethyl)-2,8-dimethylcyclopropane	13	76,050	1-Methyl-1-(8-naphthyl)acetyl-9-octadecenylamido ethyl	09	64,000
		8-Methylidicyclohexylamine	03	1084,150	5-Methyl-2-hexanone (Methyl isosanyl ketone)	15	162,480
		Methyl didecylamine	12	442,800	Methyl hexyl ether	07	60,800
		Methyl dihydrogen phosphate	15	1034,000	p-Methylhydratropaldehyde	07	60,800
		5-Methyl-1',7'-dihydroxy-1,3,4'-triazaindolizine	14	366,000	Methyl 12-hydroxystearate	15	976,000
		Methyl N',N'-dimethyl-N-(methylcarbamoyloxy)-1-thioxoamide	13	231,010	4,4'-Methylene-bis-(p-sulfofenyl)-3-methylpyrazolone	14	367,000
		2-amino N-carboxy imino isofenone	13	118,055	2-hydrochloride	03	1094,853
		6-Methyl-2,6-dinitrophenol (4,6-Dinitro-o-cresol)	03	1084,700	4,4'-Methylenebis(4-methylpiperazine) (Methyldiethanolamine)	15	424,000
		N-Methylidodecylamine	03	1084,703	Methylolone( $\alpha$ - and $\beta$ -)	03	1094,880
		Methyl dodecylamine	12	443,000	6-Methyl- $\alpha$ -ionone	07	114,100
		Methyl dioleoyl ethoxy ammonium methyl sulfate	12	465,250	6-Methyl- $\beta$ -ionone	07	112,000
		N-Methylidithiocarbamic acid, potassium salt	13	187,012	Methyl isobutyl ketone	15	828,000
		N-Methylidithiocarbamic acid, sodium salt (Methma)	13	241,000	Methyl isobutyl ketone aminonitrile	15	428,000
		Methylidopa	06	358,000	Methyl isobutylate	07	162,500



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Methyl isocyanate	15	424,500	2-Methyl-1-pentanol	15	863,000
1-Methyl-isohexyl-hexahydro benzaldehyde	07	61,100	4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	15	864,000
Methyl iso-octadecanoate	15	977,500	4-Methyl-3-pentanol-2-one (Mesityl oxide)	15	842,000
Methyl isothioyanate and 1,3-dichloropropene	13	243,012	M-(1-Methylpentyl)-N-phenyl-p-phenylenediamine	09	54,200
Methyl isovalerate	07	162,520	Methyl pentanol	07	162,660
2-Methylisocyantrile (acetone cyanohydrin)	15	449,000	Methylphenylate hydrochloride	06	545,700
Methylisocyantrile	15	337,600	Methyl phenylacetate	07	183,000
Methylmagnesium bromide	15	377,000	Methylphenylacetone	07	115,500
Methylmagnesium chloride	15	377,000	1-Methyl-4-pyridylacetic acid	03	115,500
Methyl methacryl (Methanethiol)	02	94,000	1-Methyl-4-pyridylisonicotinamide	03	115,700
Methyl methacrylate-butadiene styrene (MBS) resins	08	44,041	3-Methyl-5-phenyl-1-pentanol	03	63,200
Methyl methacrylate, monomer	15	1011,000	1-Methyl-3-phenyl-5-(3-trifluoromethylphenyl)-4(H)-pyridone (Fluridone)	13	118,063
N-Methyl-methanamine with borane (1:1)	15	1368,600	Pyridone	03	1120,502
Methyl N-methylanthranilate	07	62,000	4-Methylphthalic acid	03	1120,513
Methyl-2-methyl butyrate	07	162,550	3-(2-Methylperidin)propyl-3,4-dichlorobenzoate	15	1012,800
3-Methyl-2-methylbutanoic acid	13	213,000	Methylproprion	15	80,036
4-Methyl-N-(4-methylphenyl)sulfonylbenzenesulfonamide	03	1096,200	Methylproprionolactate	15	1012,800
2-Methyl-2-(methoxythio)propanaldehyde 0-	13	213,000	N-Methyl-N-polyoxyethylene-N,N-bis(hydrogenated tallow amidoethyl)ammonium	12	476,920
4-Methylmorpholine	15	117,000	N-Methyl-N-polyoxyethylene-N,N-bis(tallow amidoethyl)amidoethyl	12	476,925
Methylnaphthalene	01	12,500	Methylprednisolone	06	663,000
Methylnaphthalene sulfonic acid, sodium salt	12	173,000	2-Methyl-2-propanamine with borane(1:1)	15	1368,700
Methyl-nitrosamine	03	102,000	Methylsulfonamide	15	830,000
2-Methyl-5-nitrosanisole	03	104,000	1-Methyl-2-pyrrolidone monomer	15	120,000
2-Methyl-2-nitro-1,3-propanediol	15	425,000	Methyl zincoleate	07	14,000
2-Methyl-2-nitro-1-propanol	15	425,000	Methyl stearate	15	978,000
3-Methyl-2-(and)3-nitrosamine nitrate	07	162,750	1-Methyl-2-(2-stearoyloxyethyl)carbamoylpyridinium chloride	12	477,000
Methyl nonen-3-oxe	07	162,600	alpha-Methylstyrene	03	1125,000
Methylnonylphthalenesulfonic acid, sodium salt	12	174,000	ar-Methylstyrene (Vinyltoluene)	03	1125,100
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride	03	108,000	p-Methyl styrene polymers	08	45,300
1-methyl-2-tallow-1,2-tallow	12	976,800	alpha-Methyl styrene polymers	08	45,300
Methyl-octyl aldehyde	07	163,000	Methyl sulfate (Dimethyl sulfate)	15	1013,000
Methyl oleate	11	94,000	Methyl sulfate (Methyl sulfate)	15	1013,000
Methyl oleate, sulfated, sodium salt	12	261,000	Methyl sulfonamide (Methyl sulfonamide)	15	1335,000
N-Methyl-N-oleyltaurine, sodium salt	12	184,000	N-Methyl-K-(tall oil acyl)taurine, sodium salt	12	186,000
Methylol methyl hexyl ketone	07	162,700	Methyl-1-tallowamidoethyl-2-tallowimidazolium-methyl sulfate	12	488,700
N-(3-Methyl-5-oxo-1,4-pyrazolin-1-yl)benzenesulfonic acid	03	1111,000	Methylalloydiethylenetriamine condensate, polyethoxyalkated, methyl sulfate	12	465,200
ylidenehexamethylene-3-methyl-1-(4-sulfophenyl)-2-methyl-1-(4-sulfophenyl)-2-	14	368,000	Methylalloydiethylenetriamine condensate, polypropoxyalkated, methyl sulfate	12	465,210
N-Methyl-N-palmitoyltaurine, sodium salt	12	185,000	Methylalloydiethylenetriamine condensate, methyl sulfate	12	465,200
Methyl pentachlorostearate	11	124,000	Methylthioacetamide	16	363,000
2-Methyl-2,4-pentanediol (Hexylene glycol)	15	1089,000	Methylthioacetic acid	03	1128,500

Table 4.—Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Methyl thiobutylate	07	162,800	Mixed alkyl phosphate, diethanolamine salt	12	102,000
Methyl thioisopropionaldehyde	07	167,710	Mixed alkyl phosphate, potassium salt	12	102,050
Methyl thiosulfonic acid, S-(2-hydroxypropyl) ester	13	205,925	Mixed alkyl phosphate, triethanolamine salt	12	102,120
Methyl tri(C9-10)ammonium chloride	12	499,900	N-(Mixed alkyl)polyethyleneamine	12	412,000
Methyl-3,5,7-triaza-1-azonia tricyclohexane chloride	13	175,300	Mixed tert-alkyl primary amines, ethoxylated	12	331,500
5-Methyl-1,2,4-triazolo[3,4-b]benzothiazole (Triacyazole)	13	60,027	Mixed alkyl stearate	12	714,520
Methyltriethoxysilane and polymethyltrisiloxane	13	139,027	(Mixed alkyl)sulfobetaine	14	167,000
Methyltriethylammonium chloride	12	499,000	Mixed alkyl sulfonates	12	536,450
2-Methylundecanal	12	499,000	Mixed carboxylic acids	12	537,850
2-Methyl undecanal dimethylacetal	07	163,050	Mixed chain length fatty acid, synthetic	15	1438,000
Methyl vinyl ether	15	1322,000	Mixed(coco and soya fatty acids), reaction products with chloromethane and diethylenetriamine, ethoxylated, quarternized	12	477,220
Metolopamide hydrochloride	06	81,300	Mixed dialkyl hydrogen phosphates, amine salts	15	1034,500
Metrapone	06	578,000	Mixed dialkyl hydrogen phosphates, mono ester of tall oil	15	1034,502
Mincocline	06	85,000	Mixed di and triethylene glycol mono ester of tall oil sulfate	12	719,600
Minoxidil	15	1423,000	Mixed fatty acid amide with diethylene triamine/ethyl sulfate	12	477,226
Mixed alcohols, cyclic chemicals, all ether	15	1423,000	Mixed fatty acid-ethoxylated nonyl phenol ester	12	783,500
Mixed alcohols, ethoxylated	12	762,000	Mixed fatty acids-diethylene triamine diethylsulfate condensate	12	377,200
Mixed alkane sulfonic acid, sodium salt	12	212,000	Mixed fatty acid-ethoxylated, ammonium salt	12	361,000
3-(Mixed alkoxy)propylamine, ethoxylated oxides	12	330,950	Mixed fish oils, sulfated, ammonium salt	12	300,000
3-(3-Mixed alkoxy)propylaminoethyl amine	12	330,955	Mixed fish oils, sulfated, ethoxylated	12	300,000
(Mixed alkyl)amine, ethoxylated	12	423,000	Mixed linear alcohols, ethoxylated, sulfated, mixed sodium and cocoamphocarboxy glycinates salts	12	276,700
(Mixed alkyl)amine phosphates	12	331,700	Mixed linear alcohols, alkoxyated, all other	12	741,000
(Mixed alkyl)amine phosphates, ethoxylated	12	499,500	Mixed linear alcohols, alkoxyated and phosphated, potassium salt	12	736,950
Mixed t-2-alkylcarboxylic acid salts	15	671,100	Mixed linear alcohols, ethoxylated	12	87,007
(Mixed alkyl)diisobutylmethylethyl-1,3-propane diammonium chloride	12	527,580	Mixed linear alcohols, ethoxylated and phosphated	12	737,000
(Mixed alkyl)oxypropylamine	12	331,300	Mixed linear alcohols, ethoxylated and phosphated, benzyl ether	12	737,100
(Mixed alkyl)phenol, alkoxyated	12	745,900	Mixed linear alcohols, ethoxylated and phosphated, benzyl ether	12	318,500
(Mixed alkyl)phenol alkylenediaminealkanoamine	12	745,900	Mixed linear alcohols, ethoxylated and phosphated, sodium salt	12	87,000
(Mixed alkyl)phenol epichlorohydrin-formaldehyde, formaldehyde	12	762,950	Mixed linear alcohols, ethoxylated and phosphated, sodium salt	12	87,010
(Mixed alkyl)phenol, ethoxylated	12	722,100	Mixed linear alcohols, ethoxylated and propoxylated	12	738,000
(Mixed alkyl)phenol, ethoxylated, butyl ether	12	747,000	Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	12	276,000
(Mixed alkyl)phenol, ethoxylated and sulfated, sodium salt	12	286,000	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	276,500
(Mixed alkyl)phenol-formaldehyde, alkoxyated	12	722,000	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000
(Mixed alkyl)phenol-formaldehyde, methoxylated	12	722,015	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000
(Mixed alkyl)phenol sulfate, ethoxylated	12	722,015	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000
Mixed alkyldiamine salt	12	244,300	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000
Mixed alkyldiamine salt	12	102,100	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000
Mixed alkyl phosphate, alkylamine salt	12	101,000	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000
Mixed alkyl phosphate, alkylamine salt	12	101,500	Mixed linear alcohols, ethoxylated and sulfated, potassium salt	12	277,000



