

SYNTHETIC ORGANIC CHEMICALS

United States Production
and Sales, 1984

(Investigation No. 332-135)

USITC PUBLICATION 1745

RECENT REPORTS OF THE UNITED STATES INTERNATIONAL TRADE
COMMISSION ON SYNTHETIC ORGANIC CHEMICALS

- Synthetic Organic Chemicals, United States Production and Sales, 1974
(USITC Publication 776, 1976), \$3.20
- *Synthetic Organic Chemicals, United States Production and Sales, 1975
(USITC Publication 804, 1977), \$3.10
- *Synthetic Organic Chemicals, United States Production and Sales, 1976
(USITC Publication 833, 1977), \$5.25
- *Synthetic Organic Chemicals, United States Production and Sales, 1977
(USITC Publication 920, 1978), \$6.25
- *Synthetic Organic Chemicals, United States Production and Sales, 1978
(USITC Publication 1001, 1979), \$7.50
- *Synthetic Organic Chemicals, United States Production and Sales, 1979
(USITC Publication 1099, 1980), \$8.00
- Synthetic Organic Chemicals, United States Production and Sales, 1980
(USITC Publication 1183, 1981), \$8.00
- *Synthetic Organic Chemicals, United States Production and Sales, 1981
(USITC Publication 1292, 1982), \$8.50
- *Synthetic Organic Chemicals, United States Production and Sales, 1982
(USITC Publication 1422, 1983), \$7.50
- *Synthetic Organic Chemicals, United States Production and Sales, 1983
(USITC Publication 1588, 1984), \$9.50

Note.--The reports preceded by an asterisk (*) are out of print. The other reports listed above may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. All U.S. International Trade Commission reports reproduced by the Government Printing Office may be consulted in the official depository libraries throughout the United States.

UNITED STATES INTERNATIONAL TRADE COMMISSION

SYNTHETIC ORGANIC CHEMICALS

**United States Production
And Sales , 1984**

**U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON: 1985**

USITC PUBLICATION 1745

UNITED STATES INTERNATIONAL TRADE COMMISSION

COMMISSIONERS

Paula Stern, Chairwoman

Susan W. Liebeler, Vice Chairman

Alfred E. Eckes

Seeley G. Lodwick

David B. Rohr

OFFICE OF INDUSTRIES

Erland Heginbotham, Director

This report was prepared principally by Edmund Cappuccilli, Kenneth Conant III, Cynthia B. Foreso, Jesse Lawrence Johnson, Eric Land, Edward Matusik, David G. Michels, Elizabeth R. Nesbith, James Raftery, Edward J. Taylor, and Steve Wanser.

Assistance in the preparation of the report was provided by Mildred C. Higgs, Brenda Carroll, Sharon Greenfield, Kenneth Kozel, Patricia Thomas, Wanda Tolson, and Patsy Vogel. Automatic Data Processing input was provided by Barbara Bobbitt, James Gill, and Marie Jagannathan.

**Address all communications to
Kenneth R. Mason, Secretary to the Commission
United States International Trade Commission
Washington, DC 20436**

C O N T E N T S

	<u>Page</u>
Introduction-----	1
Summary-----	3
General-----	4
Section I. Tar and tar crudes:	
Statistical highlights-----	7
Production and sales statistics-----	9
Section II. Primary products from petroleum and natural gas for chemical conversion:	
Statistical highlights-----	13
Production and sales statistics-----	15
Section III. Cyclic intermediates:	
Statistical highlights-----	23
Production and sales statistics-----	25
Section IV. Dyes:	
Statistical highlights-----	51
Production and sales statistics-----	53
Section V. Organic pigments:	
Statistical highlights-----	83
Production and sales statistics-----	85
Section VI. Medicinal chemicals:	
Statistical highlights-----	95
Production and sales statistics-----	97
Section VII. Flavor and perfume materials:	
Statistical highlights-----	117
Production and sales statistics-----	119
Section VIII. Plastics and resin materials:	
Statistical highlights-----	133
Production and sales statistics-----	135
Section IX. Rubber-processing chemicals:	
Statistical highlights-----	147
Production and sales statistics-----	149

C O N T E N T S

	<u>Page</u>
Section X. Elastomers:	
Statistical highlights-----	157
Production and sales statistics-----	159
Section XI. Plasticizers:	
Statistical highlights-----	163
Production and sales statistics-----	165
Section XII. Surface-active agents:	
Statistical highlights-----	173
Production and sales statistics-----	174
Section XIII. Pesticides and related products:	
Statistical highlights-----	219
Production and sales statistics-----	221
Section XIV. Miscellaneous end-use chemicals and chemical production:	
Statistical highlights-----	233
Production and sales statistics-----	235
Section XV. Miscellaneous cyclic and acyclic chemicals:	
Statistical highlights-----	251
Production and sales statistics-----	253
APPENDIX	
Directory of manufacturers-----	305
Cyclic intermediates: Glossary of synonymous names-----	321

INTRODUCTION

This is the 68th 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 762 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.

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.

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 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 byproducts and co-products that are not classifiable as waste materials;

INTRODUCTION

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, analysed, 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

3

Combined production of all synthetic organic chemicals, tar, and primary products from petroleum and natural gas in 1984 was 338,025 million pounds—an increase of 3.0 percent from the output in 1983 (table 1). Sales of these materials in 1984, which totaled 179,061 million pounds, valued at \$65,535 million, were 3.4 percent larger than in 1983 in terms of quantity and 9.5 percent larger 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.

In 1984, production of all synthetic organic chemicals, including cyclic intermediates and finished products totaled 225,215 million pounds, or 4.8 percent more than the output in 1983. Eleven sections showed an increase in production in 1984 over 1983. Medicinal chemicals (279 million pounds) increased by 19.5 percent; pesticides and related products (1,189 million pounds) increased by 17.0 percent; elastomers (synthetic rubber) (4,609 million pounds) increased by 14.9 percent; miscellaneous end-use chemicals and chemical products (23,731 million pounds) increased by 12.2 percent; organic pigments (86 million pounds) increased by 9.8 percent; plastics and resins materials (48,255 million pounds) increased by 9.0 percent; surface-active agents (5,519 million pounds) increased by 8.9 percent; cyclic intermediates (47,052 million pounds) increased by 8.6 percent; plasticizers (1,788 million pounds) increased by 4.5 percent; flavor and perfume materials (179 million pounds) increased by 2.7 percent; of the remaining sections, dyes (233 million pounds) showed a decrease in 1984 of 4.8 percent from that in 1983; rubber-processing chemicals (288 million pounds) decreased 1.7 percent, and miscellaneous cyclic and acyclic chemicals (92,009 million pounds) decreased 1.4 percent.

TABLE 1.—SYNTHETIC ORGANIC CHEMICALS AND THEIR RAW MATERIALS: U.S.
PRODUCTION AND SALES, 1983 AND 1984

CHEMICAL	PRODUCTION			SALES					
				QUANTITY			VALUE		
	1983	1984	Increase: or Decrease: (-), 1984 over 1983 ¹	1983	1984	Increase: or Decrease: (-), 1984 over 1983 ¹	1983	1984	Increase or Decrease (-), 1984 over 1983 ¹
	Million pounds	Million pounds	Percent	Million pounds	Million pounds	Percent	Million dollars	Million dollars	Percent
Grand total ²	328,202	338,025	3.0	173,171	179,061	3.4	59,860	65,535	9.5
Tar	3,603	4,144	15.0	1,884	2,223	18.0	270	311	15.2
Primary products from petroleum and natural gas	109,670	108,666	-0.9	53,480	51,178	-4.3	8,257	8,256	-0.1
Synthetic organic chemicals, total ²	214,928	225,215	4.8	117,807	125,659	6.7	51,333	56,968	11.0
Cyclic intermediates	43,320	47,052	8.6	18,802	19,957	6.1	6,599	6,930	5.0
Dyes	244	233	-4.8	234	221	-5.7	728	691	-5.1
Organic pigments	78	86	9.8	69	76	9.8	422	493	16.7
Medicinal chemicals	233	279	19.5	148	152	3.0	1,410	1,369	-2.9
Flavor and perfume materials	174	179	2.7	111	115	3.2	345	637	84.7
Plastics and resin materials	44,281	48,255	9.0	38,075	40,751	7.0	18,371	20,923	13.9
Rubber-processing chemicals	293	288	-1.7	203	176	-13.4	312	287	-8.3
Elastomer (synthetic rubber)	4,013	4,609	14.9	2,688	2,686	-0.1	2,196	2,266	3.2
Plasticizers	1,710	1,788	4.5	1,597	1,685	5.6	775	849	9.5
Surface-active agents	5,068	5,519	8.9	3,030	3,433	13.3	1,464	1,874	28.0
Pesticides and related product	1,017	1,189	17.0	1,017	1,108	8.9	4,054	4,730	16.7
Miscellaneous end-use chem- icals and chemical products	21,149	23,731	12.2	12,703	14,931	17.5	3,330	3,834	15.1
Miscellaneous cyclic and acyclic chemicals	93,348	92,009	-1.4	39,128	40,386	3.2	11,326	12,043	6.3

¹ Percentage calculated from figures rounded to thousands.

² Because of rounding, figures may not add to the totals shown.

SYNTHETIC ORGANIC CHEMICALS, 1984

GENERAL

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

Total production of synthetic organic chemicals (intermediates and finished products combined) in 1984 was 225,215 million pounds, or 4.8 percent more than the output of 214,928 million pounds reported for 1983, and 115.1 percent more than the output of 104,711 million pounds reported in 1967 (see table 2). Sales of synthetic organic chemicals in 1984 amounted to 125,659 million pounds, valued at \$56,968 million, compared with 117,807 million pounds, valued at \$51,333 million, in 1983, and 55,177 million pounds, valued at \$10,438 million, in 1967. Production of all cyclic products (intermediates and finished products combined) in 1984 totaled 72,927 million pounds, or 8.3 percent more than the 67,362 million pounds reported for 1983, and 133.9 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 1984 totaled 147,678 million pounds, or 2.9 percent more than the 143,553 million pounds reported for 1983, and 111.9 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, 1983, AND 1984

(Production and sales in thousands of pounds; sales value in thousands of dollars)						
CHEMICAL	1967 ¹	1983	1984	Increase or Decrease (-)		
				1984 OVER 1967	1984 OVER 1983	
Organic chemicals, cyclic and acyclic, grand total:						
Production-----	104,711,357	214,928,145	225,214,940	115.1	4.8	
Sales-----	55,176,823	117,806,657	125,676,661	127.8	6.7	
Sales value-----	10,438,453	51,333,184	56,925,687	445.4	10.9	
Cyclic, total: ²						
Production-----	31,181,832	67,362,356	72,927,149	133.9	8.3	
Sales-----	17,388,529	36,439,627	38,791,816	123.1	6.5	
Sales value-----	4,170,713	22,929,674	25,608,446	514.0	11.7	
Acyclic, total: ²						
Production-----	69,706,980	143,552,759	147,678,486	111.9	2.9	
Sales-----	34,526,250	78,678,615	84,199,037	143.9	7.0	
Sales value-----	5,393,503	26,207,931	29,050,916	438.6	10.8	
1. Cyclic Intermediates						
Production-----	20,793,132	43,320,256	47,051,869	126.3	8.6	
Sales-----	9,461,180	18,802,500	19,956,652	110.9	6.1	
Sales value-----	1,000,359	6,599,222	6,930,243	592.8	5.0	
2. Dyes						
Production-----	206,240	244,206	232,615	12.8	-4.8	
Sales-----	198,592	233,780	220,520	11.0	-5.7	
Sales value-----	332,049	728,138	690,808	108.0	-5.1	
3. Organic Pigments						
Production-----	53,322	77,980	85,664	60.6	9.8	
Sales-----	42,867	69,334	76,154	77.6	9.8	
Sales value-----	108,354	422,434	492,954	355.0	16.7	
4. Medicinal Chemicals						
Cyclic:						
Production-----	110,129	174,918	223,730	103.2	27.9	
Sales-----	70,120	97,601	108,357	54.5	11.0	
Sales value-----	348,873	1,282,049	1,240,696	255.6	-3.2	
Acyclic:						
Production-----	69,941	58,191	54,910	-21.5	-5.6	
Sales-----	56,804	50,339	44,091	-22.4	-12.4	
Sales value-----	36,402	128,019	128,739	253.7	0.6	

See footnotes at end of table.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1983, and 1984--CONTINUED