Table 4.---Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	12	278.000	Mordant Yellow 20	04	842.000
Mixed linear alcohols, sulfated, ammonium salt	12	282.000	Mordant Yellow 25	06	405.500
Mixed linear alcohols, sulfated, diethanolamine salt	12	232.000	Morpholine	15	1440.000
Mixed linear alcohols, sulfated, sodium salt	12	233.000	Morpholine residue stream	15	122.000
Mixed linear alkyldimethylated, triethanolamine salt	12	233.100	Morpholine salt of p-toluene sulfonic acid	14	370.000
Mixed linear alkyldimethylated, triethanolamine salt	12	500.100	p-Morpholinyl-2,5-dibutoxybenzene diazonium chloride	06	51.500
Mixed linear alkyldiethylenedimethyl ethyl sulfate	12	738.100	Musk 89	07	64.300
Mixed linear alkyldiethylenedimethyl ethyl sulfate	12	300.900	Mustard seed oil, sulfated, sodium salt	12	309.000
Mixed oleic, lauric, stearic, and palmitic hexaglycerol esters	12	692.000	Myricenyl acetate	15	1943.000
Mixed polystyrene, phenol, ethoxylated	12	748.100	Myristaldehyde	07	163.800
Mixed polyesters	14	284.000	Myristic acid	12	574.000
Mixed secondary alkyamines	15	292.900	Myristic acid (Ratio=1/1)	12	547.900
Mixed (C <sub>8</sub> -C <sub>16</sub> ) tertiaryamines	12	45.700	Myristyl ethoxy myristate	11	88.600
Mixed tridecyl alcohol and 2-ethylhexanol, phosphated, potassium salt	12	443.200	Myristyl lactate	15	1015.000
Mixed vegetable fatty acids, potassium salt	12	87.050	Myristyl myristate	15	979.000
Mixed vegetable fatty acids, sodium salt	12	59.000	Myristyl stearate	11	124.525
Mixed vegetable fatty acids, triethanolamine salt	12	58.990	Naphazoline sodium	06	358.500
Mixed vegetable fatty acids, sulfated, sodium salt	12	59.100	Naphthalene	08	17.000
Mixture of N-octyl, N-dimethyl, N-dimethyl ammonium chloride and benzyl, dimethyl, N-dimethyl ammonium chloride	12	308.000	1-Naphthalenealdehyde	08	336.000
Mixtures not specifically itemized, all other	12	499.600	1-Naphthaleneacetic acid (NAA)	02	17.000
Modified rosin (Unesterified)	15	150.000	1-Naphthaleneacetic acid, sodium salt	13	168.900
Modified rosin esters	08	41.000	Naphthalene, crude, solidifying at less than 74° C.	01	12.000
Molardone hydrochloride	08	40.000	Naphthalene, crude, solidifying at 76° C to less than salt	01	14.000
Monosorb	06	505.000	1,5-Naphthalenedisulfonic acid, 2-amino-, monosodium salt	03	1138.500
Monosorbamylamine	06	68.000	Naphthalenesulfonates, all other	12	171.000
Monohydric alcohol esters, all other	15	379.000	2-Naphthalenesulfonic acid	03	1141.000
Monoisopropylamine	15	1079.000	Naphthalenesulfonic acid, ammonium salt	12	174.200
Mordant Black 9	15	407.000	2-Naphthalenesulfonic acid, formaldehyde condensate and salt	14	466.000
Mordant Black 11	04	882.000	1-Naphthalenesulfonic acid, 8-(phenylamino)-monosodium salt	03	1308.500
Mordant Brown 1	04	871.000	Naphthalenesulfonic acid polymers with formaldehyde and 4,4'-hydroxy diphenyl phenol	12	783.700
Mordant Brown 16	04	878.000	Naphthalene sulfonic acid, polymer with formaldehyde sodium salt	12	722.500
Mordant Brown 33	04	879.000	1-Naphthalenesulfonic acid, sodium salt	03	1142.000
Mordant Brown 70	04	882.000	2-Naphthalenesulfonic acid, sodium salt	03	1143.000
Mordant Orange 1	04	882.000	Naphthalimide	04	310.000
Mordant Orange 6	04	848.000	Naphthalene driers, mixed salts	02	19.000
Mordant Red 7	04	850.000	Naphthalenic acid, acid number 150-199	04	310.000
Mordant Red 9	04	855.000	Naphthalenic acid, acid number 200-224	02	20.000
Mordant Red 11	04	857.000			
Mordant Yellow 8	04	839.000			



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
p-Nitrotoluene-o-sulfonic acid	03	1247.000	1-Octadecanol (Stearyl alcohol)	15	877.000
Nonanal	07	165.000	1-Octadecene-1-ol (Olefin alcohol)	15	878.000
n-Nonane	15	1344.000	9-Octadecyl acetate, ethoxylated	12	731.000
1,3-Nonanediol acetate	07	165.200	9-Octadecyl alcohol, ethoxylated and phosphated	12	84.000
Nonanoic acid (Pelargonic acid)	15	559.000	9-Octadecylamine	12	424.000
Nonanoic chloride	15	559.050	9-Octadecylamine, ethoxylated	12	332.000
Nonane (Tripropylene)	02	80.000	1-(9-Octadecenyl)amine, ethoxylated	15	123.100
Nonane carbonyl chloride	07	165.400	1-(9-Octadecenyl)trimethylendiamine	12	413.000
Nonyl succinimide	12	750.000	Octadecyl alcohol, ethoxylated	12	732.000
Nonionic surface-active agents, all other	08	27.000	Octadecyl alcohol, ethoxylated and phosphated	12	84.200
Non-nylon type, polyamide resins	08	27.000	Octadecylamine acetate	12	395.000
Non-nylon type, polyamide resins	08	27.000	Octadecylamine acetate, ethoxylated	12	395.000
Nonyl acetate	07	165.500	Octadecylamine, ethoxylated	12	333.000
Nonyl-dinonylphenol, mixture	03	1261.000	Octadecylamine, ethoxylated	12	124.000
Nonyldiphenylamine mixture (Mono-, di-, and tri-)	09	76.700	Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	15	463.000
Nonylnic acid	07	165.600	Octadecyl isocyanate	15	1016.000
Nonyl mercaptan	09	171.250	Octadecyl 3-mercaptopropionate	15	179.000
Nonyl phenol	03	1262.000	N-Octadecylsulfosuccinic acid, disodium salt	12	156.000
Nonyl phenol, ethoxylated	12	723.000	Octanal	07	166.000
Nonylphenol, ethoxylated	12	723.000	Octane	15	1368.000
Nonylphenol, ethoxylated and phosphated	12	82.000	n-Octane	15	716.000
Nonylphenol, ethoxylated and phosphated, partial sodium salt	12	83.000	Octanoic acid (Caprylic acid) salts, all other	15	29.750
Nonylphenol, ethoxylated and phosphated, partial sodium salt	12	83.000	Octanoic acid, triethanolamine salt	12	49.750
Nonylphenol, ethoxylated and sulfated	12	750.000	1-Octanol	15	866.000
Nonylphenol, ethoxylated and sulfated, ammonium salt	12	237.000	1-Octanol (sec-Capryl alcohol)	15	867.000
Nonyl phenol, ethoxylated and sulfated, sodium salt	12	288.000	2-Octanone (Nonyl methyl ketone)	15	831.000
Nonyl phenol, ethoxylated and sulfated, mixed fatty acids	12	710.550	3-Octanone (Ethyl amyl ketone)	07	166.200
Nonyl phenol formaldehyde, alkoxylated	12	723.000	Octanoyl chloride	05	581.000
Nonyl phenol oleate, ethoxylated	12	749.500	Octanoyl succinic anhydride	15	562.000
Nonylphenyl phosphites, mixed	09	85.000	N-Octyl acetate	07	166.300
Nonyl acetate	07	114.950	N-Octyl acetate	07	166.300
Nonyl tall oil alkyl-1-tall oil amidoethyl imidazoline	12	115.000	Octyl chloride	15	293.100
Nonylamine hydrochloride	12	361.500	Octyl chloride	15	1241.000
Novobiocin, sodium	06	531.000	n-Octyl n-decyl adipate	11	65.000
Novobiocin, sodium	06	531.000	n-Octyl decyl dimethyl ammonium chloride	12	500.700
Nylon 6 (Polymar for fiber, only)	14	389.000	N-Octyl, N-decyl, N,N-dimethyl ammonium chloride	12	483.200
Nylon 6/6	14	389.000	n-Octyl n-decyl phthalate	11	49.000
Nylon type polyamide resins	08	26.000	Octyldiphenylamine	09	57.000
Nylon type polyamide resins	08	26.000	Octyldiphenylamine, alkylated	09	57.000
Octamethylphenyl oxide	07	165.700	Octyl formate	11	79.000
Octamethylphenyl oxide (Chloran)	15	122.500	Octyl formate	07	166.355
1-Octadecane	15	143.000	n-Octylglucamine	03	1264.050
1-Octadecane thiol	15	1335.200	Octyl isobutyrate	07	166.358
			2-n-Octyl-4-isothiazolin-3-one	13	25.500
			Octyl isovalerate	07	166.360





Table 4. --Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Oxidate light ends	15	1451.000	Pectinase	14	116.000
Oxidized Fischer-Tropsch wax	15	566.000	Pelargonic acid (Ratio = 2/1)	12	541.000
Oxidized hydrocarbon mixture	14	218.000	Pelargonic acid-tetraethylenepentamine condensate	12	366.000
2-Oximinio-3-pentanone	15	466.500	Penicillin V	06	26.000
3-Oxo-1,2-benzisothiazoline-2-acetic acid, methyl ester, Oxalibyllide	03	172.000	Penicillin G, benzathine	06	21.000
Oxalibyllide	03	172.000	Penicillin G, potassium	06	22.000
Oxaluminum benzoate	03	1275.700	Penicillin G, potassium (animal feed grade)	06	29.000
Oxy-aluminum octanoate	15	1363.200	Penicillin G, procaine (medical grade)	06	23.000
P,P'-Oxybis(benzenesulfonhydrazide)	09	109.000	Penicillins, other than semisynthetic, all other	06	30.000
Oxybutynin chloride	06	301.500	Pentaeromethyloxylohexane	03	1275.300
Oxydione hydrochloride	06	406.000	Pentaeromethylbenzene	03	1275.352
Oxydione taraphthalate	06	406.100	Pentaachlorophenol (PCP)	13	28.000
N,N'-Oxydianiline-hydroxybis(oxalysulfide)	03	1275.000	Pentaachlorophenol, sodium salt	13	29.000
N,N'-Oxydiethylmethylocarbonyl-N'-oxyethylsulfenamide	09	34.100	Pentaerythritol	15	1091.000
Oxygen-containing quaternary ammonium salts (Except those having amide linkages), all other	12	467.000	Pentaerythritol aspartate/caprate	15	127.002
Oxyphenacylamine hydrochloride	06	302.000	Pentaerythritol stearate	15	129.000
Oxyquinoline benzoate (benzoquinone)	06	268.000	Pentaerythritol stearate	12	715.100
Oxyquinoline sulfate	06	270.000	Pentaerythritol, tall oil acid ester, alkoxylated	12	715.200
Oxytetracycline (medical grade)	06	36.000	Pentaerythritol tetraacrylate	15	1130.000
Oxytetracycline (animal feed grade)	06	37.000	Pentaerythritol tetraacetate	15	1131.000
Oxytetracycline (veterinary)	06	38.000	Pentaerythritol tetranitrate	15	1467.000
Palmitic and stearic acids (Ratio = 2/1), all other	12	549.000	Pentaerythritol tribenzoate	15	125.700
Palmitic and stearic acids (Ratio = 1/1)	12	549.000	M,M',M'',M'''-Pentaerythritol (C-hydroxyethyl)-N-(tallow alkyl)-, 3-diaminopropane diacilate	15	294.000
Palmitoyl chloride	15	567.000	Pentamethylamine	12	465.500
Palm kernel oil acids, potassium salt	11	89.500	Pentamethylamine	03	1276.000
Palm kernel oil acids, sodium salt	12	62.890	1,1,3,3,5-Pentamethyl-4,6-dinitroindan (MosKens)	07	64.900
Palm kernel oil acids, sodium salt	12	62.900	1,1,3,3,5-Pentamethylindan	03	1277.000
Palm oil acids, sodium salt	12	63.000	M,M',M'',M'''-Pentamethyl-N-(tallow alkyl)trimethylene bis(ammonium chloride)	12	501.000
Paspalum	16	190.000	n-Pentane	12	55.000
Paspalum	16	190.000	1-Pentanol	15	833.000
Peppermint hydrochloride	06	746.000	1-Pentanol	15	835.000
Pepparynne	07	97.405	3-Pentanone (Diethyl ketone)	15	835.000
n-Paraffins, other	02	85.000	Pentazocine	06	416.001
n-Paraffins, C <sub>10</sub> -C <sub>14</sub>	02	84.000	Pentazocine hydrochloride	06	416.003
n-Paraffins, C <sub>10</sub> -C <sub>16</sub>	02	84.250	1-Pentene	02	56.000
n-Paraffins, C <sub>12</sub> -C <sub>18</sub>	02	84.250	2-Pentene	02	57.000
n-Paraffins, C <sub>14</sub> -C <sub>19</sub>	02	81.000	Pentene-trile	15	450.400
n-Paraffins, C <sub>15</sub> -C <sub>19</sub>	02	81.000	Pentenes, mixed	15	58.000
Parformaldehyde	15	1178.500	Pentylamine	02	296.000
Parhydroxyphenylglycine potassium methyl diane salt	03	1121.650	Pentylamine mono-	02	296.000
Para-Pentylalkoxyphenol	03	1277.300	Pentylamine	07	65.000
Para Phenoky benzoyl chloride	03	1259.655	o-Pentylphenol (o-Amylphenol)	03	1279.000
Peanut oil, sulfated, sodium salt	12	310.000	p-tert-Pentylphenol	03	1279.100
Pecan oil, sulfated, sodium salt	12	309.900			



Table 4.—Alphabetical Chemical Index

CHEMICAL NAME	SECT:		CHEMICAL NAME	SECT:	
	NO.	NO.		NO.	NO.
2-(3-Pentyl)pyridine	03	1279-500	Phenolsulfonaphthalein, sodium salt	03	1299-000
Pepsin	15	1283-000	Phenol-sulfonic acid	03	1299-200
Perchloroethylene (Tetrachloroethane)	15	1293-000	1-Phenol-2-sulfonic acid-formaldehyde condensate	14	467-000
Perchloroethylene (Tetrachloroethylene)	15	1293-000	Phenol-formaldehyde,sulfonated	03	1299-802
Perchloroethylene polyether (Tetrachloroethylene mercaptan)	15	1410-100	Phenolsulfonaphthalein	06	580-000
Permethrin acid chloride	03	1279-600	Phenol, synthetic, from chlorobenzene by vapor-phase hydrolysis, U.S.P.	03	1296-000
Peroxyacetic acid	15	466-000	Phenol, synthetic, from cumene by oxidation, U.S.P.	03	1297-000
Perphenazine	06	588-000	Phenol, synthetic, from cumene by oxidation, U.S.P.	03	1298-050
3,4,9,10-Perylene-tetracarboxylic-3,4,9,10-dianhydride	03	1281-502	Phenothiazine	15	126-000
3,4,9,10-Perylene-tetracarboxylic-3,4,9,10-diolimide	03	1281-500	Phenoxyacetic acid, sodium salt	03	1299-600
3,4,9,10-Perylene-tetracarboxylic-3,4,9,10-tetrone	03	1281-500	3-Phenoxybenzaldehyde	03	1299-613
Pesticides and related products, acyclic, all other	13	245-000	3-Phenoxybenzaldehyde acetal	03	1299-615
Pesticides and related products, cyclic, all other	13	245-000	3-Phenoxybenzaldehyde cyanohydrin	03	1299-617
Phenol	08	21-000	2-(2-Phenoxyethoxy)ethanol	05	147-000
Phenol, styrenated, all other	03	1283-000	2-Phenoxyethanol (ethylene glycol monophenyl ether)	05	127-000
Phenol, styrenated, mixtures	03	1283-000	2-Phenoxyethyl isobutyrate	15	128-000
Phenol, styrenated, mixtures	03	1283-000	2-(Phenoxyethyl)benzoic acid	07	74-000
1,10-Phenanthroline	12	213-000	3-(Phenoxyethyl)benzoic acid, trans-3-(2,2-dichloroethyl) methyl-cis, trans-3-(2,2-dichloroethyl)-2,2-dimethyl cyclopropanecarboxylate	13	166-025
Phenmetrazine tartrate	06	588-200	Phenoxy (R) resin (other than for coating and adhesives)	08	125-900
Phenethyl acetate	07	66-000	Phenoxymethane	06	423-000
α-Phenethylamine	03	1282-500	m-Phenoxytoluene	06	549-000
2-Phenethylamine	07	67-500	Phenoxymethane	06	549-500
Phenethyl benzoate	15	125-945	Pentamine hydrochloride	07	75-000
Phenethyl formate	07	69-000	Phenylacetaldehyde	07	76-000
Phenethyl isobutyrate	07	69-000	Phenylacetic acid	07	76-050
Phenethyl isovalerate	07	69-000	Phenylacetic acid isopentyl ester	07	76-055
Phenethyl phenylacetate	07	70-000	Phenylacetic acid, potassium salt	03	1405-000
1-Phenethyl-2-picolinium bromide	12	527-700	Phenyl acid phosphate	14	196-000
Phenethyl propionate	07	67-000	Phenyl alanine	07	76-350
Phenethyl pyridinium bromide	07	67-000	α-Phenyl amino acid	03	1311-000
Phenethyl salicylate	07	67-000	α-Phenyl amino acid, dihydroxyphenylamine	03	1314-300
Phenethyl stearate	07	67-000	4-Phenyl-1-butene	03	1314-300
Phenetole	03	1286-050	m-Phenylenebismaleimide	09	45-000
Phenindamine tartrate	06	102-000	o-Phenylene diamine	03	1320-000
Phenobarbital	06	459-000	p-Phenylene diamine	03	1319-000
Phenobarbital, sodium	06	459-000	p-Phenylene diamine, substituted, other	06	339-000
Phenol, alkylated	09	101-000	Phenylphrazine	03	1321-250
Phenol, ethoxylated	03	1284-000	3-Phenylpropine	03	1321-750
Phenol, ethoxylated and phosphated	12	88-000	di-Phenylpropine base	03	1321-750
Phenol, hindered	09	102-000			
Phenolic and other tar acid resins	08	9-000			
Phenol, magnesium salt	14	230-000			
Phenol, natural, from petroleum, all other	03	1292-000			
Phenol, natural, from petroleum, U.S.P.	03	1292-000			
Phenols, ethoxylated, all other	12	758-000			
Phenol, styrenated	03	1283-000			
Phenol, styrenated, mixtures	03	1283-000			



Table 4.—Alphabetical Chemical Index

CHEMICAL NAME	ITEM NO.	SECT. NO.	CHEMICAL NAME	ITEM NO.	SECT. NO.
Pigment Blue 15:4, (β form)	05 114.020		Pigment Red 38		05 52.000
Pigment Blue 9	05 235.000		Pigment Red 39		05 55.000
Pigment Blue 20	05 235.000		Pigment Red 40		05 55.000
Pigment Blue 25	05 119.000		Pigment Red 48:1, (barium)		05 55.100
Pigment Blue 61	05 120.051		Pigment Red 48:2, (calcium)		05 55.200
Pigment blue toners, all other	05 124.000		Pigment Red 48:3, (strontium)		05 55.300
Pigment Brown 1	05 136.000		Pigment Red 48:4, (manganese)		05 55.400
Pigment Brown 5	05 140.000		Pigment Red 49, (sodium)		05 56.000
Pigment brown toners, all other	05 142.000		Pigment Red 49:1, (barium)		05 57.000
Pigment Green 1, (PMA)	05 128.000		Pigment Red 49:2, (calcium)		05 58.000
Pigment Green 2, (PMA)	05 128.000		Pigment Red 52:1, (barium)		05 62.000
Pigment Green 3, (PTA)	05 128.000		Pigment Red 52:2, (manganese)		05 62.000
Pigment Green 4, (PMA)	05 130.000		Pigment Red 53, (sodium)		05 63.000
Pigment Green 7	05 132.000		Pigment Red 53:1, (barium)		05 64.000
Pigment Green 8	05 133.000		Pigment Red 57		05 67.057
Pigment Green 10	05 134.000		Pigment Red 57:1, (calcium)		05 68.000
Pigment Green 36	05 134.260		Pigment Red 60:1		05 209.000
Pigment green toners, all other	05 135.000		Pigment Red 63		05 70.000
Pigment Orange 1	05 19.000		Pigment Red 81, (PMA)		05 75.000
Pigment Orange 2	05 21.000		Pigment Red 83, (PTA)		05 75.000
Pigment Orange 3	05 21.000		Pigment Red 83		05 211.000
Pigment Orange 5	05 23.000		Pigment Red 88		05 78.000
Pigment Orange 13	05 24.000		Pigment Red 112		05 45.810
Pigment Orange 15	05 24.000		Pigment Red 119		05 79.119
Pigment Orange 16	05 25.000		Pigment Red 122		05 79.320
Pigment Orange 17	05 206.000		Pigment Red 123		05 80.000
Pigment Orange 34	05 25.180		Pigment Red 147		05 85.847
Pigment Orange 36	05 25.190		Pigment Red 168		05 85.870
Pigment Orange 38	05 25.250		Pigment Red 179		05 85.870
Pigment Orange 40	05 26.046		Pigment Red 179		05 80.660
Pigment Orange 46	05 26.046		Pigment Red 181		05 80.680
Pigment Orange 48	05 26.048		Pigment Red 188		05 80.688
Pigment Orange 49	05 26.049		Pigment Red 190		05 80.770
Pigment orange toners, all other	05 29.000		Pigment Red 200		05 84.200
Pigment Red 1, (dark)	05 47.000		Pigment Red 202		05 84.202
Pigment Red 1, (light)	05 48.000		Pigment Red 206		05 84.206
Pigment Red 2	05 30.000		Pigment Red 206		05 84.206
Pigment Red 4	05 50.000		Pigment Red 211		05 84.211
Pigment Red 5	05 31.000		Pigment Red 224		05 84.224
Pigment Red 9	05 32.000		Pigment Red 231, (calcium)		05 70.001
Pigment Red 13	05 33.000		Pigment red toners, all other		05 86.000
Pigment Red 17	05 36.000		Pigment Violet 1, (fugitive)		05 87.000
Pigment Red 21	05 39.000		Pigment Violet 1, (PMA)		05 88.000
Pigment Red 22	05 40.021		Pigment Violet 1, (PTA)		05 89.000
Pigment Red 23	05 43.000		Pigment Violet 3, (fugitive)		05 90.000
Pigment Red 24	05 43.000		Pigment Violet 3, (PMA)		05 91.000
Pigment Red 27	05 45.000		Pigment Violet 3, (PTA)		05 92.000