(Production and sales in thousands of pounds; sales value in thousands of dollars)						
CHEMICALS	1967 ¹	1983	1984	Increase or Decrease (-)		
				1984 OVER 1967	1984 OVER 1983	
5. <i>Flavors and Perfume Materials</i>						
Cyclic:						
Production-----	57,978	90,693	113,913	96.5	25.6	
Sales-----	47,285	67,115	83,287	76.1	24.1	
Sales value-----	52,866	281,169	581,613	1000.2	106.9	
Acyclic:						
Production-----	53,558	83,301	64,806	21.0	-22.2	
Sales-----	49,311	44,051	31,422	-36.3	-28.7	
Sales value-----	40,495	63,589	55,189	36.3	-13.2	
6. <i>Plastics and Resin Materials</i>						
Cyclic:						
Production-----	5,033,497	13,151,401	14,331,668	184.7	9.0	
Sales-----	4,224,121	11,117,910	11,899,168	181.7	7.0	
Sales value-----	1,036,940	7,458,587	8,494,591	719.2	13.9	
Acyclic:						
Production-----	8,759,452	31,129,411	33,923,108	287.3	9.0	
Sales-----	7,753,242	26,957,125	28,851,408	272.1	7.0	
Sales value-----	1,635,690	10,912,316	12,428,047	659.8	13.9	
7. <i>Rubber-Processing Chemicals</i>						
Cyclic:						
Production-----	220,139	246,050	259,777	18.0	5.6	
Sales-----	169,970	162,528	153,960	-9.4	-5.3	
Sales value-----	116,318	279,164	260,701	124.1	-6.6	
Acyclic:						
Production-----	43,994	46,470	27,802	-36.8	-40.2	
Sales-----	30,878	40,495	21,949	-28.9	-45.8	
Sales value-----	15,477	33,143	25,808	66.8	-22.1	
8. <i>Elastomers (Synthetic Rubber)</i>						
Production-----	3,822,545	4,013,030	4,609,305	20.6	14.9	
Sales-----	3,262,044	2,688,415	2,685,808	-17.7	-0.1	
Sales value-----	874,237	2,195,579	2,266,325	159.2	3.2	
9. <i>Plasticizers</i>						
Cyclic:						
Production-----	929,871	1,280,190	1,338,362	43.9	4.5	
Sales-----	865,084	1,231,593	1,307,210	51.1	6.1	
Sales value-----	167,827	518,289	577,694	244.2	11.5	
Acyclic:						
Production-----	332,908	429,893	449,166	34.9	4.5	
Sales-----	296,767	365,018	377,997	27.4	3.6	
Sales value-----	93,142	257,068	271,083	191.0	5.4	
10. <i>Surface-Active Agents</i>						
Cyclic:						
Production-----	1,418,444	2,198,746	2,409,849	(^h)	9.6	
Sales-----	852,238	1,672,720	1,843,375	(^h)	10.2	
Sales value-----	95,810	557,046	790,721	(^h)	42.0	
Acyclic:						
Production-----	2,060,851	2,869,646	3,109,332	(^h)	8.4	
Sales-----	897,786	1,357,452	1,589,835	(^h)	17.1	
Sales value-----	220,877	907,265	1,083,626	(^h)	19.4	

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1984

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1983, AND 1984--CONTINUED

(Production and sales in thousands of pounds; sales value in thousand of dollars)						
CHEMICAL	1967 ¹	1983	1984	Increase or Decrease (-)		
				1984 OVER 1967	1984 OVER 1983	
11.. <i>Pesticides and Related Products</i>						
Cyclic:						
Production-----	823,158	710,922	842,703	2.4	18.5	
Sales-----	681,532	727,864	809,033	18.7	11.2	
Sales value-----	627,742	3,047,703	3,556,700	466.6	16.7	
Acyclic:						
Production-----	226,505	305,622	346,466	53.0	13.4	
Sales-----	215,831	289,097	298,873	38.5	3.4	
Sales value-----	159,301	1,006,225	1,173,611	636.7	16.6	
12. <i>Miscellaneous End-Use Chemicals and Chemical Product</i>						
Cyclic:						
Production-----	(1,535,922)	3,342,791	3,484,611	(⁵)	4.2	
Sales-----	(775,540)	880,419	1,089,144	(⁵)	23.7	
Sales value-----	(283,575)	700,102	901,196	(⁵)	28.7	
Acyclic:						
Production-----	(58,159,771)	17,806,511	20,246,332	(⁵)	13.7	
Sales-----	(25,225,631)	11,822,941	13,842,307	(⁵)	17.1	
Sales value-----	(3,192,119)	2,629,693	2,932,471	(⁵)	11.5	
13. <i>Miscellaneous Cyclic and Acyclic Chemicals</i>						
Cyclic:						
Production-----	(⁵)	2,524,203	2,552,388	(⁵)	1.1	
Sales-----	(⁵)	1,376,263	1,244,956	(⁵)	-9.5	
Sales value-----	(⁵)	1,055,771	1,090,529	(⁵)	3.3	
Acyclic:						
Production-----	(⁵)	90,823,714	89,456,564	(⁵)	-1.5	
Sales-----	(⁵)	37,752,097	39,141,155	(⁵)	3.7	
Sales value-----	(⁵)	10,270,613	10,952,342	(⁵)	6.6	

¹Standard reference base period for Federal Government general-purpose index numbers.²Does not include data for elastomers.³Includes ligninsulfonates.⁴The data for 1967 are not comparable with current data as a result of a change in accounting procedures.⁵Items 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-----	181	Elastomers (synthetic rubber)-----	26
Dyes-----	34	Plasticizers-----	47
Organic pigments-----	31	Surface-active agents-----	172
Medicinal chemicals-----	92	Pesticides and related products-----	82
Flavor and perfume materials-----	37	Miscellaneous end-use chemicals and chemicals products-----	169
Plastics and resins materials-----	275	Miscellaneous cyclic and acyclic chemicals-----	279
Rubber-processing chemicals-----	22		

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.

The quantity of coal tar produced in the United States in 1984 amounted to 343 million gallons (table 1). Production in 1984 was 21 percent more than the 284 million gallons of coal tar produced in 1983. Sales of coal tar in 1984 amounted to 275 million gallons, compared with 234 million gallons in 1983. U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1983 and 1984; production of these tars in 1968 amounted to 21 million gallons, according to trade publications.

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 tables 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 1984 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 728 million gallons in 1984; and the refiners' output of xylene (including that produced for blending in motor fuels) totaled 854 million gallons.

Production figures for road tar for 1984 cannot be published; however, production of tar for use other than as a road tar was 151 million gallons in 1984.

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 1984 tar crudes were supplied by 27 companies and company divisions.

I -- TAR AND TAR CRUDES

9

TABLE 1.--TAR AND TAR CRUDES; U.S. PRODUCTION AND SALES, 1984

[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 ¹
				1,000 dollars	
Coal tar: ² Coke-oven operators-----	1,000 gal--	342,451	274,538	200,413	\$0.73
Crude light oil: ³ Coke-oven operators--	1,000 gal :	98,975	84,222	64,009	.76
Intermediate light oil: Coke-oven operators-----	1,000 gal--	2,841	441	260	.59
Light-oil distillates:					
Benzene, all grades, total ⁴ -----	1,000 gal--	(5)	(5)	(5)	(5)
Coke-oven operators-----	1,000 gal--	(5)	(5)	(5)	(5)
Petroleum refiners ⁵ -----	1,000 gal--	1,317,782	644,913	874,067	1.36
Toluene, all grades, total-----	1,000 gal--	(5)	(5)	(5)	(5)
Coke-oven operator-----	1,000 gal--	(5)	(5)	(5)	(5)
Petroleum refiners ⁷ -----	1,000 gal--	728,060	568,880	629,601	1.11
Xylene, all grades, total ⁴ -----	1,000 gal--	(5)	(5)	(5)	(5)
Coke-oven operators-----	1,000 gal--	(5)	(5)	(5)	(5)
Petroleum refiners-----	1,000 gal--	854,005	377,447	418,851	1.11
Naphthalene, crude-----	1,000 lbs--	(5)	(5)	(5)	(5)
Creosote oil (Dead oil) (100% creosote basis):					
Distillate as such (100% creosote basis)-----	1,000 gal--	42,175	30,352	26,651	.88
Creosote in coal tar solution (100% solution basis)-----	1,000 gal--	40,785	30,921	26,448	.86
Tar, for uses other than road tar-----	1,000 gal--	150,641	175,046	135,452	.77
Pitch of tar: hard-----	1,000 tons--	787	664	176,025	265.10

¹ Unit value per gallon pound, or ton as specified.

² Data reported to the Energy Information Administration, U.S. Department of Energy (Quarterly Coal Report, January-March 1985). Data on U.S. production of water-gas tar and oil-gas tar are not collected by the U.S. International Trade Commission, but, according to trade publications, production of these tars amounted to 21 million gallons in 1968.

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

⁴ 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.

⁵ Statistics cannot be published; to do so would disclose the operations of individual companies.

⁶ Benzene, specification grades (1⁰, 2⁰).

⁷ 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 1984 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, 1984

[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]

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, ILI, INL, LTV, NTS, SGO, USS, X.
*Intermediate light oil: coke-oven operators-----	EKO, X.
PYRIDINE, TAR BASES:	
BENZENE (BENZOL):	
Tar bases: crude bases (Dry basis)-----	INL, NTS.
Benzene (Benzol) 90-100%-----	BTS, USS.
TOLUENE (TOLUOL):	
Tar bases: semirefined or denaturing grade-----	USS.
Toluene (Toluol) 90-100%-----	BTS, USS, X.
XYLENE (XYLOL):	
Xylene (Xylol): 90-100%-----	USS.
SOLVENT NAPHTHA:	
Solvent naphtha-----	IGC, USS.
ALL OTHER:	
Light-oil distillates, all other-----	BTS, LTV, USS.
OTHER TAR DISTILLATES:	
NAPHTHALENE, CRUDE:	
Methylnaphthalene-----	KPT.
Naphthalene, crude, solidifying at less than 74° C-----	BTS, IGC, LTV.
Naphthalene, crude, solidifying at 74° C to less than 76° C-----	LTV.
Naphthalene, crude, solidifying at 76° C to less than 79° C-----	ACS, KPT, USS.
CRUDE TAR ACID OILS:	
Crude tar acid oils having a tar acid content of: all other-----	BTS.
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.

TABLE 2.—TAR AND TAR CRUDES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED
BY MANUFACTURER, 1984—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, KPT.
Crude coal tar solvent-----	ILI.
Priming and refractory oil-----	BTS, KPT.
Sodium phenate or carbolate-----	NTS.
Tetralin, crude (Tetrahydronaphthalene)-----	KPT.
Tar distillates, all other-----	GIV, KPT.
TAR AND TAR PITCHES:	
TAR, ROAD:	
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, X.
PITCH OF TAR:	
Pitch of tar: hard (M.P. 161° F and Over)-----	ACS, KPT, RIL, USS, 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.

I -- TAR AND TAR CRUDES

SYNTHETIC ORGANIC CHEMICALS, 1984

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1984

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 1984 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., Chemical Sector	LTV :	LTV Steel Company, Inc.
ALS :	Armco, Inc.	NEV :	Neville Chemical Co.
BTS :	Bethlehem Steel Corp.	NTS :	National Steel Corp., Great Lakes Plant
CHA :	Chattanooga Coke & Chemical Co., Inc.	RIL :	Reilly Tar & Chemical Corp.
COP :	Coopers Creek Chemical Corp.	RSC :	Rupublic Steel 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.	WTC :	Witco Chemical Corp.

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

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

13

STATISTICAL HIGHLIGHTS

James Raftery
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 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 output of primary products derived from petroleum and natural gas as a group amounted to 108,666 million pounds in 1984. Production in 1983 was 109,670 million pounds. The output of aromatic and naphthenic products from petroleum amounted to 24,563 million pounds in 1984, compared with 23,727 million pounds in 1983. Sales amounted to \$2,162 million in 1984 and \$2,284 million in 1983. In 1984, production of benzene was 9,646 million pounds; production of toluene was 5,249 million pounds; and production of mixed xylenes were 6,490 million pounds (table 1).

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 84,103 million pounds in 1984, compared with 85,944 million pounds in 1983. Sales of these products were valued at \$6,094 million in 1984, compared with \$5,974 million in 1983. Production of ethylene was 31,383 million pounds in 1984. The output of 1,3-butadiene in 1984 was 2,827 million pounds. Production of propylene in 1984 was 15,559 million pounds (table 1).

Data for 1984 primary products from petroleum and natural gas for chemical conversion were supplied by 72 companies or company divisions.

¹Statistics 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

15

TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1984

[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	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	108,666,227	51,178,238	8,256,420	\$0.16
AROMATICS AND NAPHTHENES ²				
Total-----	24,562,959	13,708,786	2,162,370	.16
Benzene, all grades, total-----	9,646,164	...	...	...
High purity (98-100%)-----	8,529,544	4,059,257	750,859	.18
Other (90-97.9%)-----	1,116,620	...	...	...
Toluene, all grades, total-----	5,249,313	4,101,625	629,601	.15
High purity (98-100%)-----	4,462,546	4,038,457	620,872	.15
Other (90-97.9%) ^{3 4} -----	786,767	63,168	8,729	.14
Xylene, mixed, total-----	6,490,435	2,868,595	418,851	.15
High purity (98-100%)-----	4,516,631	2,235,328	327,484	.15
Other (90-97.9%) ⁴ -----	1,973,804	633,267	91,367	.14
All other aromatics and naphthenes ⁵ -----	3,177,047	2,679,309	363,059	.14
ALIPHATIC HYDROCARBONS				
Total-----	84,103,268	37,469,452	6,094,050	.16
C ₂ Hydrocarbons, total-----	36,880,952	12,111,802	1,970,786	.16
Acetylene ⁶ (For chemical use only)-----	276,816	101,449	44,509	.44
Ethane-----	5,221,136	2,099,205	168,383	.08
Ethylene-----	31,383,000	9,911,148	1,757,894	.18
C ₃ Hydrocarbons, total-----	23,111,716	13,263,599	1,863,736	.14
Propane-----	7,552,264	6,828,577	734,008	.11
Propylene ⁷ -----	15,559,452	6,435,022	1,129,728	.18
C ₄ Hydrocarbons, total-----	11,874,647	5,675,976	1,224,018	.22
Butadiene and butylene fractions-----	971,313	804,056	135,752	.17
1,3-Butadiene, grade for rubber (elastomers)-----	2,826,627	2,417,194	711,193	.29
n-Butane-----	2,380,370	1,082,057	124,042	.11
1-Butene-----	1,205,208	239,360	60,568	.25
1-Butene and 2-Butene mixed ⁸ -----	1,039,861	223,246	33,776	.15
Isobutane-----	1,057,277	359,230	49,127	.14
Isobutylene-----	883,093	382,405	84,090	.22
All other ⁹ -----	1,510,898	168,428	25,470	.15
C ₅ Hydrocarbons, total-----	2,083,309	496,986	85,053	.17
Isoprene (2-Methyl-1,3-butadiene)-----	99,695	102,466	24,662	.24
n-Pentane-----	107,668	...	...	...
Pentenes, mixed-----	697,131	97,354	10,179	.10
All other ^{10 11} -----	1,178,815	297,166	50,212	.17
All other aliphatic hydrocarbons, derivatives and mixtures, total-----	10,152,644	5,921,089	950,457	.16
Alpha olefins, C ₅ -C ₁₀ -----	625,914	273,403	82,479	.30