Table 4.—Alphabetical Chemical Index

SECT. NO.	ITEM NO.	CHEMICAL NAME	CHEMICAL NAME	SECT. NO.	ITEM NO.
		Polyacrylic acid, allylate	Polyethylene glycol sesquiester of tall oil acids		
	12	719.200			12
	12	719.210	Polyethylene glycol terephthalate		12
	10	17.000	Polyethylene glycol terephthalate		12
	14	438.000	Polyethyleneamine methyl ammonium sulfate		12
	14	439.000	Polyethyleneamine polymer with 1,4-dihydroxy-2-butene		14
	14	370.000	Polyethylene polypropylene glycol glyceryl triether		14
	08	30.050	Maleate		15
	08	12.000	Polyethylene terephthalate (PET)		15
	08	30.000	Polyethylene terephthalate		16
	08	30.035	Polyethyl methacrylate		16
	06	12.050	Polyethyl methacrylate		08
	14	440.000	Polyglycerol decanoate		12
	03	1369.000	Polyglycerol dodecanoate		12
	15	1181.000	Polyglycerol distearate		12
	11	52.000	Polyglycerol esters, all other		12
	12	684.300	Polyglycerol mono-oleate		12
	12	684.400	Polyglycerol mono-stearate		12
	12	684.500	Polyglycerol stearate		12
	12	684.600	Polyhexadecyl glycol and glycol ether, mixed		15
	12	674.000	Polyhydric alcohol esters, all other		15
	15	1181.200	Polyhydric alcohol ethers, all other		15
	12	675.000	Polyhydric alcohol, ethoxylated and phosphated		12
	12	676.000	Polyhydric alcohols, all other		15
	12	684.700	Polyimides and amide-imide polymers		08
	12	684.800	Polyisobutylene, type elastomers		10
	12	691.000	Polyisoprene, NR type		10
	12	676.500	Polymeric phosphites		14
	12	677.500	Polymerization regulators, acyclic, other		09
	15	1181.300	Polymers for fibers, all other		14
	12	685.510	Polymers, water soluble, all other		14
	12	685.700	Polymethacrylic acid esters		15
	12	678.000	Polymethacrylic acid, sodium salt		14
	14	491.000	Poly(methyl methacrylate)		03
	12	679.000	Poly(methyl methacrylate) (PMMA)		14
	12	680.100	Poly(methyl methacrylate) (PMMA)		08
	12	680.200	Poly(methyl methacrylate) (PMMA)		15
	12	680.300	Poly(methyl methacrylate) (PMMA)		15
	12	680.400	Poly(methyl methacrylate) (PMMA)		15
	12	682.000	Poly- $\alpha$ -olefins, sulfurized		15
	12	685.900	Polyol glycidyl ether		14
	12	686.000	Polyoxalkylated cyclic amines		14
	12	687.000	Polyoxalkylated cyclic amines		15
	12	689.000	Polyoxalkylated fatty alcohol, phosphate ester		12



Table 4. --Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Polyoxalkylene glycol	15	1181.800	Polyvinyl butyral resins	08	49.000
Poly(oxy-1,2-ethanediylo)carboxy-methyl	12	47.500	Polyvinyl chloride copolymer resins, all other	08	49.020
Poly(oxy-1,2-ethanediylo)- $\alpha$ -carboxymethyl, omega-(tridecyloxy)	06	457.000	Polyvinyl chloride homopolymer resins	08	49.010
Poly(C12-C15 alkyl methyl)- $\alpha$ -(phenylmethyl)-omega-hydroxy-	12	754.460	Polyvinyl formal resin	08	49.050
Poly(oxy-1,2-ethanediylo), $\alpha$ -(phenylmethyl)-omega-hydroxy, vlatad nonyl phenol alkyl ethers	12	754.500	Polyvinylidene fluoride resin	08	38.150
Poly(oxyethylene)(dimethylamino)ethylene(dimethylimino)ethylene dichloride	13	195.013	Poly(vinyl-0-sulfobenzal)	14	468.300
Poly(oxypropylene)amine	15	297.720	Potassium acetate	15	602.000
Poly(oxypropylene)oxyethylene glycol, mixed	15	1185.000	Potassium aspartate	15	395.000
Polymethacrylic acid copolymer resins	09	86.000	Potassium benzoate	15	695.000
Poly-m-phenylene isophthalic resins	08	34.500	Potassium citrate	15	730.500
Polyphenylene oxide type resins	04	32.000	Potassium dihexyl phosphorodithioate	15	641.000
Polyphenylene sulfide resins	08	35.500	Potassium formate	15	653.000
Poly(p-phenylene terephthalamide)	14	393.000	Potassium gluconate	06	766.000
Polypropoxybutyl ether, ethoxylated	15	1182.005	Potassium glutamate	14	9.000
Polypropoxyethers, all other	15	1186.000	Potassium lactate	15	663.750
Polypropylene glycol diols	12	719.400	Potassium 2-hydroxyethyl-2-butanol	15	1411.500
Polypropylene glycol, ethoxylated	12	84.000	Potassium oxalate	15	725.000
Polypropylene glycol glycerol tri-ether and epichlorohydrin bisphenol epoxy resin	15	145.500	Potassium salicylate	06	387.000
Polypropylene glycol glyceryl triether(epichlorohydrin-bisphenol a epoxy resin copolymer, glyceryl triether)	15	145.502	Potassium and sodium salts of fatty, rosin, and tall oil acids, all other	12	74.000
Polypropylene polymer and copolymer resins	08	36.000	Potassium sodium tartrate	15	768.000
Polyulfide (R) type elastomers	08	37.000	Potassium stearate	06	629.000
Polytergane resins	08	38.000	Potassium succinate	06	271.000
Polytetrafluoroethylene (PTFE)	08	38.100	Potassium 2-hydroxyethyl-2-butanol	15	1411.500
Polytetrafluoroethylene ethyl iodide	15	1269.000	Potassium 2-methyl-2-propanol	15	1411.500
Polytetramethylene glycol ether	15	1187.000	Potassium oxalate	15	725.000
Poly(tetramethylene)tetramethylenediamine) with (chloromethyl)tetramethylenediamine) with	13	195.014	Potassium salicylate	06	387.000
Poly(1,1,1-trichlorobutane-2-ol)ethylene glycol dextrose ether	15	1187.200	Potassium and sodium salts of fatty, rosin, and tall oil acids, all other	12	74.000
Poly(2,2,4-trimethyl-1,3-pentanedioyl) maleate	11	132.750	Potassium sodium tartrate	15	768.000
Polyurethane elastomers	08	13.000	Potassium stearate	06	629.000
Polyurethane resins	08	13.080	Potassium succinate	06	271.000
Polyvinyl acetate resins	08	47.000	Potassium 2-hydroxyethyl-2-butanol	15	1411.500
Polyvinyl alcohol resins	08	48.000	Potassium 2-methyl-2-propanol	15	1411.500
			Potassium oxalate	15	725.000
			Potassium salicylate	06	387.000
			Potassium and sodium salts of fatty, rosin, and tall oil acids, all other	12	74.000
			Potassium sodium tartrate	15	768.000
			Potassium stearate	06	629.000
			Potassium succinate	06	271.000
			Potassium 2-hydroxyethyl-2-butanol	15	1411.500
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			Potassium sodium tartrate	15	768.000
			Potassium stearate	06	629.000
			Potassium succinate	06	271.000
			Potassium 2-hydroxyethyl-2-butanol		

Table 4.—Alphabetical Chemical Index

SECT. NO.	ITEM NO.	CHEMICAL NAME	CHEMICAL NAME	SECT. NO.	ITEM NO.
	02	Propene (Commercial and hd-5)	Propyl gallate	15	148,000
	12	Propene, alkoxylated	Propylmethacrylate	06	344,000
	12	Propionic acid, all other	n-Propyl mercaptan (1-Propanethiol)	02	96,000
	12	1,2-Propanediol mono-oleate	n-Propyl oleate	11	95,000
	12	1,2-Propanediol mono-oleate	Propyl oleate, sulfated, sodium salt	12	262,000
	12	1,2-Propanediol monostearate	2-Propyl-3-callym-1,3-tetrahydropyrimidine	12	443,000
	3	Propanoic acid, coccolino, sodium salt	2-Propyl-1-ol (Propargyl alcohol)	15	164,000
	3	Propanoic acid, coccolino, sodium salt	Protease (bacterial)	14	168,000
	06	Propionamide	Protease hydrolyzates	14	17,000
	06	Propionamide, 2-hydroxyphenyl ether	Pseudoephedrine hydrochloride	06	346,000
	07	Propylamine	Pseudoephedrine sulfate	06	347,000
	07	4-Propenyl-1,2-dimethoxybenzene (Methyl isoougenol)	Pseudoionone	15	836,000
	15	Propionaldehyde	Pseudo linallyl acetate (Neobergamate)	07	166,700
	15	Propionic acid	Pyranol pantoate	06	124,000
	15	Propionic acid salts, all other	Pyranol tartrate	06	124,000
	15	Propionic anhydride	8,16-Pyranthranedione	03	1376,000
	15	Propionic chloride	8,16-Pyranthranedione	03	1377,000
	03	Propionyl chloride	Pyridine hydrochloride	03	1382,000
	03	Propoxyethanol (Ethylene glycol monoethyl ether)	Pyridine methanol	03	1383,000
	15	Propoxyethanol (Diethylene glycol monoethyl ether)	20 Pyridine, refined	03	1379,000
	15	Propoxyethanol (Diethylene glycol monoethyl ether)	Pyridine, refined all other grades	03	1380,003
	15	Propoxylated methylglucoside	2 Pyridinethiol-1-oxide, sodium salt	03	349,003
	14	Propoxylated starches	2 Pyridinethiol-1-oxide, zinc salt	03	349,003
	06	Propoxyphene hydrochloride	Pyridostigmine bromide	06	800,000
	15	Propoxyphene mesylate	Pyridoxine esters	06	800,000
	15	Propyl acetate	N-(2-Pyridyl)-4-hydroxy-2-methyl-2H-1,2-benzothiazine-3-carboxamide, 1,1-dioxide	03	1383,200
	15	Propylamine	Pyrimilamine maleate	06	105,000
	15	n-Propylaminoethanol	2,4(1H,3H)Pyrimidinedione	15	148,990
	15	n-Propylaminoethanol	2-Pyrimidinol	03	1387,000
	15	p-Propylaminol (Dihydroanethole)	Pyribione, zinc	06	351,000
	13	S-Propyl butylethylthiocarbamate (Febulate)	2-Pyrrolidone	06	351,000
	13	S-Propyl dipropylthiocarbamate (Vernolate)	N-(1-Pyrrolidyl)-N-toluenesulfonamide	03	1391,000
	15	Propylene	Quaternary ammonium salts having amide linkages, all other	12	479,000
	15	Propylene carbonate	Quaternary ammonium salts, not containing oxygen, acyclic, all other	12	507,000
	15	Propylene glycol adipate	Quaternary ammonium salts not containing oxygen, cyclic, all other	12	528,000
	15	Propylene glycol dibenzoate	Quinoline, 2,3-diazabicyclic acid	03	1394,000
	15	Propylene glycol dicaprylate	Quinoline, 2,3-diazabicyclic acid	03	1395,500
	15	Propylene glycol esters of hydrogenated palm oil	Quinoline, 2,3-diazabicyclic acid	03	1397,000
	15	Propylene glycol glutarate	8-Quinololinol	03	1397,000
	15	Propylene glycol succinate			
	15	Propylene glycol sebacate			
	15	Propylene oxide, polymer with polyethylene glycol adipate			