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1984

TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL
CONVERSION: U.S. PRODUCTION AND SALES, 1984 --CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ALIPHATIC HYDROCARBONS--Continued				
All other aliphatic hydrocarbons, derivatives and mixtures--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Alpha olefins, C ₁₁ and higher-----	...	398,800	122,913	\$0.31
Dodecene (Tetrapropylene)-----	388,379	120,363	24,368	.20
n-Heptane-----	114,677	119,318	26,553	.22
Hexane-----	469,511	306,924	62,700	.20
Nonene (Tripropylene)-----	457,212	253,852	60,123	.24
n-Paraffins ¹² -----	1,723,697	1,239,833	227,613	.18
Polybutene-----	240,855	191,665	57,653	.30
All other ¹³ -----	6,132,399	3,016,931	286,055	.09

¹Calculated from rounded figures.²The 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."³Includes toluene, solvent grade, 90 percent.⁴Includes toluene and xylene used as solvents; may include that which is blended in aviation and motor gasolines.⁵Includes 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 benzene (other grades).⁶Production figures on acetylene from calcium carbide for chemical synthesis are collected by the U.S. Bureau of the Census.⁷Includes data for refinery propylene.⁸The statistics represent principally the butane content of crude refinery gases from which butadiene is manufactured.⁹Includes data for mixed C₄ streams, mixed butanes, and 2-butene.¹⁰Includes data for dibutanized aromatic concentrate, mixtures of C₅ hydrocarbons, isopentane, 1-pentene, 2-pentene, and piperylene.¹¹Includes sales data only for n-pentane.¹²Includes data for the following chain lengths: C₅-C₉, C₉-C₁₅; C₁₀-C₁₄; and others.¹³Includes production and/or sales data for methane, methylcyclopentadiene, isooheptane, iso-octane, mixed hexenes, mixed heptenes, mixed octenes, n-octane, di-isobutylene, eicosane, mixtures of C₂ and C₃, C₅-C₇, C₅-C₇ hydrocarbons, C₁₁ and higher alpha olefins, 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 EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984

[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)
AROMATICS AND NAPHTHENES	
ALKYL AROMATICS:	
Cyclosols-----	CXI, SHC.
*BENZENE:	
*Benzene, High purity (98-100%)-----	AMO, APR, ASH, ATR, CCP, CGO, CRP, CSD, DOW, EKK, ENJ, GOC, GRS, HES, MOC, PLC, PPR, QH(E), SHC, SKO, SM, SOC, SOG, SUN, SWR, TID, TOC, TX, UCC, UOC, USI, VEL.
*Benzene, Other-----	AMO, CSP, DUP, KHI, KLM.
Cresylic acid (Less than 75 percent distilling over 215° C)-----	FER, KHI.
Cyclopentane-----	PLC.
Naphthalene-----	DUP, TID.
NAPHTHENIC ACID:	
Naphthenic acid, acid number 150-199-----	CPS, HEC, MER.
Naphthenic acid, acid number 200-224-----	FER, MER.
Naphthenic acid, acid number less than 150-----	ATR, FER, HEC, SHC, SUN.
*TOLUENE:	
*Toluene, High purity (98-100%)-----	APR, ASH, ATR, CCP, CSD, EKK, ENJ, GRS, HES, HST, KHI, MOC, MON, PLC, PPR, QH(E), SHC, SM, SOG, SUN, SWR, TID, TOC, UCC, UOC.
*Toluene, Other-----	CSP, DOW, DUP, ELP, GOC, PPR, SHC, SKO.
*XYLENES, MIXED:	
*Xylene, High purity (98-100%)-----	AMO, APR, ASH, CCP, CSD, EKK, ENJ, HES, MOC, PPR, QH(E), SHC, SOG, SUN, SWR, UCC, UOC.
*Xylene, Other-----	AMO, CSP, DUP, GOC, PLC, SOC, TOC.
*ALL OTHER AROMATICS AND NAPHTHENES:	
Aromatics, C ₉ -----	KHI, MOC.
Carbon black feedstock-----	ENJ.
All other products from petroleum and natural gas, cyclic-----	AMO, ASH, BAS, BFG, EKK, ENJ, KHI, SHC, SWR, VST.
ALIPHATIC HYDROCARBONS	
C ₁ HYDROCARBONS:	
Methane-----	NWP, SHC, SHO.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS--CONTINUED	
*C ₂ HYDROCARBONS:	
*Acetylene (For chemical use only)-----	BAS, BOR, RH, UCC.
*Ethane-----	ACU, AMO, CGO, ENJ, OMC, PLC, SHO, USI.
*Ethylene-----	ACU, AMO, ATR, BAS, BFG, CPX(E), CRP, DOW, DUP, EKK, ELP, ENJ, GOC, MCB, NWP, OMC, PLC, SHC, SM, SNO, TX, UCC, USI, USS, VST.
C ₃ HYDROCARBONS:	
Hydrocarbons, C ₂ -C ₃ , mixtures-----	TU.
Hydrocarbons, C ₃ , mixtures-----	KHI.
*Propane (Commercial and hd-5)-----	AMO, ASH, CCP, CGO, CSD, CSP, ENJ, EPC, GRS, KHI, MOC, OMC, PLC, SHO, SM, SOG, SUN, TCR, TUS, UOC, USI.
*Propylene-----	ACU, AMO, ASH, ATR, BAS, BFG, CCP, CGO, CLK, CPX(E), CRP, CSD, DOW, DUP, EKK, ELP, ENJ, EPC, GOC, MCB, MOC, NWP, PLC, SHC, SIO, SKO, SM, SOC, SOG, SUN, TCR, TX, UCC, USS, VST.
*C ₄ HYDROCARBONS:	
*Butadiene and butylene fractions-----	ACU, BAS, CRP, EKK, ELP, ENJ, GOC, NWP, PLC, TUS, UCC.
*1,3-Butadiene, grade for rubber (Elastomers)-----	AMO, ATR, CRP, DOW, DUP, ELP, ENJ, PTT, SHC, SM, TPC, TUS, VST.
*n-Butane-----	AMO, ASH, CSD, CSP, ENJ, EPC, GOC, KHI, OMC, PLC, SHO, SUN, TUS, USI.
Butanes, mixed-----	SM.
*1-Butene-----	ENJ, GOC, PTT, SHC, TNA, TPC.
2-Butene-----	PLC, TPC.
*1-Butene and 2-butene, mixed-----	ATR, DOW, ENJ, SHC, SM, SOG, TNA.
Hydrocarbons, C ₄ , fraction-----	KHI, TX, USS.
Hydrocarbons, C ₄ , mixtures-----	MCB, PPR.
*Isobutane (2-Methylpropane)-----	AMO, CSP, ENJ, EPC, GOC, KHI, OMC, PLC, SHO, SUN, TUS, USI.
*Isobutylene (2-Methylpropene)-----	AMO, ATR, ENJ, GOC, PTT, SHC, TPC, TUS.
Hydrocarbons, C ₄ , all other-----	ENJ, SHO, USI.
*C ₅ HYDROCARBONS:	
Dibutanized aromatic concentrate-----	ELP.
Isopentane (2-Methylbutane)-----	PLC.
*Isoprene (2-Methyl-1,3-butadiene)-----	ATR, DOW, ENJ, GOC.
*n-Pentane-----	APR, ASH, GOC, PLC, SHO.
1-Pentene-----	PLC, SOC.
2-Pentene-----	BFG.
*Pentenenes, mixed-----	DOW, ENJ, PLC, SHC, SHO, TUS, USS.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS--CONTINUED	
C ₅ HYDROCARBONS--Continued	
Piperylene (1,3-Pentadiene)-----	CXI, DOW.
Hydrocarbons, C ₅ , all other-----	ATR, ENJ, KHI, TX, UCC.
*ALL OTHER ALIPHATIC HYDROCARBONS, DERIVATIVES, AND MIXTURES:	
C ₆ HYDROCARBONS:	
Di-isopropane (2,3-Dimethylbutane)-----	PLC.
*Hexane-----	APR, ASH, CXI, ENJ, HMY, PLC, SHO, SOG, UOC.
Hexenes, mixed-----	ENJ.
Hydrocarbons, C ₅ -C ₆ , mixtures-----	PLC.
Hydrocarbons, C ₅ -C ₇ , mixtures-----	ENJ, GOC.
Isohexane-----	PLC.
Methylcyclopentadiene-----	ENJ.
Neohexane (2,2-Dimethylbutane)-----	PLC.
Hydrocarbons, C ₆ , all other-----	SM.
C ₇ HYDROCARBONS:	
*n-Heptane-----	ENJ, PLC, SOG, UOC.
Heptenes, mixed-----	ENJ, TID.
Hydrocarbons, C ₆ -C ₇ , mixtures-----	PPR.
Isoheptanes-----	PLC.
Hydrocarbons, C ₇ , all other-----	EKX.
C ₈ HYDROCARBONS:	
Di-isobutylene (Di-isobutene)-----	EKT, PTT, TPC.
n-Octane-----	SOG.
Octenes, mixed-----	ENJ, TID.
2,2,4-Trimethylpentane (Iso-octane)-----	PLC.
Hydrocarbons, C ₈ , all other-----	SHC.
C ₉ AND ABOVE HYDROCARBONS (EXCEPT ALPHA OLEFINS):	
*Dodecene-----	ATR, ENJ, SOC, SUN, UOC.
Eicosane-----	HMY.
*Nonene (Tripropylene)-----	ATR, CSP, ENJ, TID, UOC.
ALPHA OLEFINS:	
*Alpha olefins, C ₆ -C ₁₀ -----	GOC, SHC, SOC, TNA, USI.
*Alpha olefins, C ₁₁ and higher-----	FER, GOC, SHC, SOC, TNA.
*N-PARAFFINS - CARBON CHAIN LENGTH:	
n-Paraffins, C ₆ -C ₉ -----	SOG, UCC, UOC.
n-Paraffins, C ₈ -C ₁₅ -----	SOG, UOC.
n-Paraffins, C ₁₀ -C ₁₄ -----	ENJ, FER, SHC, SOG, UOC.
n-Paraffins, C ₁₀ -C ₁₆ -----	VST.
n-Paraffins, C ₁₂ -C ₁₈ -----	VST.
n-Paraffins, other-----	ENJ, SOG, UOC.

TABLE 2.—PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS—CONTINUED	
ALL OTHER ALIPHATIC HYDROCARBONS, DERIVATIVES, AND MIXTURES, TOTAL—Continued	
Hydrocarbons, C ₅ –C ₉ , mixtures	CRP.
*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, PLC.
Ethylthioethanol	HAP, PLC.
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, TX.
Hydrocarbons, C ₉ and above, all other, including mixtures	CSP, GOC, NES, PLC, SHC, SOC, TNA.

II -- PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION 21

TABLE 3.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION:
 DIRECTORY OF MANUFACTURERS, 1984

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 1984 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.	MER	Merichem Co.
AMO	Standard Oil Co. (Indiana)	MOC	Marathon Petroleum Co., Texas Refining Div.
APR	Atlas Processing Co.	MON	Monsanto Co.
ASH	Ashland Oil, Inc., Ashland Petroleum Co.	NES	Ruetger-Nease Chemical Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.	NWP	Northern Petrochemical Co.
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.
CCP	Crown Central Petroleum Corp.	PPR	Phillips Puerto Rico Core, Inc.
CGO	Citgo Petroleum Corp.	PTT	Petro-Tex Chemical Corp.
CLK	Clark Oil & Refining Corp.	QH	Quintana Petrochemical Co.
CPS	CPS Chemical Co., Inc.	RH	Rohm & Haas Co.
CPX	Chemplex Co.	SHC	Shell Oil Co., Shell Chemical Co. Div.
CRP	Corpus Christi Petrochemical Co.	SHO	Shell Oil Co.
CSD	Cosden Oil & Chemical Corp.	SIO	Standard Oil Co. (Ohio)
CSP	Coastal Corp., Coastal States Petroleum Co.	SKO	Texaco Refining & Marketing, Inc.
CXI	Chemical Exchange Industries, Inc.	SM	Mobil Oil Corp.: Gas Liquids Dept. Mobil Chemical Co., Petrochemicals Div.
DOW	Dow Chemical Co.	SNO	SunOlin Chemical Co.
DUP	E. I. duPont de Nemours & Co., Inc.	SOC	Chevron Corp., Chevron Chemical Co.
EKT	Eastman Kodak Co.: Tennessee Eastman Co. Div.	SOG	Charter International Oil Co.
EKX	Texas Eastman Co. Div.	SUN	Sun Company, Inc.
ELP	El Paso Products Co.	SWR	Southwestern Refining Co., Inc.
ENJ	Exxon Chemical Americas	TCR	Texas City Refining, Inc.
EPC	Enterprise Products Co. of Mississippi	TID	Texaco Refining & Marketing, Inc., Delaware Refinery
FER	Ferro Corp., Productol Chemical Div.	TNA	Ethyl Corp.
GOC	Gulf Oil Corp., Gulf Oil Products	TOC	Tenneco Oil Co.
GRS	Champlin Petroleum Co.	TPC	Texas Petrochemicals Corp.
HAP	Helmerich & Payne, Inc., National Gas Odorizing Div.	TU	Tenn-USS Chemicals Co.
HEC	Hewchem	TUS	Texaco Butadiene Co.
HES	Amerada Hess Corp. (Hess Oil Virgin Islands Corp.)	TX	Texaco, Inc., Texaco Chemical Co.
HMY	Humphrey Chemical Co.	UCC	Union Carbide Corp.
HST	American Hoeshst Corp., Petrochemical/Plastics Group	UOC	Union Oil Co. of California
KHI	Koch Refining Co.	USI	National Distillers & Chemicals Corp., U.S. Industrial Chemicals Co.
KLM	Kalama Chemical, Inc.	USS	U.S. Steel Corp., USS Chemicals Div.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	VEL	Velsicol Chemical Corp.
		VST	Vista Chemical Co.

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

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 1984, about 42 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.

Total production of cyclic intermediates in 1984 amounted to 47,052 million pounds, an increase of 9 percent from the 43,320 million pounds produced in 1983. Sales of cyclic intermediates in 1984 were 19,957 million pounds, valued at \$6,930 million, compared with 18,803 million pounds, valued at \$6,599 million, in 1983.

Intermediates that were produced in excess of 2 billion pounds in 1984 were ethylbenzene (7,562 million pounds), styrene (7,709 million pounds), dimethyl terephthalate (5,912 million pounds), p-xylene (4,264 million pounds), cumene (3,754 million pounds), and phenol (2,889 million pounds). Other large volume intermediates produced in 1984 were cyclohexane (1,994 million pounds), isocyanates (1,417 million pounds), nitrobenzene (983 million pounds), phthalic anhydride (870 million pounds), cyclohexanone (796 million pounds), aniline (786 million pounds), bisphenol A (762 million pounds), o-xylene (688 million pounds), alkylbenzenes (561 million pounds), monochlorobenzene (256 million pounds), toluene-2,4-diamine (187 million pounds), nonylphenol (162 million pounds), and tetrahydrofuran (125 million pounds). The chemicals mentioned above accounted for 89 percent of the total output of cyclic intermediate production in 1984.

III -- CYCLIC INTERMEDIATES

25

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1984

[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	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	47,051,869	19,956,652	6,930,243	\$0.35
Acetoacetanilide-----	12,966	10,972	11,839	1.08
Alkylbenzenes ² -----	560,782	516,618	208,202	.40
4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5-Methyl-o-anisidinesulfonic acid)-----	1,484	198	813	4.11
Aniline (Aniline oil)-----	786,037	435,594	128,273	.29
2-Benzothiazolethiol, sodium salt-----	21,073	3,128	2,293	.73
Biphenyl-----	35,208	9,904	3,838	.39
2-Bromo-4,6-dinitroaniline-----	874	580	962	1.66
Butylphenols, mixed-----	15,831	7,749	5,289	.68
Chlorobenzene, mono-----	256,127	121,417	31,928	.26
Cresols and cresylic acid, total ³ -----	117,506	79,435	51,473	.65
o-Cresol-----	40,708	43,561	25,169	.58
All other ⁴ -----	76,798	35,874	26,304	.73
Cumene-----	3,754,181	2,146,505	472,404	.22
Cyclohexane-----	1,993,937	1,502,313	383,004	.25
Cyclohexanone-----	795,700	54,678	24,827	.45
o-Dichlorobenzene-----	52,236	47,991	17,340	.36
p-Dichlorobenzene-----	73,498	73,298	29,468	.40
Dicyclopentadiene (including cyclopentadiene)-----	101,046	95,793	22,748	.24
p-Dodecylphenol-----	24,123	...	...	...
Ethylbenzene-----	7,562,076	273,684	56,429	.21
2-(N-Ethyl-N, β-cyanoethyl)-4-acetaminanisole-----	29,210	...	...	...
Isocyanic acid derivatives, total-----	1,416,607	1,494,885	859,725	.58
Diphenylmethane-4,4'-diisocyanate (MDI)-----	105,107	382,943	81,163	.21
Polymethylene polyphenylisocyanate-----	629,105	478,922	312,995	.65
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)-----	663,277	617,059	445,070	.72
Other isocyanic acid derivatives-----	19,118	15,961	20,497	1.28
4,4'-Isopropylidenediphenol (Bisphenol A)-----	762,135	318,309	153,450	.48
o-Nitroaniline-----	11,903	...	...	...
Nitrobenzene-----	982,744	28,146	6,753	.24
Nonylphenol-----	161,611	65,486	26,429	.40
Phenol, total ³ -----	2,889,142	1,185,577	357,569	.30
From cumene-----	2,728,214	1,031,663	310,635	.30
All other-----	160,928	153,914	46,934	.30
Phthalic anhydride-----	870,245	532,151	142,385	.27
Salicylic acid, tech-----	44,180	3,815	3,729	.98
Styrene-----	7,709,229	3,114,648	857,470	.28
Terephthalic acid, dimethyl ester ⁵ -----	5,911,800	...	...	...

See footnotes on last page.

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1984--CONTINUED

CYCLIC INTERMEDIATES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 pounds	Per pound
Tetrahydrofuran-----	124,868	48,540	45,224	\$0.93
Toluene-2,4-diamine (4-m-Tolyenediamine)-----	186,748	...	...	...
p-Toluenesulfonic acid-----	10,707	10,390	3,743	.36
o-Xylene-----	688,051	504,553	87,747	.17
p-Xylene-----	4,264,065	2,608,489	629,072	.24
All other cyclic intermediates-----	4,823,939	4,661,806	2,305,817	.50

¹Calculated from unrounded figures.

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

³Does 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.

⁴Figures 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.