Table 4. --Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
g-Quinolol, copper salt	13	30.000	Reactive Red 29	04	935.000
g-Quinolol, magnesium salt	13	30.200	Reactive Red 31	04	937.000
g-Quinolol, sulfate salt	13	30.300	Reactive Red 33	04	938.000
g-Quinolol zinc salt	03	1397.100	Reactive Red 43	04	930.003
g-Quinone	15	14.000	Reactive Red 49	04	930.049
Quinone dioxime	03	1397.500	Reactive Red 106	04	931.106
Rare earths	15	312.000	Reactive Red 120	04	931.120
Rare earths barbiturate	15	312.000	Reactive Red 141	04	931.141
Rare earths neodecanoate	15	709.750	Reactive Red 180	04	931.180
Reactive Black 5	04	952.000	Reactive red dyes, all other	04	932.000
Reactive Black 9	04	953.000	Reactive violet 5	04	935.000
Reactive Blue 3	04	939.000	Reactive violet dyes, all other	04	937.000
Reactive Blue 4	04	940.000	Reactive Yellow 6	04	903.000
Reactive Blue 5	04	941.000	Reactive Yellow 15	04	904.000
Reactive Blue 13	04	943.000	Reactive Yellow 16	04	904.000
Reactive Blue 19	04	943.000	Reactive Yellow 17	04	905.000
Reactive Blue 21	04	944.000	Reactive Yellow 18	04	907.000
Reactive Blue 28	04	946.000	Reactive Yellow 22	04	907.022
Reactive Blue 71	04	946.071	Reactive Yellow 37	04	910.000
Reactive Blue 89	04	946.089	Reactive Yellow 42	04	910.042
Reactive Blue 173	04	946.173	Reactive Yellow 57	04	910.057
Reactive Blue 174	04	946.174	Reactive Yellow 66	04	910.066
Reactive Blue 199	04	946.199	Reactive Yellow 133	04	910.133
Reactive Blue 199, all other	04	949.000	Reactive Yellow dyes, all other	04	911.000
Reactive Brown 1	04	949.000	Reactive Yellow dyes, all other	04	911.000
Reactive Brown 1, all other	04	949.017	Resorcinol	04	928.035
Reactive Brown 17	04	949.017	Resorcinol	14	106.000
Reactive Brown 18	04	949.018	Resorcinol monobenzoate	06	272.000
Reactive Green 12	04	948.012	Resorcinol, tach	15	151.000
Reactive Green 19	04	948.019	Resorcinol, tach	03	1399.000
Reactive Green dyes, all other	04	948.999	g-Resorcylic acid, lead salt	03	1403.000
Reactive Orange 1	04	912.000	Rhodinol acetate	07	164.000
Reactive Orange 1, all other	04	913.000	Rhodinol acetate	07	164.000
Reactive Orange 11	04	914.000	Riboflavin (animal feed grade)	06	801.000
Reactive Orange 12	04	914.000	Riboflavin (animal feed grade)	06	802.000
Reactive Orange 13	04	915.000	Riboflavin (medicinal grade)	06	802.000
Reactive Orange 14	04	916.000	Ricebean oil, sulfated, sodium salt	12	311.000
Reactive Orange 16	04	917.000	Ricinoleic acid salts, all other	15	742.000
Reactive Orange 20	04	917.020	Redenticides, acyclic, all other	13	233.000
Reactive Orange 78	04	917.078	Rosenegographic contrast media, all other	06	574.000
Reactive Orange 84	04	917.084	Rose oxide	07	115.500
Reactive Orange 86	04	917.086	Rosin acid salts, all other	15	181.000
Reactive Orange 86, all other	04	918.000	Rosin acids, potass salt	15	181.000
Reactive Orange 86, all other	04	918.000	Rosin acids, potass salt	12	66.000
Reactive Red 2	04	920.000	Rosin acids, triethanolamine salt	12	32.000
Reactive Red 5	04	922.000	Rosin alcohol, ethoxylated	12	765.000
Reactive Red 11	04	924.000	Rosin amine, ethoxylated	12	355.000
Reactive Red 21	04	925.000			

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Rosin amines	14	136.000	Sodium carboxymethyl amylose	14	432.000
Rosin esters, unmodified (ester gums)	08	39.000	Sodium carboxymethylcellulose (100%)	14	412.000
Roxarsone	06	159.000	1-(Sodium carboxymethyl)-1-(sodium carboxymethyl)eneoethylene)-2-nor-(coconut oil fatty acids)-2-(4-ethylphenoxymethyl)-phenoxyl-2-nitrobenzoate	12	27.200
Roxarsone, sodium	06	160.000	Sodium citrate	13	118.012
Suber-processing chemicals, cyclic, all other	09	127.000	Sodium diacetate	15	626.000
Rust preventing additives	14	172.000	Sodium di-sec-butyl-diethyl phosphorodithioate	15	731.000
Saccharin (1,2-Benzisothiazolin-3-one, 1,1-dioxide)	07	85.000	Sodium di-2-ethylhexyl sulfosuccinate	15	732.900
Saccharin, sodium salt	07	87.000	Sodium dihydroxyethyl phosphorodithioate	15	733.900
Sallylaldehyde oxime	03	1404.502	Sodium ethoxide	15	1415.000
Sallylaldehyde	03	1405.000	Sodium fluoroacetate	13	232.000
Sallylamide	16	382.200	Sodium formaldehyde bisulfite	15	743.250
Sallylic acid	16	382.200	Sodium formaldehyde sulfoxylate	15	743.255
Sallylic acid, tech	03	1406.000	Sodium formate, refined	15	654.000
Salsalate	06	389.000	Sodium formate, technical	15	655.000
Salts of organic acids, all other	15	781.000	Sodium gluconate	06	630.000
a-Santalol	07	116.000	Sodium lactate (Walach)	15	674.000
Sarcosine	14	18.000	Sodium mercaptoacetate	15	697.000
Sassafras oil, hydrogenated	07	116.200	Sodium methoxide (Sodium methylate)	15	1418.000
Sebacic acid	15	574.000	Sodium N-methyl-N-oley taurate	15	743.550
Sebacoyl chloride	05	461.000	Sodium oxalate	15	726.000
Secondary and tertiary monamines, all other	12	447.000	Sodium phenate or carbolate	01	22.050
Semicarbazide hydrochloride	15	473.000	Sodium polyacrylate	14	433.000
Semisyntetic penicillins, all other	06	20.000	Sodium propionate	06	390.000
Silicone fluids	15	1392.000	Sodium p-sulfobenzene sulfinate	03	1410.100
Silicone greases	14	462.000	Sodium trichloromethyl ether	03	1410.500
Silicone resins	14	462.000	Solid type polyvinylidene chloride resins	08	50.020
Silicone resins for mold release agents	08	14.000	Solubilized Sulfur Black 2	04	1111.000
Silver trifluoroacetate	15	1460.000	Solvent Black 7	04	1053.000
Silver trifluoroacetate,omers	15	742.700	Solvent Black 13	04	1055.000
Silymycin	06	56.700	Solvent Black 26	04	1057.000
Siloterols	06	618.000	Solvent Black 48	04	1057.048
Sodium acetate	15	603.000	Solvent Black 49	04	1057.049
Sodium aminobenzoate	06	396.000	Solvent Blue 3	04	1057.000
Sodium ammonium polyacrylate and copolymers	14	431.000	Solvent Blue 4	04	1057.000
Sodium arseniate	06	161.000	Solvent Blue 5	04	1058.000
Sodium azoacetate	15	162.250	Solvent Blue 23	04	1058.023
Sodium benzoate, phosphinate	15	12.000	Solvent Blue 35	04	1058.035
Sodium benzoate, U.S.P.	15	12.000			
Sodium benzoate, tech.	15	11.000			
Sodium butylxanthate	14	142.000			
Sodium sec-butylxanthate	14	143.000			
Sodium caprylate	06	137.000			
1-(Sodium carboxymethylene)-2-nor-(tall oil fatty acids)-2-malecolinium hydrosulfate	12	27.100			



Table 4.—Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Solvent Blue 36	04	1029.000	Solvent Red 166	04	1012.000
Solvent Blue 38	04	1031.000	Solvent Red 168	04	1012.168
Solvent Blue 43	04	1032.000	Solvent Red 169	04	1012.169
Solvent Blue 56	04	1031.056	Solvent Red 172	04	1012.172
Solvent Blue 59	04	1034.000	Solvent Red 173	04	1012.173
Solvent Blue 99	04	1037.000	Solvent Red 175	04	1012.175
Solvent Blue 100	04	1037.039	Solvent Red 207	04	1012.207
Solvent Blue 102	04	1038.102	Solvent Red 208	04	1012.208
Solvent Blue 128	04	1038.128	Solvent Red 210	04	1012.210
Solvent Blue 129	04	1038.129	Solvent Red 222	04	1012.222
Solvent Blue dyes, all other	04	1039.000	Solvent red dyes, all other	04	1013.000
Solvent Brown 12	04	1045.000	Solvent Violet 8	04	1014.000
Solvent Brown 20	04	1047.000	Solvent Violet 9	04	1015.000
Solvent Brown 36	04	1048.000	Solvent Violet 13	04	1016.000
Solvent Brown 38	04	1049.000	Solvent Violet 14	04	1017.000
Solvent Brown 51	04	1049.052	Solvent violet dyes, all other	04	1019.000
Solvent Brown 52	04	1049.052	Solvent Yellow 13	04	957.000
Solvent Green 1	04	1049.052	Solvent Yellow 14	04	959.000
Solvent naphtha	01	8.000	Solvent Yellow 16	04	959.016
Solvent Orange 2	04	977.000	Solvent Yellow 16	04	959.016
Solvent Orange 3	04	978.000	Solvent Yellow 33	04	963.000
Solvent Orange 7	04	980.000	Solvent Yellow 40	04	965.000
Solvent Orange 9	04	981.000	Solvent Yellow 42	04	966.000
Solvent Orange 23	04	982.000	Solvent Yellow 43	04	967.000
Solvent Orange 31	04	985.000	Solvent Yellow 44	04	968.000
Solvent Orange 60	04	987.060	Solvent Yellow 75	04	971.000
Solvent Orange 73	04	987.073	Solvent Yellow 94	04	974.094
Solvent Orange 74	04	987.074	Solvent Yellow 107	04	975.000
Solvent Orange 76	04	987.076	Solvent Yellow 109	04	975.109
Solvent Orange 77	04	987.077	Solvent Yellow 131	04	975.131
Solvent Orange 78	04	987.078	Solvent Yellow 135	04	975.135
Solvent Orange 79	04	987.079	Solvent Yellow 143	04	975.143
Solvent Orange 80	04	988.000	Solvent Yellow 160	04	975.160
Solvent Orange 81	04	989.005	Solvent Yellow 164	04	975.164
Solvent Red 1	04	991.023	Solvent Yellow 166	04	975.166
Solvent Red 5	04	992.000	Solvent Yellow 167	04	975.167
Solvent Red 23	04	993.000	Solvent yellow dyes, all other	04	976.000
Solvent Red 24	04	994.000	Sorbic acid (2,4-Hexadienoic acid)	15	576.000
Solvent Red 26	04	999.000	Sorbitol (70% by Weight)	15	1094.000
Solvent Red 27	04	1001.000	Sorbitol, ethoxylated	15	1094.000
Solvent Red 68	04	1003.000	Sorbitol, propoxylated	15	1190.000
Solvent Red 74	04	1003.000	Soy fatty acids, reaction products with chloroethane	12	477.350
Solvent Red 111	04	1008.125	Soy fatty acids, ethoxylated, quaternized	12	477.350
Solvent Red 125	04	1011.000			
Solvent Red 164	04	1011.165			
Solvent Red 165	04	1011.165			