⁵The 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, 1984

[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.
p-Acetanilide-----	SDC.
Acetic acid, phenyl ester-----	BKM.
*Acetoacetanilide-----	BRD, EKT, HST.
o-Acetoacetanilide-----	BRD, EKT, HST.
o-Acetoacetotoluidide-----	BRD, EKT, HST.
p-Acetoacetotoluidide-----	HST.
2',4'-Acetoacetoxylidide-----	EKT, HST.
Acetoacet-m-xylylde-----	BRD.
1'-Acetonaphthone-----	GIV.
Acetophenone, tech.-----	SKO.
p-Acetotoluidide-----	EK.
-Acetyl amino-p-toluenesulfonamide-----	SDW.
p-Acetylbenzenesulfonamide-----	LIL.
p-Acetylbenzenesulfonic acid, sodium salt-----	LIL.
2-Acetylpyridine-----	RIL.
Aldadiene-----	SRL.
*ALKYLBENZENES:	
Alkylbenzene straight-chain (Except dodecyl and tridecyl)-----	MON, WTC.
DODECYLBENZENE (INCLUDING TRIDECYLBENZENE):	
Dodecylbenzene, straight-chain-----	MON, VST, WTC.
Dodecylbenzene, other-----	SOC, VST, WTC.
Alkylphenols, mixed-----	FER, SW, VTC.
Alkylpyridines, mixed-----	RIL, X.
3'-Aminoacetanilide-----	CGY.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	CGY, HST.
3'-Amino-p-acetanilide-----	HST, SDC.
5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	CGY.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	CGY.
3-Amino-p-anisilide-----	PCW.
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9)-----	CGY.
p-Aminobenzamide-----	NSC.
3'-Aminobenzanilide-----	HST.
o-Aminobenzenethiol-----	FMT.
p-Aminobenzoic acid, tech.-----	NSC, WYK.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Amino-6-benzothiazolesulfonic acid-----	VPC.
1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2- anthracenesulfonic acid and sodium salt-----	VPC.
1-Amino-2-bromo-4-hydroxyanthraquinone-----	VPC.
1-Amino-2-bromo-4-p-toluidinoanthraquinone-----	BRS.
2-Amino-5-chloro-2-fluorobenzophenone-----	DOW.
2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1]-----	BAS.
6-Amino-5-chloro-m-toluenesulfonic acid [SO ₃ H=1] (2B Acid)-----	BAS, CYH, DUP.
4-Amino-N,N-di(β-hydroxyethyl)aniline sulfate-----	WAY.
5-Amino-2,3-dimethylbenzenesulfethanolamide-----	CGY.
3-Amino-9-ethylcarbazole-----	SDC.
N-Aminohexamethyleneimine-----	X.
4-Amino-3-hydroxy-1-naphthalenesulfonic acid-----	CGY.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5- nitrobenzoic acid-----	CGY.
3-Amino-2-mercaptobenzoic acid-----	SDW.
3-Amino-4-methoxyacetanilide-----	CGY.
*4-Amino-5-methoxy-2-methylbenzenesulfonic acid (5- methyl-o-anisidinesulfonic acid)-----	SW, VPC, X.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid-----	CGY, VPC.
3-Amino-4-methylbenzamide-----	HST.
2-Amino-4'-methyldiphenylsulfone-4-sulfonic acid-----	CGY.
4-Aminomethylpiperidine-----	RIL.
2-Amino-2-methylpropyl 8-bromotheophyllinate-----	CHT.
2-Amino-4-methylpyridine-----	RIL.
2-Amino-5-methylpyridine-----	NEP, RIL.
2-Amino-6-methylpyridine-----	RIL.
2-Amino-4-(methylsulfonyl)phenol-----	CGY.
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	CGY.
2-Amino-1,5-naphthalenedisulfonic acid, sodium salt-----	X.
1-Amino-2-naphthalenesulfonic acid (o-Naphthionic acid)-----	AMB.
2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	LAK.
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	CGY.
5(and 8)-Amino-2-naphthol-----	BUC.
8-Amino-2-naphthol-----	BUC, CGY.
2-(4-Amino-2-nitroanilino)ethanol-----	SOL.
2-Amino-6-nitrobenzothiazole-----	VPC.
2-Amino-4-nitrophenol-----	SOL, VPC.
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	ATL, CGY.
2-Amino-5-nitrothiazole-----	PCW.
2-Amino-4-nitrotoluene hydrochloride-----	PCW.
6-Aminopenicillanic acid-----	BRS, PFZ.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-Aminophenol	MAL, SCN.
p-[(p-Aminophenyl)azo]benzenesulfonic acid	CGY, VPC.
2-(4-Aminophenylazo)-4-methylphenol	VPC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid	CGY, ACY.
5-[(p-Aminophenyl)azo]salicylic acid	CGY.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt	CGY.
3-Aminophenylphosphonic acid	ICI.
p-Aminopropionanilide	CGY.
2-Aminopyridine	RIL.
3-Aminopyridine	RIL.
4-Aminopyridine	RIL.
2-Aminothiazole nitrate	PCW.
4-Amino-m-toluenesulfonic acid [SO ₃ H=1]	DUP.
6-Amino-m-toluenesulfonic acid [SO ₃ H=1]	CYH, DUP.
m-[(4-Amino-3-tolyl)azo]benzenesulfonic acid	CGY.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid	CGY.
*Aniline (Aniline oil)	DUP, FST, ICI, MAL, RUC, USR, USS, VPC.
2-Anilinoethanol	EKT, TCH.
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid	CGY.
Anilinomethanesulfonic acid and salt	ATL, CGY, VPC.
8-Anilino-1-naphthalenesulfonic acid (Phenyl Peri acid)	WTC.
o-Anisidinomethanesulfonic acid	ATL, CGY, VPC.
Anisole, tech.	CHF.
Anisoyl chloride	SD.
Anthral, [1,9]pyrazol-6(2H)-one (Pyrazoleanthrone)	CGY, SW.
N,N'-(1,5-Anthraquinonylene)dianthranilic acid	CGY.
Benzaldehyde, tech.	KLM.
Benzamidine hydrochloride	EK.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid	CGY.
7H-Benz[de]anthracen-7-one (Benzanthrone)	CGY.
Benzenesulfonic acid, sodium salt	EK.
Benzenesulfonic acid	UPF.
Benzenesulfonyl chloride	SFS, UPF.
1,2,4-Benzenetricarboxylic acid, 1,2-dianhydride (Trimellitic anhydride)	AMO.
Benzhydrol (Diphenylmethanol)	PD.
Benzil	LEM.
Benzimidazole	EK.
Benzoic acid, methyl ester	HCF.
Benzoic acid, tech.	KLM, PFZ, VEL.
Benzoin	SFS.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Benzoin isobutyl ether-----	SFS.
Benzonitrile-----	SFS.
Benzophenone-----	UPJ.
Benzophenone hydrazone-----	OMC.
*2-Benzothiazolethiol, sodium salt-----	BFG, BKM, GYR, USR.
1H-Benzotriazole-----	SW.
2-Benzoxazolethiol-----	EK.
Benzoyl chloride-----	HK, KLM, VEL.
2-Benzoyl pyridine-----	GNW.
N-Benzylacetamide-----	SDW.
Benzylamine-----	HXL, KLM.
2-(Benzylamino)ethanol-----	HXL.
1-Benzyl-3,4-dimethyl-2-(p-methoxylbenzyl)-1,2,5,6-tetrahydropyridine oxalate-----	SD.
Benzyl ether (Dibenzyl ether)-----	OPC.
3-(Benzylethylamino)acetanilide-----	EKT.
2-Benzyl-2'-hydroxy-5,9-dimethyl-6,7-benzomorphanhydrobromide-----	SD.
p-(Benzyloxy)phenol-----	FKE.
1-Benzyl-4-phenylisonipecotic acid, ethyl ester-----	SDW.
1-Benzyl-4-phenylisonipecotonitrile-----	SDW.
4-Benzylpiperidine-----	RIL.
Benzyltriethylammonium chloride-----	HXL.
Benzyltrimethylammonium hydroxide-----	HXL.
[3,3'-Bianthra[1,9-cd]pyrazole]-6,6' (2H,2'H)-dione (Pyazoleanthrone Yellow)-----	CGY.
*Biphenyl-----	DOW, GOC, KHI, MON, TCC.
N,N-Bis-(2-acetoxyethyl)-aniline-----	VPC.
Bis(p-aminocyclohexyl)methane-----	DUP.
1,4-Bis[1-anthraquinonylamino]anthraquinone-----	CGY.
1,5-Bis[1-anthraquinonylamino]anthraquinone-----	CGY.
1,4-Bis[1-anthraquinonylamino]anthraquinone and 1,4-bis[5-Chloro-1-anthraquinonylamino]anthraquinone (Mixed)-----	CGY.
2,6-Bis(p-azidobenzylidene)-4-methylcyclohexanone-----	X.
Bis(chlorosulfonyl)phthalocyaninedisulfonic acid, copper derivative-----	CGY.
4,4'-Bis(dimethylamino)benzhydrol (Michler's hydrol)-----	X.
Bis(β-dimethylaminoethyl)phenylacetone nitrile-----	WYT.
1,5-Bis[2,4-dinitrophenoxy]-4,8-dinitroanthraquinone-----	VPC.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, diacetate ester-----	TCH.
1,2-Bis(tribromophenoxy)ethane-----	GTL.
p-Bromoaniline-----	EK.
Bromobenzaldehyde-----	TNA.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Bromobenzene, mono-----	DAZ, GTL.
o-Bromobenzoic acid-----	PD.
1-Bromo-4-Chlorobenzene-----	DAZ.
4-Bromo-3,5-dihydroxybenzamide-----	PCW.
4-Bromo-3,5-dihydroxybenzoic acid-----	PCW.
*2-Bromo-4,6-dinitroaniline-----	CGY, HST, SDC.
2-(2-Bromo-4,6-dinitrophenylazo)-5- diethylaminoacetanilide-----	CGY.
1-Bromo-4-ethoxy-2-methylbenzene-----	X.
-Bromo-p-nitrotoluene (p-Nitrobenzyl bromide)-----	SDW.
Bromopheniramine base-----	HEX.
2-Bromopyridine-----	DAZ, OMC.
3-Bromopyridine-----	RIL.
5-Bromopyrimidine-----	SFS.
p-Butoxyphenol-----	ABB.
p-Butylaniline-----	TNA.
3-(N-Butylanilino)propionitrile-----	TCH.
p-tert-Butylbenzaldehyde-----	GIV.
2-tert-Butyl-p-cresol-----	FER.
6-tert-Butyl-m-cresol-----	KPT.
tert-Butylhydroquinone-----	UPJ.
t-Butyl-(4-hydroxybenzyl)benzene-----	TNA.
2-[(1-Butyl-2-methylindol-3-yl)carbonylbenzoic acid-----	X.
o-sec-Butylphenol-----	SCN, TNA.
o-tert-Butylphenol-----	TNA.
p-sec-Butylphenol-----	SCN.
p-tert-Butylphenol-----	SCN.
*Butylphenols, 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.
n-Carboxy-n-methylanthranilic anhydride-----	SW.
Cephalosporin D-----	BRS.
2'-Chloroacetoacetanilide-----	EKT, HST.
4'-Chloroacetophenone-----	LIL.
o-Chloroaniline-----	CWN, DUP.
m-Chloroaniline-----	FST, VTC.
p-Chloroaniline-----	DUP, MON.
1-Chloroanthraquinone-----	CGY.
2-Chloroanthraquinone-----	ACY.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)-----	CGY.
*Chlorobenzene, mono-----	DOW, MON, PPG, SCC.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-Chlorobenzenesulfinic acid	CGY.
p-Chlorobenzenesulfonic acid	UPF.
p-Chlorobenzophenone	PD.
4-Chloro-2-benzothiazolemine	SDC.
o-Chlorobenzylamine	ARA.
2-Chloro-N,N-disopropylethylamine hydrochloride	SOL.
2-Chloro-1,4-dibutoxybenzene	ALL.
1-Chloro-2,5-dibutoxy-4-nitrobenzene	ALL.
2-Chloro-1,4-diethoxybenzene	ALL.
1-Chloro-2,5-diethoxy-4-nitrobenzene	ALL.
4'-Chloro-2',5'-dimethoxyacetoacetanilide	PCW.
2-Chloro-1,4-dimethoxybenzene	PCW.
4-Chloro-2,5-dimethoxynitrobenzene	PCW.
2-[p-Chloro- α -(2-dimethylaminoethyl)benzyl]pyridine	SK.
2-Chloro-10-[3-(dimethylamino)propyl]phenothiazine	SK.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	SDC.
3-Chlorodiphenylamine	SK.
N-(2-Chloroethyl)-N-ethylaniline	TCH.
p-[(2-Chloroethyl)methylamino]benzaldehyde	VPC.
1-Chloro-2-methylantraquinone	CGY.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide	CGY.
2-Chloro-10-[3(4-methyl-1-piperazinyl)propyl]-phenothiazine	SK.
2-[(Chloromethyl)thiol]benzothiazole	BKM.
4-Chloro-3-nitrobenzamide	PCW.
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	DUP, MON.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)	DUP, MON.
4-Chloro-3-nitrobenzenesulfonamide	CGY.
2-Chloro-5-nitrobenzenesulfonic acid	CGY.
4-Chloro-3-nitrobenzenesulfonic acid	CGY.
4-Chloro-3-nitrobenzenesulfonyl chloride	SDC.
2-Chloro-4-nitrobenzoic acid	SAL.
2-Chloro-5-nitrobenzoic acid	CGY.
2-Chloro-4-nitrobenzoic acid, potassium salt	SAL.
4-Chloro-3-nitrophenylmethyl sulfone	CGY.
α -Chloro-4-nitrotoluene	EK.
2-Chloro-4-nitrotoluene	DUP, PCW.
2-Chlorophenothiazine	SK.
o-Chlorophenylcyclopentyl ketone	PD.
(m-Chlorophenyl)diethanolamine	HST.
4-Chloro-o-phenylenediamine	FMT.
4,4'-[(2-Chlorophenyl)methylene]bis[N,N-dimethyl]-aniline	X.
1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	CGY.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-Chlorophenyl methyl sulfone	CGY.
4-Chlorophthalic acid	SW.
1-(3-Chloropropyl)-4-methylpiperazine	SK.
3-Chloropropyl-2,5-xylyl ether	PD.
2-Chloropyridine	NES, OMC.
4-Chlororesorcinol	PCW.
o-Chlorotoluene	HK.
m-Chlorotoluene	HK.
-Chlorotoluene (Benzyl chloride)	MON, SFS, VEL.
3-Chloro-p-toluidine [NH ₂ =1]	DUP.
p-Chloro- α,α,α -trifluorotoluene	HK.
4-Chloro-3,5-xyleneol	FER.
Cinnamic acid	KF.
Copper, [2,2',2'',2''']-[z9H,31H-phthalacyaninepentylpentakis(methylene)]pentakis[1H-isoindole-1,3(2H)-dionato]]	X.
*CRESOLS:	
m-Cresol	KPT, MER.
*O-CRESOL:	
o-Cresol, from petroleum	FER, GE, KPT, MER, SW.
p-Cresol	MER, SW.
CRESOLS, MIXED:	
(M,P)-CRESOL:	
(m,p)-Cresol, from petroleum	FER, MER, NPC.
(O,M,P)-CRESOL:	
(o,m,p)-Cresol, from coal tar	KPT.
CRESYLIC ACID, REFINED:	
Cresylic acid, refined; from petroleum	FER, MER.
*Cumene (Isopropyl benzene)	ASH, CLK, GOC, GP, GRS, KHI, SHC, SKO, TK.
2-[p-(Cyanoacetamido)phenyl]-6-methyl-7-benzothiazolesulfonic acid	VPC.
4-(Cyanoacetyl)morpholine	DUP.
N-Cyanoethyl N-acetoxyethylaniline	TCH.
Cyanoethyl cellulose	FKE.
N-[3-(2-Cyanoethyl)ethylamino]phenylacetamide	SDC.
N-Cyano-s-methyl-N-2(4-methyl-5-imidazolyl)-methylthioethylisothiurea	SK.
Cyanopyridine	RIL.
2,5-Cyclohexadiene-1,4-dione, dioxime	SDC.
*Cyclohexane	CRP, DUP, GOC, GRS, PLC, PPR, SUN, TX, UOC.
1,2-Cyclohexanedicarboxylic acid anhydride	BCC.
Cyclohexanol	ACS, DBC, DUP, MON.
*Cyclohexanone	ACS, CNP, DBC, DUP, MON, UCC.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Cyclohexanone oxime	CNP.
Cyclohexene	USR.
3-Cyclohexene-1-carboxaldehyde	UCC.
4-Cyclohexene-1,2-dicarboxylic anhydride	DKA.
Cyclohexene oxide	USR.
β -(1-Cyclohexenyl)ethylamine	HXL.
Cyclohexylamine	ABB, USR, VGC.
Cyclooctadiene	DUP.
Cyclopropanecarbonyl chloride	PD.
Cyclopropanecarboxylic acid	PD.
2-Cyclopropylmethylamino-5-chlorobenzophenone	PD.
2-(N-Cyclopropylmethyl-N-phthalimidoacetyl)-amino-5-chlorobenzophenone	PD.
p-Cymene	HPC.
N-Cynoethyl N-hydroxy-m-toluidine	TCH.
Di-p-xylylene	HEX.
Diacenaphtho[1,2-j:1',2'-1]fluoranthene (Decacycene)	SDC.
3-Diacetoxyethylaminobenzanilide	STC.
Dialkylbenzene	VST.
1,5-Diaminoanthraquinone	SDC.
2,4-Diaminobenzenesulfonic acid $\text{SO}_3\text{H}=1$	CGY.
1,3-Diaminocyclohexane	DUP.
1,4-Diamino-2,3-dihydroanthraquinone	CGY.
4,8(and 4,5)-Diamino-9,10-dihydro-1,5(and 1,8)-dihydroxy-9,10-dioxo-2,6(and 2,7)-anthracenedisulfonic acid	CGY.
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracenedicarboximide	VPC.
1,5-Diamino-4,8-dihydroxyanthraquinone	VPC.
4,4'-Diaminodiphenyl sulfone	CGY.
2,6-Diaminopyridine	RIL.
4,4'-Diamino-2,2'-stilbenedisulfonic acid	CGY.
2,5-Dianilinoterephthalic acid	SDC, VPC.
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.
3,9-Dibromo-7H-benz[de]anthracen-7-one	CGY.
m-Dibromobenzene	DAZ.
p-Dibromobenzene	DAZ.
(1,2-Dibromoethyl)benzene	DAZ.
2,6-Dibromo-4-nitroaniline	SDC.
2,6-Dibromo-4-nitrophenol	HST.
2,6-Dibromophenol	EK.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3,5-Dibromo-3'-trifluoromethylsalicylanilide (Fluorophene)-----	PCW.
p-Dibutoxybenzene (DBB)-----	ALL.
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate salt (DBB Sulfate)-----	ALL.
2,5-Dibutoxy-4-morpholinonitrobenzene-----	ALL.
Di-butyl-p-cresol-----	FER.
2,6-Di-tert-butyl-4-nonylphenol-----	GAF.
2,4-Di-tert-butylphenol-----	FER.
2,6-Di-sec-butylphenol-----	TNA.
2,6-Di-tert-butylphenol-----	TNA.
3,4-Dichloroaniline-----	DUP, MON.
1,5-Dichloroanthraquinone-----	CGY.
*o-Dichlorobenzene-----	MON, PPG, SCC, SOI.
m-Dichlorobenzene-----	MON.
*p-Dichlorobenzene-----	MON, PPG, SCC, SOI.
3,3'-Dichlorobenzidine base and salts-----	CWN, LAK.
3,4-Dichlorobenzotrifluoride-----	DAZ.
Dichlorobenzyl chloride-----	SFS.
4,6-Dichloro-1,3-dihydroxylbenzene-----	PCW.
Dichlorodiphenylsilane-----	DCC.
4,4'-Dichlorodiphenyl sulfone-----	UCC.
3,3'-Dichloro-4,4'-(2-hydroxy-3-anilido-1-naphthazo)- biphenyl-----	LAK.
2,6-Dichloro-3-methylaniline-----	SDC.
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)- benzenesulfonic acid-----	CGY.
Dichloromethylphenylsilane-----	DCC.
2,6-Dichloro-4-nitroaniline-----	CWN.
1,2-Dichloro-4-nitrobenzene-----	DUP, MON.
2,6-Dichlorophenylamidinourea hydrochloride-----	PD.
2,6-Dichloropyridine-----	OMC.
2,5-Dichlorosulfanilic acid [SO ₃ H=1]-----	VPC.
2,5-Dichloro-4-sulfobenzenediazonium sulfate-----	CGY.
p,α-Dichlorotoluene-----	HK.
2,6-Dichloro-m-toluidine-----	HST.
Dicyclohexylamine-----	ABB, VGC.
Dicyclohexylamine, nitrate salt-----	OMC.
*Dicyclopentadiene (includes Cyclopentadiene)-----	CKI, DOW, ENJ, SHC.
α,α-Diethoxyacetophenone-----	CWN.
p-Diethoxybenzene-----	ALL.
3-Diethylaminoacetanilide-----	CGY.
p-(Diethylamino)benzaldehyde-----	MCK, VPC.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide-----	PD.
2[4-Diethylamino-2-hydroxybenzyl]benzoic acid-----	X.
7-Diethylamino-4-methylcoumarin, crude-----	PCW.
3-[(4'-N,N-Diethylamino)phenylazo]-1H-1,2,4-triazole-----	CGY.
N,N-Diethylaniline-----	BCC, DUP.
2,6-Diethylaniline-----	TNA.
Diethylbenzene-----	DOW.
N,N-Diethylcyclohexylamine-----	ABB.
3,5-Diethyl-1,2-dihydro-1-phenyl-2-propylpyridine-----	RIL.
N,N-Diethyl-3-ethoxyaniline-----	X.
N ¹ ,N ¹ -Diethyl-4-methoxymetanilamide-----	PCW.
N,N-Diethyl-m-toluidine-----	DUP, FST.
N,N-Diethyl-p-toluidine-----	RSA.
3-(2',4',-Difluorophenyl)-2-hydroxybenzoic acid, sodium salt-----	HXL.
6,11-Dihydrodibenz(b,e)oxepin-11-one-----	PFZ, SK.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl-----	DAZ.
2,3-Dihydro-2,2-dimethyl-7-benzofuranol-----	FMN.
9,10-Dihydro-9,10-dioxo-1,5(and 1,8)-anthracenedisulfonic acid and salt-----	CGY.
2-[2-(2,3-Dihydro-1,3-dioxo-1H-inden-2yl)-(quinolinyl)]- 6-methylbenzothiazole-7-sulfonic acid-----	VPC.
2,3-Dihydro-2-[6-methyl-7-sulfo-2-benzothiazolyl]-2- quinolinyl-1,3-dioxo-1H-indene-5-carboxylic acid-----	VPC.
1,2-Dihydrotriamcinolone-----	X.
1,4-Dihydroxyanthraquinone-----	CGY, EKT.
1,5(and 1,8)-Dihydroxyanthraquinone-----	CGY.
2,4-Dihydroxybenzaldehyde-----	EK.
2,5-Dihydroxy-p-benzenedisulfonic acid, dipotassium salt--	X.
3,4-Dihydroxybenzoic acid, methyl ester-----	PCW.
2,4-Dihydroxybenzophenone-----	ACY.
1,5-Dihydroxy-4,8-dinitroanthraquinone-----	VPC.
1,8-Dihydroxy-4,5-dinitroanthraquinone-----	CGY, EKT, VPC.
N,N-Di(β-hydroxyethyl)-m-chloroaniline-----	MIL.
3,5-Dihydroxy-N-(2-hydroxyethyl)benzamide-----	PCW.
Diisopropylbenzene-----	CLK, GP.
2,5-Dimethoxybenzaldehyde-----	UPJ.
m-Dimethoxybenzene-----	ACY.
2,5-dimethoxy-4-chloranilide-----	HST.
3,4-Dimethoxytoluene-----	HEX, TNA.
p-(Dimethylamino)benzaldehyde-----	ATL, EK.
m-(Dimethylamino)benzoic acid-----	SDH.
2-[4-(Dimethylamino)benzoyl]benzoic acid-----	EK, X.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-[[2-(Dimethylamino)ethyl](p-methoxybenzyl)amino]- pyridine-----	HEX.
m-Dimethylaminophenol-----	ACY.
11-[3(Dimethylamino)propyl]-6H-hydroxydibenz(b,e)oxepin-----	PFZ, SK.
N-(3-(Dimethylamino)propyl)-isooctadecanamide-----	SBC.
4-Dimethylaminopyridine-----	NEP.
N,N-Dimethylaniline-----	BCC, DUP.
N,N-Dimethylbenzylamine-----	ARS, HXL, SW.
2,2'-Dimethyl-1,1'-bianthraquinone-----	CGY.
Dimethyl-1,4-cyclohexanedicarboxylate-----	EKT.
N,N-Dimethylcyclohexylamine-----	ABB.
1,1-Dimethyl-3-(m-hydroxyphenyl)urea-----	GLY.
2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride-----	CGY, PCW.
N,N-Dimethyl-o-toluidine-----	RSA.
N,N-Dimethyl-p-toluidine-----	FST, HXL, RSA.
2,4-Dinitroaniline-----	HST, SDC.
p-(2,4-Dinitroanilino)phenol-----	SDC.
1,5(and 1,8)-Dinitroanthraquinone-----	SDC.
m-Dinitrobenzene-----	DUP.
Dinitrocaprylphenol-----	RH.
4,4'-Dinitrodiphenyl ether-----	DUP.
2,4-Dinitrophenol, tech.-----	SDC, VPC.
2,4-Dinitrophenoxyethanol-----	HML.
3,5-Dinitrosalicylic acid-----	SAL.
3,5-Dinitrosalicylic acid, methyl ester-----	SAL.
p-Dinitrosobenzene-----	LC.
4,4'-Dinitrostilbene-2,2'-disulfonic acid-----	CGY.
2,4-Dinitrotoluene-----	DUP, RUC.
2,4(and 2,6)-Dinitrotoluene-----	DUP, MOB, OMC, RUC, X.
3,5-Dinitro-o-toluic acid-----	SAL.
Dinonylhydroxybenzenesulfonic acid-----	X.
Dinonylphenol-----	GAF, TX.
Di-para-benzoquinone dioxime-----	LC.
2,4-Di-tert-pentylphenol-----	FER, PAS.
1,5-Diphenoxyanthraquinone-----	VPC.
Diphenylamine-----	RUC, USR, USS.
Diphenylchlorophosphate-----	SFS.
Diphenyldisulfide-----	PAH.
Diphenylphosphinous chloride-----	SFS.
1,3-Di-4-piperidylpropane-----	RIL.
4,4'-Dithiodianiline-----	SDC.
1,4-Di-p-toluidinoanthraquinone-----	CGY.
1,5-Diureidonaphthalene-----	SOI.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Divinylbenzene-----	: DOW, HST.
Dodecylaniline-----	: MON.
Dodecylmethylbenzyl chloride-----	: RH.
*p-Dodecylphenol-----	: GAF, MCB, MON, SOC, TX.
Doxepin base-----	: SK.
5-Ethanoxy-3-trichloromethyl-1,2,4-thiadiazole-----	: OMC.
2,2'-(1,2-Ethenediyl)bis(5[[4-chloro-6-(phenylamino)-1,3,5-triazin-2-yl]amino]benzenesulfonic acid, disodium salt-----	: K.
Ethisternone-----	: SRL, UPJ.
4(5)-Ethoxycarbonyl-5(4)-methylimidazole-----	: SK.
1-Ethoxy-3-methylbenzene-----	: K.
4-Ethoxy-2-methyl-N-phenylaniline-----	: K.
2-Ethoxy-1-naphthoic acid-----	: WYT.
2-Ethoxy-1-naphthoyl chloride-----	: WYT.
4-Ethoxy-2-nitroacetanilide-----	: CGY.
4-Ethoxy-o-phenylenediamine-----	: CGY.
Ethyl-alpha-cyano-beta-methyl cinnamate-----	: PD.
3'-(Ethylamino)acetanilide-----	: EKT.
o-Ethylaniline-----	: TNA.
N-Ethylaniline, refined-----	: ATL, BCC, DUP.
2-(N-Ethylanilino)ethanol-----	: MIL, TCH.
3-(N-Ethylanilino)propionitrile-----	: MIL, TCH.
alpha-(N-Ethylanilino)-m-toluenesulfonic acid-----	: SDH.
*Ethylbenzene-----	: AMO, ATR, CSD, DOW, DUP, ELP, GOC, HST, KHI, KPT, MCB, MON.
Ethylbenzyl chloride-----	: SFS.
*2-(N-Ethyl-N,8-cyanoethyl)-4-acetaminoanisole-----	: CGY, SDC, TCH.
N-Ethyl-N-(2,3-dihydroxypropyl)-m-toluidine-----	: EKT.
16,17-Ethylenedioxyuiolanthrone-----	: CGY.
N-Ethylmaleimide-----	: REG.
1-Ethyl-3-methylhydantoin-----	: GLY.
6-Ethyl-2-methylaniline-----	: TNA.
6-Ethyl-2-methylformanilide-----	: WYT.
1-Ethyl-2-methylindole-----	: K.
9-Ethyl-3-nitrocarbazole-----	: SDC.
p-Ethylphenol-----	: SW.
N-Ethyl-N-phenylbenzylamine-----	: SDH.
N-Ethyl-N-(3'-sulfobenzyl)aniline-----	: VPC.
Ethyl toluene-----	: DOW.
N-Ethyl-m-toluidine-----	: DUP, FST.
3-(N-Ethyl-m-toluidino)propionitrile-----	: TCH.
p-Fluoroaniline-----	: OMC.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Fluoro-3-nitroaniline-----	OMC.
4-Fluoro-3-nitrobenzotrifluoride-----	DAZ.
4-Fluorothiophenol, sodium salt-----	PAH.
o-Formylbenzenesulfonic acid, sodium salt-----	X.
1-Formylpiperidine-----	RIL.
Furan-----	QKO.
Furfuryl alcohol-----	QKO.
Furfurylamine-----	HXL.
1-(2-Furoyl)piperazine-----	PFZ.
Hexachlorocyclopentadiene-----	VEL.
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic anhydride (Chlorendic anhydride)-----	VEL.
Hexahydro-1-methyl-4-phenyl-1H-azepine-4-carbonitrile-----	WYT.
Hexamethyleneimine-----	CXI, DUP.
Hydroquinonesulfonic acid, potassium salt-----	NES.
Hydroquinone, tech.-----	EKT, GYR.
p-Hydroxybenzenesulfonic acid-----	FER, UPF.
4-Hydroxycoumarin-----	SDW.
2'-Hydroxy-5,9-dimethyl-6,7-benzomorphan-----	SD.
2,2'-[[4-(2-Hydroxyethylamino)-3-nitrophenyl]imino]- diethanol-----	SOL.
N-β-Hydroxyethyl-2,4-dihydroxybenzamide-----	PCW.
4-Hydroxymetanilamide-----	CGY.
4-Hydroxymetanilic acid-----	CGY.
2-Hydroxymethylene-17α-ethinylandrost-17β-ol-4-en-3-one-----	SD.
4-Hydroxy-N'-methylethanilamide-----	CGY.
4(5)-Hydroxymethyl-5(4)-methylimidazole hydrochloride-----	SK.
3-Hydroxy-N-(3-N-morpholino-γ-propyl)-2-naphthimide-----	PCW.
7-Hydroxy-1,3-naphthalenedisulfonic acid-----	CGY.
3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt-----	CGY.
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt-----	SDH.
8-Hydroxy-1-naphthalenesulfonic acid,γ-sultone-----	CGY.
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-2-naphthoic acid, sodium salt-----	PCW.
2-Hydroxy-4-n-octoxybenzophenone-----	CCW.
p-Hydroxyphenyl-3-methylbutyric acid-----	HEX.
11α-Hydroxyprogesterone-----	UPJ.
3-Hydroxy-5'-quinophthalonecarboxylic acid-----	CGY.
10-(p-Iodophenyl)undecanoic acid, ethyl ester-----	X.