Table 4.—Alphabetical Chemical Index

SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
		Soya fatty acids, reaction products with chloromethane and diethylenetriamine, propoxylated, quaternized			Stearic acid-ethylenediamine condensate, monoethoxylated	12	383,000
		Soya steroids, ethoxylated	12	477,360	Stearic acid-ethylenediamine condensate, monoethoxylated	12	383,000
		Soya tallow, ethoxylated	12	751,500	Stearic acid-ethylenediamine condensate, monoethoxylated	12	368,300
		Soybean oil acids (Ratio=1/1)	12	541,500	Stearic acid ethylene diamine methyl ammonium sulfate	12	501,500
		Soybean oil acids (Ratio=1/1)	12	549,300	Stearic acid-ethylenediamine condensate	12	389,600
		Soybean oil acids, potassium salt	12	67,000	Stearic acid mixed amine condensate	12	369,500
		Soybean oil alkyllamine, ethoxylated	12	427,000	Stearic acid, potassium salt	12	68,000
		Soybean oil alkyllamine, ethoxylated	12	335,000	Stearic acid salts, all other	15	769,000
		M-(Soybean oil alkyllamine)ethylenediamine	12	414,000	Stearic acid, sodium salt	12	69,000
		Soybean oil, ethoxylated	12	672,000	Stearic acid-tetraethylenepentamine condensate	12	370,000
		Soybean oil, sulfated, sodium salt	12	312,000	Stearic acid-tetraethylenepentamine condensate, acetate	12	370,020
		Specific gravity 0.940 and below	08	31,400	Stearic acid, N,N',N'',N'''-tetrakis(2-hydroxyethyl)-ethylenediamine salt	12	33,000
		Specific gravity 0.940 and below	08	31,400	Stearic acid, triethanolamine salt	12	34,000
		Specific gravity over 0.940	06	75,000	Stearonitrile (octadecane nitrile)	15	451,000
		Spectinomycin (animal feed grade)	06	57,000	M-Stearoyl-p-aminophenol	09	104,000
		Spectinomycin (medicinal grade)	06	740,500	Stearoyl chloride	15	577,000
		Spironolactone	15	643,000	Stearoyl acid phosphate	15	735,300
		Stannous octanoate	15	715,000	Stearyl alcohol, propoxylated and ethoxylated	12	739,320
		Stannous octyl phthalate	15	164,200	Stearyl alcohol, propoxylated and ethoxylated ammonium chloride copolymer	12	477,400
		Stanzolol (Octadecane amide)	15	253,000	Stearyl amine polyphosphoric acid, ethoxylated	12	112,810
		Stearamideethyldiethylamine	12	388,900	Stearyl dimethylammoniummethosulfate quaternary	12	465,850
		Stearamideethylethanolamine acetate	12	388,950	Stearyl dimethyl ethyl ammonium ethyl sulfate	12	465,870
		Stearamideethyl-2-heptadecyl imidazolone	12	414,500	Stearyldecylamide	15	254,000
		Stearic acid (Ratio = 2/1)	12	542,000	Stearyl methacrylate	15	1053,000
		Stearic acid (Ratio = 1/1)	12	565,000	Straight polystyrene	08	71,000
		Stearic acid (Ratio = 1/2)	12	567,000	Styrene	08	44,000
		Stearic acid (Ratio = 2/1)	12	562,000	Styrene acrylonitrile	08	3,500
		Stearic acid amineethanolamine	12	550,000	Styrene-butadiene	08	1411,000
		Stearic acid amineethanolamine (amine acid ratio = 1.0/1.65)	12	575,450	Styrene-butadiene latex type	08	3,500
		Stearic acid-amineethyl ethanolamine (amine/acid ratio=1.75/1.0)	12	575,500	Styrene-butadiene latex copolymers, other	10	4,500
		Stearic acid-N-aminoethyl ethanolamine condensate	12	581,200	Styrene-butadiene, latex type	10	4,500
		Stearic acid, ammonium salt	12	67,990	Styrene-butadiene, latex type	10	4,500
		Stearic acid diethanolamine (amine acid ratio = 1.0/1.65)	12	575,500	Styrene-butadiene, latex type	10	4,500
		Stearic acid-diethanolamine condensate, methyl sulfate	12	369,500	Styrene-butadiene, latex type	10	4,500
		Stearic acid-diethylenetriamine condensate	12	367,000	Styrene-butadiene, latex type	10	4,500
		Stearic acid-diethylenetriamine condensate, ethyl sulfate	12	367,000	Styrene-butadiene, latex type	10	4,500
		Stearic acid esters, all other	11	367,500	Styrene-butadiene, latex type	10	4,500
		Stearic acid, ethoxylated	12	125,000	Styrene-butadiene, latex type	10	4,500
		Stearic acid - ethylenediamine condensate	12	671,700	Styrene-butadiene, latex type	10	4,500
		Stearic acid-ethylenediamine condensate amine/acid ratio=1/2	12	368,290	Styrene-butadiene, latex type	10	4,500
		Stearic acid-ethylenediamine condensate amine/acid ratio=1/2	12	586,000	Styrene-butadiene, latex type	10	4,500
				Succinaldehyde-sodium misulfitte complex	15	803,400	



Table 4. — Alphabetical Chemical Index

CHEMICAL NAME	ITEM NO.	SECT. NO.	CHEMICAL NAME	ITEM NO.	SECT. NO.
Tall oil alkyl amines	12	335-500	Terbutaline sulfate	06	347-500
3-(Tall oil amino)propyl amine	12	414-600	Terephthalic acid	03	1422-000
Tall oil, chemically modified	15	168-000	Terephthalic acid, dimethyl ester	03	1424-000
Tall oil fatty acid, diethylene triamine condensate	12	587-450	Terephthaloyl chloride	03	1424-500
(amine/acid ratio = 1/2)	12	587-450	Terephthaloyl diacetate acid, diethyl ester	15	182-000
Tall oil fatty acids, triethanolamine condensate	12	595-300	Terpene hydrocarbons, monocyclic (Solventol)	15	182-000
Tall oil refined, ethoxylated	12	672-500	Tetraphenyl phosphonium bromide	03	1426-000
Tall oil salts, all other (linoleic-rosin acid salts)	15	179-000	Terpinene-ol	07	116-500
Tall oil sulfated, ammonia salt	12	312-500	Terpinene-ol	03	1426-500
Tall oil, sulfated, sodium salt	12	312-700	Terpineol( $\alpha$ - and $\beta$ -)	07	119-000
Tall oil, sulfonated, potassium salt	12	214-300	$\alpha$ -Terpineol	07	117-000
Tallow acids	12	594-000	$\alpha$ -Terpinyl acetate	06	611-800
Tallow acids, ethanolamine salt	12	584-400	Testosterone	06	611-800
Tallow acids, potassium salt	12	73-000	Testosterone cypionate	06	642-100
Tallow acids, sodium salt	12	73-000	Testosterone enanthate	06	642-300
Tallow acids, triethanolamine salt	12	73-000	Testosterone propionate	06	642-300
Tallow alcohol, ethoxylated	12	34-500	Tetraalkyl silicate	15	1053-700
Tallow alcohol, triethanolamine salt	12	740-000	Tetrazabromobiphenol A	15	184-000
Tallow alkyl amide, ethoxylated	12	587-970	1,1,2-Tetrabromoethane (Acetylene tetrabromide)	15	124-000
Tallow alkylamine	12	499-000	Tetrabromophthalic anhydride	03	1429-000
(Tallow alkylamine acetate)	12	399-000	Tetrabutyl ammonium bromide	12	477-850
(Tallow alkylamine, ethoxylated)	12	386-000	Tetra butyl ammonium hydrogen sulfate	12	477-850
(Tallow alkylamine, triethanolamine)	12	386-000	2-(2,4,6-Trichlorophenyl)thio]-1-cyclohexene-1,	15	1060-000
N-(Tallow alkyl)diisopropylacetamide	12	415-000	2-diacetoxamide (Captafol)	13	31-050
N-(Tallow alkyl)3-aminodipropionic acid, disodium salt	12	18-000	2,4,5,6-Tetrachloroisophthalonitrile	13	31-200
N-(Tallow alkyl)trimethylenediamine	12	416-000	2,4,4',5'-Tetrachlorophenylsulfone	03	1435-400
N-(Tallow alkyl)trimethylenediamine acetate	12	400-000	Tetrachlorophthalic anhydride	03	1435-600
N-(Tallow alkyl)trimethylenediamine, ethoxylated	12	337-000	Tetracycline	06	37-000
N-(Tallow alkyl)trimethylenediamine, oleate	12	402-000	1-Tetradecanaminium,M,M'-trimethyl-chloride	15	1398-500
N-(Tallow alkyl)trimethylenediamine, propoxylated	12	337-020	n-Tetradecane (Myristyl alcohol)	15	879-000
N-(Tallow alkyl)triisopropylamine	12	415-000	3-Tetradecylsuccinic anhydride	15	185-500
Tallow amine, ethoxylated, quaternary ammonium salt	12	417-700	9-Tetradecylaminopyrrol amine	12	416-200
Tallow amine, ethoxylated, sulfate	12	336-020	Tetradecyl mercaptan	09	171-200
Tallow fatty acids, etho	12	672-600	Tetra-(2,2-diallyloxyethyl)-1-butoxy titanium bis-	12	784-500
Tallow fatty acids, sodium salt	15	453-000	(di-tridecyl) phosphite	12	501-620
Tallow, sulfated, sodium salt	15	295-000	Tetraethanolammonium hydroxide	12	501-620
Tannic acid, N.F.	15	180-000	Tetraethyl ammonium bromide	12	501-612
Tar bases: crude bases (Dry basis)	01	10-000	Tetraethyl ammonium chloride	15	1191-000
Tar bases,1,searfed,me for denaturizing grade	01	23-000	Tetraethylene glycol diacrylate	15	1135-000
Tar bases,2,searfed,me for denaturizing grade	01	23-000	Tetraethylene glycol di(2-ethylhexanoate)	11	126-100
Tar for other uses: crude	01	24-000	Tetraethylene glycol dimethanoate	15	1135-700
Tar for other uses: refined	01	25-000	Tetraethylene glycol dimethacrylate	15	1135-000
Tar, road	01	23-000			
Tepyl acetate	07	169-000			



Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
Tetraethylenepentamine	15	303.000	Tetramethyl octahydro acetyl naphthalene	07	88.810
Tetraethyl lead	14	186.000	Tetramethylthiuram tetrasulfide	09	48.250
0,0,0,0-Tetraethyl S,S'-methylene	13	227.000	1,3,6,8-Tetranitro-9H-carbazole	03	1443.600
Tetraphosphorotrichlorate (Tliron)	15	1954.000	Tetranitrothane	12	478.050
Tetraethyl silicates, condensed (silicates)	15	195.000	Tetra-nitroxy titanium (bis-tridecyl) phosphite	15	785.100
Tetrafluoroethylene, monomer	15	1271.000	Tetraphenyltin chloride	12	191.000
Tetrafluoroethane	15	1271.000	Tetrahydrofuran, anhydrous	03	1458.050
Tetraethyl ammonium bromide	12	501.635	Textile chemicals, other than surface active agents.	14	307.000
Tetrahydrobenzyl alcohol	03	1437.402	Thebanin	06	435.000
Tetrahydro-3,5-dimethyl-4H-1,3,5-oxadiazine-4-thione	09	6.900	Thebanium ciosylate	06	131.200
Tetrahydro-3,5-dimethyl-4H-pyridinone(3-[4-trifluoromethylphenyl]-1-[2-[4-(trifluoromethyl)trifluoromethylphenyl]piperazine]hydrozone	13	166.028	Therapeutic nutrients, all other	06	746.600
Tetrahydro-3,5-dimethyl-4H-1,3,5-thiadiazine-2-thione (DMT)	13	12.000	Thermoplastic resins, benzenoid, all other	08	52.000
Tetrahydrofuran	03	1438.000	Thermoplastic resins, nonbenzenoid, all other	08	20.030
Tetrahydrofurfuryl alcohol	15	83.000	Thermosetting acrylates resins	08	18.100
Tetrahydrofurfuryl oleate	15	83.000	Thermosetting resins, all other	08	12.000
Tetrahydrofurfuryl alcohol	11	53.000	Thiamazole	06	132.000
Tetrahydrofurfuryl alcohol	07	169.170	1,3,4-Thiadiazole, 2,5-bis-(dialkylidithio) derivatives	14	290.000
1,2,3,4-Tetrahydro-naphthalene (Tetralin)	15	186.000	Thiamine hydrochloride	06	804.000
1,2,3,4-Tetrahydro-naphthalene	03	1438.253	Thiamine mononitrate	06	805.000
Tetrahydroamine from tall oil fatty acids and propylene diamine	14	174.000	Thiamine, sodium	06	463.000
1,2,3,4-Tetrahydro-2,2,4,7-tetraethylpiperazine	03	1437.000	Thiazole derivatives, cyclic, other	09	36.000
Tetrahydrothiophene	15	187.000	Thioacetic acid	15	581.000
Tetrahydrothiophene-1,1-dioxide (Sulfolane)	15	187.000	Thioacetamide (Bisphenylthiourea)	15	207.000
Tetrahydrozoline hydrochloride	15	348.000	Thioacetic acid, methylene ester	13	207.000
Tetra-isopropoxy titanium (bis dioctyl) phosphite	06	198.000	2-(Thiocyanomethylthio)benzothiazole	13	40.018
Tetra-isopropoxy titanium (bis dioctyl) phosphite	12	784.550	2,2'-Thiodiethanol (Thiodiglycol)	15	1193.000
Tetraisopropyl titanate	15	1061.500	Thiodiglycol ethoxylated	12	768.500
Tetrakis(2-chloroethyl)ethylene diphosphate	15	1035.500	Thiodiphenol	03	1452.500
Tetrakis(2-chloroethyl)ethylene diphosphate	15	1062.000	3,3'-Thiodipropionic acid	15	582.000
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylene diamine, propoxylated and ethoxylated	12	337.590	3,3'-Thiodipropionitrile	15	455.000
Tetralin, crude (Tetrahydro-naphthalene)	12	339.000	Thioisamine (Hexamylthio)	06	280.000
Tetra methyl ammonium bromide	01	21.060	Thioisamine, sodium	02	96.935
Tetra methyl ammonium chloride	12	501.637	Thiophene (Tetrahydrothiophene)	02	198.000
Tetra methyl ammonium hydroxide	12	501.638	Thiophene	03	1452.700
Tetra methyl ammonium hydroxide	12	501.640	2-Thiophenesacetic acid	03	1452.800
N,N,N',N'-Tetraethylbenzene (Parane)	03	1442.100	2-Thiophenesacetonitrile	03	1452.900
N,N,N',N'-Tetraethylbutylphosphorothioamide	15	304.000	2-Thiophenesacetyl chloride	03	1453.000
p-(1,1,3,3-Tetraethylbutyl)phenylamine	15	304.000	2-Thiophenecarboxaldehyde	03	1453.100
2,4,7,9-Tetraethyl-5-decyno-4,7-diol, ethoxylated	13	403.000	Thiophenol	03	1453.000
Tetraethylthylenediamine	15	305.000	Thiophenol, hydrochloride	16	493.002
Tetra(methyl-ethyl)lead, (Tel-Em, Reacted)	14	187.000	Thioacetamide	06	458.000
Tetraethyl lead	14	188.000	Thioacetrapion	06	509.000
Tetraethyl, octahydro acetophenone	07	88.800	Thiothiuram hydrochloride	06	509.000





Table 4. --Alphabetical Chemical Index

CHEMICAL NAME	SECT. NO.	ITEM NO.	CHEMICAL NAME	SECT. NO.	ITEM NO.
1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor)	13	146,000	Tridecylpoly(ethyleneoxy)propionic acid, potassium salt	12	18,500
3,4,4'-Trichlorobenzamide	15	203,000	3-(3-Tridecyloxy)propylaminopropyl amine	12	339,600
1,1,1-Trichloroethane (Methyl chloroform)	15	1245,000	Tridecyl phosphate	12	110,300
1,1,2-Trichloroethane (Vinyl trichloride)	15	1246,000	Tridecyl stearate	15	980,000
Trichloroethylene	15	1247,000	Tridecyl stearate	11	124,800
Tri(2-chloroethyl) phosphate	11	102,500	Tridecyl stearate	12	120,350
Trichloroethane	15	1272,000	Tridecyl sulfate, sodium salt	06	293,900
α-Trichloroethylbenzyl acetate (Rosetone)	15	1063,000	Tridimethyl chloroethylphenol	03	199,208
Trichloromethylsilane	15	1394,000	Triethanolamine	15	381,000
Trichloromethylthio-4-cyclohexene-1,2-dicarboximide (Captan)	03	1492,500	Triethanolamine, ethoxylated	12	340,100
N-Trichloromethylthiothalamide (Folpet)	13	34,000	Triethanolamine titanate	15	1062,500
Trichloromethane (Chloroform)	13	35,000	Triethyl acetylacrylate	11	71,300
Trichlorophenylsilane	03	1499,000	Triethylaluminum	15	184,000
1,2-Trichloropropane	15	1248,000	Triethylamine	15	1363,800
Tri(2-chloroethyl) phosphate	15	1249,000	Triethylborane	15	71,400
Trichloropropylsilane	15	1395,000	Triethylene glycol	15	1194,000
3,5,6-Trichloro-2-pyridinylacetic acid	13	118,064	Triethylene glycol diacetate	15	1134,800
α,α-Trichlorotoluene (Benzotrichloride)	03	1495,000	Triethylene glycol diacrylate	15	1137,000
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	03	1499,000	Triethylene glycol di(caprylate-caprate)	11	128,000
1,3,5-Trichloro-s-triazine-2,4,6-(H <sub>3</sub> N,SH) <sub>2</sub> tone (Trichloroisocyanuric acid)	15	209,000	Triethylene glycol di(2-ethylhexanoate)	11	129,000
Trichlorotrifluoroethane	15	1273,000	Triethylenetetramine	13	56,750
Tricresyl phosphate	11	141,000	Tri(2-ethylhexyl) trimellitate	15	1064,000
Tricyclohexyltin hydroxide	13	166,031	Triethyl orthoformate	15	1065,000
1-Tridecanol	15	880,000	Triethyl orthophosphate	15	1066,000
Tridecyl alcohol, ethoxylated and phosphated, polyalkylene polyamine salt	12	90,010	Triethyl phosphate	11	103,000
Tridecyl alcohol, ethoxylated	12	769,000	Triethyltrimethylene triamine	15	1040,000
Tridecyl alcohol, ethoxylated and carbonated, sodium salt	12	319,000	Trifluoperazine hydrochloride	09	7,000
Tridecyl alcohol, ethoxylated and phosphated, potassium salt	12	90,020	Trifluoroacetic acid	06	493,901
Tridecyl alcohol, ethoxylated and sulfated, ammonium salt	12	281,000	Trifluoroacetic anhydride	06	584,909
Tridecyl alcohol, propoxylated and ethoxylated	12	282,000	Trifluoromethyl-2,2-bis(4-hydroxy-N-dipropyl-p-toluidine (Trifluralin))	15	584,010
Tridecylbenzenesulfonic acid	12	770,000	α,α-Trifluoro-2,6-dinitro-N-ethyl-N-(2-methyl-2-propenyl)-p-toluidine (Ethylfluralin)	13	116,100
Tridecylbenzenesulfonic acid, sodium salt	12	139,100	Trifluoroethanol	15	1273,490
Tridecylpoly(ethyleneoxy)acetic acid, sodium salt	12	35,000	Trifluoropropene	15	1273,550
			Tri-n-hexyl aluminum	05	585,000
			Triphenylmethyl hydrochloride	12	446,050
			Tri(hydrogenated tallow) amine	12	501,800
			Trihydrogenated tallow stearate	12	501,800

Table 4. -- Alphabetical Chemical Index

CHEMICAL NAME		SECT. NO.	ITEM NO.	CHEMICAL NAME		SECT. NO.	ITEM NO.
	Triisobutylaluminum	15	1385-000		Trimethylolpropane triacrylate	15	1140-000
	Triisobutylene polysulfide	14	283-000		Trimethylolpropane triacrylate, ethoxylated	15	1140-015
	Triisocyanuric acid	12	54-300		Trimethylolpropane triacetate	15	1140-005
	Triisooxymethylene	11	54-950		Trimethylolpropane trioleate (EPOPropionate)	11	95-700
	Triisooxyl trimellitate	15	1041-000		Trimethylolpropane trioleate	12	720-400
	Triiso-octyl phosphite	11	55-000		Trimethyl orthoacetate	15	1066-200
	1,3,5-Tri(2-isopropanol)-s-triazine	13	40-150		Trimethyl orthoformate	15	1068-000
	Triisopropylamine	15	409-000		2,2,4-Trimethyl-1,3-pentanediol	02	76-000
	Triisopropyl phosphite	15	1042-000		2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	11	129-000
	Triisulfonyl mallic acid esters	12	444-600		2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	11	129-033
	Trimellitic trichloride	03	1509-300		2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	03	156-033
	Trimesic acid	03	1510-000		Trimethylphenylammonium chloride	13	1516-100
	Trimethobenzamide hydrochloride	06	82-000		Trimethyl phosphite	15	1043-000
	Trimethol propane alkoxylate	12	733-400		Trimethyl(soybean oil alkyl)ammonium chloride	12	504-000
	Trimethoprim	06	275-000		Trimethyl(tallow alkyl)ammonium chloride	12	505-000
	Trimethoxyborane	15	1369-000		Trimethyltetradecylammonium bromide	12	506-000
	Trimethylaluminum	15	1366-000		trimethyl trimellitate	11	55-400
	Trimethyl alkane hydrochloride	15	292-000		Tri(n-undecyl)amine	12	948-700
	Trimethyl benzyl hydrochloride	07	121-750		Tri(n-tetradecyl)amine	12	948-300
	1,2,4-Trimethylbenzene (pseudocumene)	03	1513-000		Tri(n-tetradecyl)amine and lead derivative	15	1366-400
	Trimethyl benzyl diacetate	07	91-070		Trioctylamine	12	445-000
	Trimethyl borate	15	1066-990		Tri-n-octyl n-decyl trimellitate	11	55-600
	Trimethyl-cyclododeca-trienyl ethanone	07	169-700		Trioctyl phosphate	11	104-000
	3,3,5-Trimethylcyclohexanol (n-homomenthol)	15	205-550		Trioctyl trimellitate	11	56-000
	3,3,5-Trimethyl cyclohexanol (n-homomenthol)	07	121-800		s-Trioxane	15	209-000
	Trimethylcyclohexanyl butanone	07	121-900		Tri-oxaluminum tri-isopropoxide	15	1366-500
	3,5,5-Trimethyl-2-pentenone	05	121-750		Troxy aluminum trisacetate	02	742-300
	3,5,5-Trimethyl-2-pentenone carbonyldehyde (Isophorone)	05	121-750		Triphenylamine	06	112-000
	1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl- $\alpha$ -ionone)	07	121-850		Triphenylamine citrate	06	113-000
	Trimethylcyclohexyl salicylate	07	122-000		Triphenylamine hydrochloride	15	297-000
	Trimethyl-dodecyl ammonium chloride	07	91-080		2,4,6-Triphenoxy-s-triazine	15	209-500
	3,5,5-Trimethyl hexanone	12	501-900		Triphenylmethane	03	1523-602
	1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl)butane	09	195-000		Triphenyl phosphate	11	15-000
	1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl)butane	09	195-000		Triphenyl phosphine	03	1523-700
	8,8,8-Trimethyl methanone octabutyrate borate	08	137-500		Triphenylsulfonium chloride	03	1523-800
	2,6,8-Trimethyl-4-nonanol	12	478-100		Triphenyltin hydrochloride	15	211-200
	2,6,8-Trimethyl-4-nonanol	15	881-000		Triphenyltin hydroxide	15	211-200
	2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl Ketone)	15	838-000		Triprolidine hydrochloride	06	114-000
	Trimethylonyl alcohol, ethoxylated	12	773-000		Tripropylamine	15	302-000
	Trimethyl norborane methanol	12	122-020		Tripropylene glycol diacrylate	15	1195-000
	Trimethylololchane percarbonate	15	1338-600		Tripropylene glycol dimethacrylate	15	1140-600
	Trimethylolpropane alkoxylated	12	774-000		Tripropylene glycol monomethyl ether	15	1195-500
	Trimethylolpropane ester	14	291-000		Tris(2-chloroethyl) phosphite	15	1044-000
					Tris(chloroisopropyl)thionophosphate	15	1045-000

Table 4.--Alphabetical Chemical Index

CHEMICAL NAME	ITEM NO.	SECT. NO.	CHEMICAL NAME	ITEM NO.	SECT. NO.
a,c',c''-Tris(dimethylamino)mesitol	03	1525.000	Vat Brown 1, 11%	04	1187.000
Tris(2-ethylhexyl)phosphite	15	1048.000	Vat Brown 3, 11%	04	1189.000
Tris(2-hydroxyethyl)(tallow alkyl) ammonium diacillate	12	466.100	Vat Brown 11, 12%	04	1190.000
Tris(2-methoxyethoxy)vinyl silane	15	1898.600	Vat Brown 13, 17%	04	1192.000
Tris(2-methyl-1-aziridinyl)phosphina oxide	03	1526.000	Vat Brown 57, 12.8%	04	1200.000
Trisacetyl citrate	15	1068.500	Vat brown dyes, all other	04	1201.000
Tris and tetraacetyl glycol monoethyl ethers, borate	15	1193.800	Vat Green 1, 8%	04	1178.000
Tyrosin	06	777.000	Vat Green 7, 10%	04	1180.000
Tyropantoate, sodium	06	573.000	Vat Green 9, 12-1/2%	04	1183.000
Undecanal	07	170.000	Vat Green 32	04	1185.000
Undecanal-10	07	171.010	Vat green dyes, all other	04	1129.000
Urea, 2-(1-(2-aminoethylamino)ethanol polymer, stearate	14	502.000	Vat Orange 1, 20%	04	1131.000
Urea-formaldehyde resins	08	17.000	Vat Orange 2, 12%	04	1136.000
Urea in resins compounds (100% Basis)	14	509.000	Vat Orange 7, 11%	04	1138.000
Urea in plastics (100% Basis)	14	512.000	Vat orange dyes, all other	04	1142.000
Urea in solid fertilizer (100% Basis)	14	511.000	Vat Red 10, 18%	04	1144.000
Urea polymers with formaldehyde and methanol	14	503.000	Vat Red 13, 11%	04	1146.000
Urea, polymer with tetrakis(hydroxymethyl)phosphonium sulfate	14	506.000	Vat Red 15, 10%	04	1148.000
Urea, primary solution (Report on 100% urea-content basis)	14	508.000	Vat Red 29, 18%	04	1150.000
7,7'-Azabicyclo[4-hydroxy-2-naphthalenesulfonic acid]	03	1528.000	Vat Red 32, 20%	04	1151.000
Uricase	14	128.000	Vat red dyes, all other	04	1154.000
Valeraldehyde (Pentanal)	15	804.000	Vat Violet 1, 11%	04	1155.000
Valeric acid	15	585.000	Vat Violet 13, 6-1/4%	04	1162.000
Vancomycin	06	423.900	Vat Yellow 2, 8-1/2%	04	1118.000
Vasodilators, all other	06	61.000	Vat Yellow 22, 10%	04	1125.000
Vat Black 5	04	1206.016	Vat Yellow 33, 15%	04	1127.051
Vat Black 25, 12-1/2%	04	1208.000	Vat Yellow 51	04	1130.400
Vat Black 27, 12-1/2%	04	1210.000	Veratraldehyde (3,4-Dimethoxybenzaldehyde)	03	1529.000
Vat Black dyes, all other	04	1214.000	Very high molecular weight (>1000) hydrocarbons	04	292.000
Vat Blue 1, 20%	04	1164.000	Vatverol	07	123.000
Vat Blue 6, 8-1/3%	04	1167.000	Vatverol acetate	06	281.000
Vat Blue 16, 16%	04	1171.000	Vinblastine sulfate	07	125.000
Vat Blue 18, 13%	04	1172.019	Vinifur	06	282.000
Vat Blue 20, 14%	04	1173.000	Vincristine sulfate	06	282.000
Vat Blue 29	04	1175.000	Vinyl acetate-acrylate copolymers	08	50.080
Vat Blue 43	04	1175.066	Vinyl acetate, monomer	15	1069.000
Vat Blue 66	04	1177.000	Vinyl acetone	15	456.000
Vat blue dyes, all other	04	1177.000	Vinyl bromide (Bromomethylenes)	15	1215.000
			Vinyl chloride-acetate copolymer resins	08	50.000
			Vinyl chloride, monomer (Chloroethylene)	15	1069.010
			Vinylcyclohexane	03	1530.100
			Vinylcyclohexane monoxide	03	1531.503

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CHEMICAL NAME	ITEM NO.	SECT. NO.	CHEMICAL NAME	ITEM NO.	SECT. NO.
Vinyl fluoride, monomer	15	1274.000	Zinc 2-ethylhexanoate	15	614.000
Vinylidene chloride (1,1-Dichloroethylene)	15	1275.000	Zinc formaldehyde sulfoxylate	15	780.400
Vinylidene fluoride, monomer	15	1275.000	Zinc gluconate	06	757.300
2-Vinylpyridine	03	1535.000	Zinc hydrocarbon dithiophosphate	14	242.000
4-Vinylpyridine	03	1536.000	Zinc isopropyl kanthate	09	154.800
1-Vinyl-2-pyrrolidone--other copolymers	15	216.000	Zinc laurate (Activator, physical property improver, and processing auxiliary)	09	179.000
1-Vinyl-2-pyrrolidone-methylacrylic acid	15	215.000	Zinc naphthenate	14	315.000
1-Vinyl-2-pyrrolidone, monomer	15	215.000	Zinc neodecanoate	15	710.000
1-Vinyl-2-pyrrolidone, polymers	08	50.000	Zinc phenylsulfonate	15	763.000
Vinyl tetraethylthiopyranol	08	3.800	Zinc tellurate	15	178.000
Vinyl toluene alkyls	15	1398.000	Zinc undecylate	06	140.000
Vitamin A, all other	06	776.000	Zirconium acetate	15	607.000
Vitamin A acetate (animal feed grade)	06	771.000	Zirconium t-a-alkylcarboxylate	15	671.975
Vitamin A acetate (medicinal grade)	06	772.000	Zirconium neodecanoate	15	645.000
Vitamin A palmitate (medicinal grade)	06	775.000	Zirconium octylacetate	15	711.000
Vitamin E	09	178.800	Zirconium acetylacetonate complex	15	1409.500
Waxes and paraffinic products	09	178.800			
Wool wax alcohols, ethoxylated	12	740.500			
Xanthan gum	14	451.000			
Xanthates and sulfides	14	146.000			
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			
Xylenes (Xylo) (90-100%)	01	6.000			
Xylenes, other	02	31.500			
2,4-Xylenesulfonic acid	03	1542.800			
2,5-Xylenesulfonic acid	03	1543.000			
Xylenesulfonic acid, ammonium salt	12	148.000			
Xylenesulfonic acid, potassium salt	12	149.000			
Xylenesulfonic acid, sodium salt	12	150.000			
2,6-Xylenol	03	1544.500			
2,6-Xylenol	03	1544.503			
Xylenol, low boiling point	03	1545.000			
Xylenol, original mixture	03	1550.000			
Zeranol	06	643.000			
Zinc acetate	15	606.000			
Zinc acetylacetonate complex	15	1408.900			
Zinc t-a-alkylcarboxylate	15	671.950			
Zinc calcium/cobalt neodecanoate	15	709.800			
Zinc dialkylidithiophosphate	14	235.000			
Zinc diethyl phosphorodithioate	14	239.000			
Zinc diisodecyl phosphorodithioate	14	241.000			