III -- CYCLIC INTERMEDIATES

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Isatoic anhydride-----	SW.
Isobutylbenzene-----	PLC, TNA.
*ISOCYANIC ACID DERIVATIVES:	
Bitolylene diisocyanate (TODI)-----	CWN.
*Diphenylmethane-4,4'-diisocyanate (MDI)-----	BAS, MOB, RUC, UPJ.
Isocyanic acid,p-chlorophenyl ester-----	MOB.
Isocyanic acid, cyclohexyl ester-----	MOB.
Phenylisocyanate-----	MOB.
*Polymethylene polyphenylisocyanate-----	BAS, MOB, RUC, UPJ, WTC.
Toluene 2,4-diisocyanate-----	DUP, MOB.
*Toluene 2,4-and 2,6-diisocyanate (80/20 Mixture)-----	BAS, DOW, MOB, OMC, RUC.
Toluene 2,4-and 2,6-diisocyanate (65/35 Mixture)-----	MOB.
p-Toluenesulfonyl isocyanate-----	CWN.
Isocyanic acid derivatives, all other-----	UCC.
Isonicotinamide-----	RIL.
Isonicotinic acid-----	RIL.
Isonicotinic acid, methyl ester-----	RIL.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)-----	AMO.
Isophthalonitrile-----	SW.
Isophthaloyl chloride-----	DUP, TLC.
N-Isopropylaniline-----	FST, USR.
Isopropylbiphenyl-----	TCC.
4,4'-Isopropylidenebis[2,6-dibromophenol] (Tetrabromo- bisphenol A)-----	DOW.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene- α,α' -diol)-----	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)-----	DOW, GE, SHC, USS.
4,4'-Isopropylidenediphenol, ethoxylated-----	ICI.
4,4'-Isopropylidenediphenol, propoxylated-----	ICI.
o-Isopropylphenol-----	FER, TNA.
p-Isopropylphenol-----	FER.
Isopropylphenol, mixed-----	FMC.
Isothiocyanic acid, phenyl ester-----	EK.
Leuco quinizarin (1,4,9,10-Anthratetrol)-----	CGY.
2,3-Lutidine-----	RIL.
2,4-Lutidine-----	RIL.
3,5-Lutidine-----	RIL.
Malonanilide-----	PCW.
Melamine-----	ACY, GIV, MLC.
dl-p-Mentha-1,8-diene (Limonene)-----	ARZ, NCI.
Metanilic acid (m-Aminobenzenesulfonic acid)-----	CGY.
4-Methoxyacetanilide-----	CGY.
2-Methoxyethylpiperidine-----	RIL.
N-(4-Methoxy-3-nitrophenyl)acetamide-----	SDC.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
(p-Methoxyphenyl)acetic acid-----	HEX.
N[4[1-[(2-Methoxyphenylamino)carbonyl]-2-oxopropylazophenyl]-4-[1[(2-methoxyphenylamino)-carbonyl]-2-oxopropylazo]-benzamide]-----	X.
3-Methoxythiophenol-----	PAH.
4-Methylacetophenone-----	UPJ.
2-Methyl-5-acetylpyridine-----	RIL.
1-(Methylamino)anthraquinone-----	CGY.
2-(N-Methylanilino)ethanol-----	TCH.
3-(N-Methylanilino)propionitrile-----	MLL, TCH.
2-Methylanthraquinone-----	ACY.
3-Methylbenzo[f]quinoline-----	ACY, OMC.
2-Methylbenzothiazole-----	FMT.
o-Methylbenzyl chloride-----	SFS.
Methyl benzyl ether-----	GRS.
Methyl N-(α -carboxydihydrobenzyl)- β -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 carboate-----	FMN.
N-Methyldicyclohexylamine-----	ABB.
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-o-cresol)-----	CPS.
4-Methyl-2,6-dinitrophenol-----	SDC, SW.
4,4-Methylenebis (2,6-di-tert-butylphenol)-----	TNA.
4,4'-Methylenebis[N,N-diethylaniline]-----	ACY.
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	ACY, SDH.
4,4'-Methylenebis[3-hydroxy-2-naphthoic acid], disodium salt-----	EK.
4,4'-Methylenedianiline-----	OMC, RUC, USR.
1,2-Methylenedioxybenzene-----	CRZ.
1,2-Methylenedioxy-4-nitrobenzene-----	PD.
5,5'-Methylenedisalicylic acid-----	KLM.
Methylhydroquinone-----	EKT.
(2,4-Methyl-5-imidazolyl)methylthioethylamine dihydrochloride-----	SK.
4-Methyl-2-imino-1,3-dithiolane hydrochloride-----	LAK.
N-Methyl-p-nitroaniline-----	ACY.
4-Methyl-2-nitroanisole-----	SW.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride-----	BCC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl) benzenesulfonic acid-----	CGY.
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	CGY.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Methyl-5-phenylbenzoxazole-----	EK.
1-Methyl-4-phenylisonipecotic acid-----	WYT.
1-Methyl-4-phenylisonipecotonitrile-----	WYT.
4-Methylphthalic acid-----	EK.
4-Methylphthalic anhydride-----	SFS.
3-Methylpiperidine-----	RIL.
α -Methylstyrene-----	CLK, CXI, GP, USS.
ar-Methylstyrene (Vinyltoluene)-----	DOW, HST.
1-Naphthaldehyde-----	GNW.
1-Naphthalenesulfonic acid-----	CGY.
2-Naphthalenesulfonic acid-----	ACY.
1-Naphthalenesulfonic acid, 5-(4-hydroxyphenyl)-----	SDC.
1-Naphthalenesulfonic acid, 8-(phenylamino)-monosodium salt-----	SDC.
1-Naphthalenesulfonic acid, sodium salt-----	CGY.
2-Naphthalenesulfonic acid, sodium salt-----	GNW.
1,4,5,8-Naphthalenetetracarboxylic acid-----	CGY.
Naphthalimide-----	SDC, VPC.
1-Naphthoic acid-----	GNW.
1-Naphthol (α -Naphthol)-----	UCC.
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid-----	CGY.
1-Naphthylamine (α -Naphthylamine)-----	DUP.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine)-----	SDC.
Nicotinonitrile (3-Cyanopyridine)-----	NEP, RIL.
3-Miro-6-pyrrolodinytoluene-----	ALL.
3'-Nitroacetanilide-----	EKT.
4'-Nitroacetanilide-----	CGY.
*o-Nitroaniline-----	BUC, DUP, MON.
p-Nitroaniline-----	DUP, MON.
5-Nitroanthranilic acid-----	CGY, TLI.
p-Nitrobenzamide hydrochloride-----	PD.
*Nitrobenzene-----	DUP, FST, ICI, MOB, RUC.
m-Nitrobenzenesulfonic acid-----	CGY.
m-Nitrobenzenesulfonic acid, sodium salt-----	USH.
o-Nitrobenzoic acid-----	SAL.
m-Nitrobenzoic acid-----	SAL, SDH.
p-Nitrobenzoic acid-----	DUP.
m-Nitrobenzoic acid, sodium salt-----	SAL.
p-Nitro benzyl alcohol-----	SDW.
2-Nitro-p-cresol-----	SW.
5-Nitrodimethylisophthalate-----	SAL.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Nitrodiphenylamine	: ACY, MON.
5-Nitroisophthalic acid	: LAK, SAL.
3-Nitro-4-methoxyacetanilide	: CGY.
3-Nitro-4-methylacetophenone	: TLI.
4-Nitro-N-methylphthalimide	: LAK.
5-Nitromonomethylisophthalate	: SAL.
1-Nitronaphthalene	: DUP.
7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	: CGY.
p-Nitrophenethyl alcohol	: PCW.
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.
5-Nitrosalicylaldehyde	: EK.
p-Nitrosophenol	: LC, SDC, VPC.
4-Nitrosophenol, sodium salt	: SDC.
N-Nitroso-N-phenylhydroxylamine, ammonium salt	: FKE.
o-Nitrotoluene	: DUP, FST.
m-Nitrotoluene	: DUP, FST.
p-Nitrotoluene	: DUP, FST.
Nitrotoluene mixtures	: FST.
p-Nitrotoluene-o-sulfonic acid	: CGY.
5-Nitro-o-toluidine [NH ₂ =1]	: PCW.
Nonyl-dinonylphenol, mixture	: USR.
*Nonylphenol	: GAF, KLM, MCB, MON, RH, SCN, TX.
Norborene-2,3-dicarboxylic acid, monomethyl ester	: BJL.
Octylphenol	: RH, SCN.
Octylphenoxydiethoxy chloride	: RH.
Oxidiphthalic anhydride	: PAH.
1-[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]-anthraquinone	: CGY.
1,1'-[(7-Oxo-7H-benz[de]anthracen-3,9-ylene)-diimino]-dianthraquinone	: CGY.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester	: VPC.
Oxyaluminum benzoate	: CHT.
4,4'-Oxydianiline	: DUP.
para-Pentylloxyphenol	: EK.
Pentabromochlorocyclohexane	: DOW.
Pentabromoethylbenzene	: TNA.
1,1,3,3,5-Pentamethylindan	: GIV.
o-Pentylphenol (o-Amylphenol)	: PAS, X.

III -- CYCLIC INTERMEDIATES

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-tert-Pentylphenol-----	PAS.
Permethrin acid chloride-----	VTC.
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-dianhydride-----	VPC.
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-diimide-----	SDC, VPC.
Perylo[3,4-cd:9,10-c'd']dipyran-1,3,8,10-tetrone-----	SDC.
1,10-Phenanthroline-----	VNC.
α -Phenethylamine-----	HXL.
2-Phenethylamine-----	HXL.
p-Phenetidine-----	MON.
*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.-----	SKO.
*Phenol, synthetic, from cumene by oxidation, U.S.P.-----	ACS, CLK, DOW, GE, GP, MON, SHC, USS.
Phenol, synthetic, from toluene by oxidation, U.S.P.-----	KLM.
Phenolsulfonaphthalein, sodium salt-----	EK.
Phenolsulfonic acid, sodium salt-----	SAL.
Phenoxyacetic acid, sodium salt-----	NCC.
3-Phenoxybenzaldehyde-----	TNA.
3-Phenoxybenzenemethanol-----	TNA.
2-(Phenoxymethyl)benzoic acid-----	PFZ, SOL.
m-Phenoxytoluene-----	MER.
Phenylacetic acid, potassium salt-----	OPC, SFS.
Phenylacetic acid, sodium salt-----	OPC.
2-(N-phenylamino)-9-acridanone-----	X.
2,2'-[(Phenyl)amino]diethanol, diacetic ester-----	CGY.
p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydro- chloride-----	CGY.
4-(Phenylazo)diphenylamine-----	EK.
4-Phenyl-3-buten-2-one (Benzylidene acetone)-----	SDW.
o-Phenylenediamine-----	CGY, DUP, SW.
m-Phenylenediamine-----	DUP.
p-Phenylenediamine-----	DUP, NES, SDC.
d-Phenylephrine-----	SDW.
dl-Phenylephrine base-----	SDW.
Phenyl ether (Diphenyl oxide)-----	DOW, MON.
d(+) α -Phenylethylamine-----	HXL.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Phenylglycine, potassium salt-----	BCC, KF.
Phenylglycine, sodium salt-----	BCC, LIL.
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanolamine)-----	EKT, TCH.
2,2'-[(Phenyl)imino]diethanol, diacetate ester-----	MIL.
Phenylmercuric carboxylate-----	COS.
3-Phenyl-5-methylisoxazole-4-carbonyl chloride-----	TCH.
Phenyl- α -naphthylamine-----	UCC.
o-Phenylphenol-----	DOW.
p-Phenylphenol-----	DOW.
o-Phenylphenol, sodium salt-----	DOW.
N-Phenyl-p-phenylenediamine-----	USR.
Phenylphosphinic acid-----	FER.
Phenylphosphonothioic dichloride-----	SFS.
Phenylphosphorous dichloride-----	FER, SFS.
1-Phenyl-1,2-propanedione, 2-oxime-----	ORT.
4-Phenylpropylpyridine-----	NEP, RIL.
4-Phenylpyridine-N-oxide-----	RIL.
1-Phenyl-2-tetrazoline-5-thione-----	EK.
4-Phenylthiomorpholine-1,1-dioxide-----	EKT.
Phthalic acid-----	EK.
*Phthalic anhydride-----	DBC, ENJ, KPT, MON, STP, TU.
Phthalimide-----	SW.
Phthalimidoacetic acid-----	PD.
Phthalocyaninato(2-)copper-----	DUP, PHC.
Phthalocyaninebissulfonyl chloride, copper derivative-----	VPC.
Phthalocyaninetetramethanaminatocopper-----	X.
Phthalocyaninetetrasulfonyl chloride, copper derivative-----	VPC.
Phthaloyl chloride (Phthalyl chloride)-----	TLC.
PICOLINES:	
Picoline (3,4-mixture)-----	RIL.
2-Picoline (α -Picoline)-----	RIL.
3-Picoline (β -Picoline)-----	NEP, RIL.
4-Picoline (γ -Picoline)-----	RIL.
3-Picoline-N-oxide-----	RIL.
Picolinic acid-----	NEP.
Picolinonitrile (2-Cyanopyridine)-----	NEP.
2-Picolylamine-----	RIL.
3-Picolylamine-----	RIL, SDC.
2-Pipecoline-----	RIL.
Piperazine mixture, crude-----	TX.
Piperidine-----	ABB, RIL.
Polyethylbenzene (80 percent diethylbenzene)-----	ELP.
Propiophenone-----	HEX, ORT, UCC.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
8,16-Pyranthrenedione-----	PCW.
1,3,6,8-Pyrenetetrasulfonic acid-----	X.
PYRIDINE, REFINED:	
2 Pyridine, refined-----	NEP, RIL.
Pyridine hydrochloride-----	RSA.
3-Pyridinemethanol-----	RIL.
2 Pyridinethiol-1-oxide, sodium salt-----	OMC.
2 Pyridinethiol-1-oxide, zinc salt-----	OMC.
Pyridinium bromide perbromide-----	ARA.
2-(4-Pyridyl)ethylsulfonic acid-----	RIL.
2-Pyrimidinol-----	CGY.
2-Pyrrolidinone (2-Pyrrolidone)-----	GAF.
Pyrvinium pamoate-----	X.
Quinaldine-----	ACY.
QUINOLINE:	
Quinoline, 1 and 2 -----	KPT.
Quinoline, other grades-----	KPT.
8-Quinolinol-----	SOL.
8-Quinolinol zinc salt-----	SOL.
Quinone dioxime-----	LC.
Resorcinol, tech,-----	KPT.
β -Resorcylic acid, lead salt-----	KPT.
Salicylaldehyde-----	RDA.
Salicylaldehyde oxime-----	EK.
Salicylanilide-----	LEM, PCW.
*Salicylic acid, tech.-----	DOW, KLM, MON, SDH.
*Styrene (Vinylbenzene)-----	AMO, ATR, CSD, DOW, ELP, GOC, HST, MCB, MON, SHC, SKO, USS.
Sulfaguanidine-----	SAL.
5-Sulfoisophthalic acid, 1,3-dimethyl ester, sodium salt-----	DUP.
5-Sulfoisophthalic acid, sodium salt-----	PCW.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenyl sulfone)-----	CRZ.
4-Sulfofphthalic acid-----	CWN.
Terephthalic acid-----	AMO, HCF.
*Terephthalic acid, dimethyl ester-----	DUP, EKT, HCF.
Terephthaloyl chloride-----	DUP, TLC.
Terephthaloyldiacetic acid, diethyl ester-----	PCW.
Terphenyl (Phenylbiphenyl) (m-, o-, and p-isomers)-----	MON.
Tetrabromophthalic anhydride-----	TMA.
2,4,4',5'-Tetrachlorophenylsulfone-----	SDH.
Tetrachlorophthalic anhydride-----	MON.
Tetrahydrobenzyl alcohol-----	UCC.
*Tetrahydrofuran-----	BAS, DUP, GAF, QKO.

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1,2,3,4-Tetrahydronaphthalene	: UCC.
1,2,4,5-Tetramethylbenzene (Durene)	: KHI.
p-(1,1,3,3-Tetramethylbutyl)phenol	: GAF.
1,3,6,8-Tetranitro-9H-carbazole	: SDC.
Thiodiphenol	: CRZ.
2-Thiopheneacetyl chloride	: SFS.
2-Thiophenecarboxaldehyde	: EKT, TNA.
Thiophenol	: SFA.
Toluene-2,3-(and 3,4)-diamine (35/65 Mixture)	: OMC.
*Toluene-2,4-diamine (4-m-Tolylenediamine)	: OMC, RUC, UCC, X.
Toluene-2,4-(and 2,6)-diamine (80/20 Mixture)	: OMC.
Toluene-3,4-diamine	: X.
*p-Toluenesulfonic acid	: NES, TEN, UPF.
p-Toluenesulfonic acid, aniline salt	: NES.
p-Toluenesulfonic acid, copper salt	: NES.
p-Toluenesulfonyl chloride	: MON.
o-Toluic acid	: WTC.
m-Toluic acid	: WTC.
p-Toluic acid, methyl ester	: HCF.
o-Toluidine	: DUP, FST.
m-Toluidine	: DUP, FST.
p-Toluidine	: DUP, FST.
Toluidines, mixed	: FST.
o-Toluidinomethanesulfonic acid	: ATL, CGY.
1-p-Tolyldodecane	: RH.
2,2'-(m-Tolylimino)diethanol	: MIL, TCH.
2,2'-(m-Tolylimino)diethanol, diacetate ester	: SDC.
Tolyltriazole	: SW, WAY.
Toyltriazine, sodium salt	: DIX.
2,4,6-Triamino-5-nitrosopyrimidine	: SK.
N,N,N-Tribenzylamine	: HXL.
2,4,6-Tribromophenol	: GTL.
3,4',5-Tribromosalicylanilide	: PCW.
1,2,3(and 1,2,4)-Trichlorobenzene	: PPG, SCC.
1,2,4-Trichlorobenzene	: SCC.
1,1,1-Trichloro-2,2-diphenylethane	: CWN.
3-Trichloromethyl-1,2,4-thiadiazole	: OMC.
1,2,4-Trichloro-5-nitrobenzene	: PCW.
Trichlorophenylsilane	: DCC.
α,α,α -Trichlorotoluene (Benzotrichloride)	: HK, VEL.
2,3,6-Trichlorotoluene	: OMC.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	: DGC.

III -- CYCLIC INTERMEDIATES

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

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Tri(dimethylaminomethyl)phenol-----	PEL.
2-(Trifluoromethyl)phenothiazine-----	SK.
α,α,α -Trifluoro-m-toluidine-----	OMC.
Trifluorodiphenylamine-----	SK.
2,4,3'-Trihydroxydiphenyl-----	PCW.
Trimellitic trichloride-----	TLC.
1,2,4-Trimethylbenzene (Pseudocumene)-----	KHI.
2,3,3-Trimethyl-3H-indole-----	VPC.
1,3,3-Trimethyl- δ^2 , α -indolineacetaldehyde-----	VPC.
1,3,3-Trimethyl-2-methyleneindoline-----	VPC.
Trimethylphenylammonium chloride-----	X.
Triphenylmethane-----	EK.
Triphenylphosphine-----	X.
Triphenylsulfonium chloride-----	SOL.
Triphenylsulfonium hexafluorophosphate-----	SOL.
α,α',α'' -Tris(dimethylamino)mesitol-----	RH.
Tris(2-methyl-1-aziridinyl)phosphine oxide-----	ARS.
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J-Acid urea)-----	CGY.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)-----	GIV.
Vinylcyclohexane-----	DUP.
Vinylcyclohexene monoxide-----	UCC.
2-Vinylpyridine-----	RIL.
4-Vinylpyridine-----	RIL.
*o-Xylene (90-100% of o-xylene isomer)-----	ATR, DUP, ENJ, KHI, PPR, SHC, TOC.
m-Xylene (90-100% of m-xylene isomer)-----	AMO.
*p-Xylene (90-100% of p-xylene isomer)-----	AMO, ATR, ENJ, KHI, PPX, SOC, STX, TOC.
2,4-Xylenesulfonic acid-----	UPF.
2,5-Xylenesulfonic acid-----	NES.
2,6-Xylenol-----	GE.
3,5-Xylenol-----	FER.
XYLIDINES:	
2,4-Xylidine (m-4-Xylidine)-----	DUP.
2,6-Xylidine-----	TNA.
Xylidine, original mixture-----	DUP.
Cyclic intermediates, all other-----	ACY, ALD, ANG, ARA, CGY, DAZ, DUP, FER, HCF, HEX, HK, HST, HXL, LC, MCK, MIL, MRT, NES, NOD, OMC, PAH, PCW, PD, PFZ, REG, RIL, RSA, SDC, SDW, SOL, STC, SW, TCH, TNA, UCC, UPJ, UPJ, UPJ, VPC, WTC, X, X, X, X, X, X.

SECTION III -- CYCLIC INTERMEDIATES

49

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1984

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of cyclic intermediates to the U.S. International Trade Commission for 1984 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	FST :	First Chemical Corp.
ACY :	American Cyanamid Co.	GAF :	GAF Corp., Chemical Group
ACS :	Allied Corp., Chemical Sector	GE :	General Electric Co.
AIC :	Chemsampco, Inc., DBR, Albany	GIV :	Givaudan Corp.
:	International Corp., Chemical Div.	GLY :	Glyco, Inc.
ALD :	Aldrich Chemical Co., Inc.	GNW :	Greenwood Chemical Co.
ALL :	Alliance Chemical, Inc.	GOC :	Gulf Oil Corp., Gulf Oil Products Co.
AMB :	American Bio-Synthetics Corp.	GP :	Georgia-Pacific Corp.:
AMO :	Standard Oil Co. (Indiana)	:	Houston Div.
ANG :	Angus Chemical Co.	:	Plaquemine Div.
ARA :	Syntex Chemicals, Inc.	GRS :	Champlin Petroleum Co.
ARK :	Armstrong World Industries, Inc.	GTL :	Great Lakes Chemical Corp.
ARS :	Arsynco, Inc.	GYR :	Goodyear Tire & Rubber Co.
ARZ :	Arizona Chemical Co.	:	:
ASH :	Ashland Oil, Inc., Ashland Petroleum Co.	HCF :	Hercofina
ATL :	Atlantic Industries, Inc.	HEX :	Hexagon Laboratories, Inc.
ATR :	Atlantic Richfield Co., Arco Chemical Co.	HK :	Occidental Chemical Corp., Industrial Specialty
:	:	:	Chemical Div.
BAS :	BASF Wyandotte Corp.	HML :	Hummel Chemical Co.
BCC :	Buffalo Color Corp.	HPC :	Hercules, Inc.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical	HST :	American Hoechst Corp.:
:	Group	:	Petrochemicals/Plastics Group
BJL :	American Burdick & Jackson	:	Specialty Products Group, Rhode Island Works
BKM :	Buckman Laboratories, Inc.	HKL :	Hexcel Corp., Hexcel Chemical Products
BRD :	Lonza, Inc.	:	:
BRS :	Bristol-Myers Co.	ICI :	ICI Americas, Inc., Chemicals Div.
BUC :	Synalloy Corp., Blackman-Uhler Chemical Div.	:	:
:	:	KF :	Kay-Fries, Inc., Chemical Div., Dynamit Nobel
CCW :	Morton-Thiokol, Inc., Carstab Div.	:	of America, Inc.
CGY :	Ciba-Geigy Corp.	KHI :	Koch Refining Co.
CHF :	Kincaid Enterprises, Inc.	KLM :	Kalama Chemical, Inc.
CHT :	Chattem, Inc.	KPT :	Koppers Co., Inc.
CLK :	Clark Oil & Refining Corp.	:	:
CNP :	Nipro, Inc.	LAK :	Bofors Nobel, Inc.
COS :	Cosan Chemical Corp.	LC :	Lord Corp., Chemical Products Group
CPS :	CPS Chemical Co., Inc.	LEM :	Napp Chemicals, Inc.
CRP :	Corpus Christi Petrochemical Corp.	LIL :	Eli Lilly & Co.
CRZ :	Crown Zellenback Corp., Chemical Products	:	:
:	Div.	MAL :	Mallinckrodt, Inc.
CSD :	Cosden Oil & Chemical Co.	MCB :	Borg-Warner Corp., Borg-Warner Chemicals
CWN :	Upjohn Co., Fine Chemical Div.	MCK :	MacKenzie Chemical Works, Inc.
CXI :	Chemical Exchange Industries, Inc.	MER :	Merichem Co.
CYH :	Cychem, Inc.	MIL :	Milliken & Co., Milliken Chemical Co.
:	:	MLC :	Melamine Chemicals, Inc.
DAZ :	Diaz Chemical Corp.	MOB :	Mobay Chemical Co., Pittsburgh Div.
DBC :	Badische Corp.	MON :	Monsanto Co.
DCC :	Dow Corning Corp.	MRT :	Morton-Thiokol, Inc., Morton Chemical
DGC :	Degussa Corp.	:	Div.
DIX :	Dixie Chemical Co., Inc.	NCC :	Niacet, Inc.
DKA :	Denka Chemical Corp.	NCI :	Union Carb Corp., Terpene & Aromatics Div.
DOW :	Dow Chemical Co.	NEP :	Nepera, Inc.
DUP :	E. I. duPont de Nemours & Co., Inc.	NES :	Ruetgers-Nease Chemical Co.
:	:	NOD :	Nuodex, Inc.
EK :	Eastman Kodak Co.:	NPC :	Northwest Petrochemical Corp.
EKT :	Tennessee Eastman Co. Div.	NSC :	National Starch & Chemical Corp.
ELP :	El Paso Products Co.	:	:
ENJ :	Exxon Chemical Americas	OMC :	Olin Corp.
:	:	OPC :	Orbis Products Corp.
FER :	Ferro Corp.:	ORT :	Roehr Chemicals, Inc.
:	Grant Chemical Div.	:	:
:	Ottawa Chemical Div.	PAH :	Parish Chemical Co.
:	Productol Chemical Div.	PAS :	Pennwalt Corp.
FKE :	Frank Enterprises, Inc.	PCW :	Pfister Chemical, Inc.
FMC :	FMC Corp.:	PD :	Parke-Davis Div. of Warner Lambert Co.
FMN :	Agricultural Chemical Group	:	:
FMT :	Fairmount Chemical Co., Inc.	:	:

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1984--Continued

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

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

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. Dyes are sold as pastes, powders, lumps, and solutions. Concentrations vary from 6 percent to 100 percent. The concentration, form, and purity of dye are determined largely by the use for which it is intended.

Total domestic production of dyes in 1984 amounted to 233 million pounds, or 4.8 percent less than the 244 million pounds produced in 1983 (table 1). Sales of dyes in 1984 amounted to 221 million pounds, valued at \$691 million, compared with 234 million pounds, valued at \$728 million, in 1983. In terms of quantity, sales of dyes in 1984 were 5.7 percent less than in 1983 and in terms of value, 5.1 percent less. The average unit value of sales of all dyes in 1984 was \$3.13 per pound, compared with \$3.11 per pound in 1983.

Production of four classes of dyes increased in 1984, while the remaining six major classes registered slight to moderate decreases in their production. Direct dyes increased by 10.1 percent from 27.7 million pounds in 1983 to 30.4 million pounds in 1984; solvent dyes increased by 24.0 percent to 10.9 million pounds in 1984 from 8.8 million pounds in 1983.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1984

[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		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	232,615	220,520	690,808	\$3.13
ACID DYES				
Total-----	25,111	24,039	96,203	4.00
Acid yellow dyes, total-----	4,291	4,271	11,973	2.80
Acid Yellow 17-----	144	217	997	4.60
Acid Yellow 23-----	108	88	392	4.44
Acid Yellow 49-----	342	263	736	2.80
Acid Yellow 151-----	1,596	1,589	3,220	2.03
All other-----	2,101	2,114	6,628	3.14
Acid orange dyes, total-----	6,426	6,531	16,712	2.56
Acid Orange 7-----	148	135	368	2.72
Acid Orange 10-----	77	113	457	4.05
Acid Orange 24-----	366	378	1,215	3.21
Acid Orange 156-----	4,128	3,995	10,546	2.64
All other-----	1,707	1,910	4,126	2.14
Acid red dyes, total-----	4,684	4,379	16,285	3.72
Acid Red 1-----	345	277	1,034	3.73
Acid Red 73-----	85	66	373	5.65
Acid Red 88-----	82	65	356	5.51
Acid Red 137-----	124	154	1,148	7.44
Acid Red 151-----	237	209	711	3.40
All other-----	3,811	3,608	12,663	3.51
Acid violet dyes-----	99	136	842	6.19
Acid blue dyes total-----	5,984	5,384	35,910	6.67
Acid Blue 40-----	396	407	1,547	3.80
Acid Blue 145-----	...	48	548	11.33
Acid Blue 324-----	1,605	1,137	5,932	5.22
All other-----	3,983	3,792	27,883	7.35
Acid green dyes-----	197	199	1,654	8.29
Acid brown dyes, total-----	728	682	3,313	4.86
Acid Brown 14-----	...	140	644	4.61
All other-----	...	542	2,669	4.92
Acid black dyes, total-----	2,702	2,457	9,514	3.87
Acid Black 1-----	233	232	862	3.72
Acid Black 52-----	940	802	2,646	3.30
Acid Black 102-----	...	238	906	3.80
Acid Black 172-----	103	...	...	...
All other-----	1,426	1,185	5,100	4.30
BASIC DYES (CLASSICAL AND MODIFIED)				
Total-----	12,067	11,253	64,600	5.74
Basic yellow dyes-----	2,838	2,758	9,760	3.54
Basic orange dyes, total-----	921	763	4,138	5.42
Basic Orange 2-----	264	209	610	2.92
All other-----	657	554	3,528	6.37

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1984--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
BASIC DYES (CLASSICAL AND MODIFIED)--Continued				
Basic red dyes, total-----	1,357	1,427	6,517	\$4.57
Basic Red 12-----	135	178	1,064	5.97
Basic Red 15-----	389	399	1,148	2.88
Basic Red 49-----	...	79	325	4.09
All other-----	833	771	3,980	4.57
Basic violet dyes, total-----	3,709	3,188	10,672	3.35
Basic Violet 1-----	2,263	1,838	4,055	2.21
Basic Violet 3-----	997	917	3,481	3.80
All other-----	449	433	3,136	7.23
Basic blue dyes, total-----	1,967	1,899	21,399	11.27
Basic Blue 3-----	...	404	1,529	3.78
All other-----	1,967	1,495	19,870	13.29
All other basic dyes-----	1,275	1,218	12,114	9.95
DIRECT DYES				
Total-----	30,446	25,814	75,428	2.92
Direct yellow dyes, total-----	11,591	9,512	22,818	2.40
Direct Yellow 4-----	560	581	1,843	3.17
Direct Yellow 127-----	943	816	2,316	2.84
All other-----	10,088	8,115	18,659	2.30
Direct orange dyes, total-----	1,504	1,377	3,617	2.63
Direct Orange 15-----	582	...	...	1.48
Direct Orange 102-----	356	390	1,462	3.75
All other-----	566	987	2,155	2.18
Direct red dyes, total-----	4,998	4,493	15,781	3.51
Direct Red 24-----	85	71	438	6.13
Direct Red 72-----	305	260	1,234	4.74
Direct Red 81-----	564	561	2,376	4.24
Direct Red 83-----	-	86	400	4.64
Direct Red 254-----	789	784	2,125	2.71
All other-----	3,255	2,731	9,208	3.72
Direct violet and green dyes-----	397	284	1,131	3.98
Direct blue dyes, total-----	7,237	5,939	20,910	3.52
Direct Blue 75-----	334	...	...	...
Direct Blue 80-----	255	179	689	3.85
Direct Blue 86-----	...	377	1,564	4.15
Direct Blue 199-----	582	495	2,197	4.43
Direct Blue 218-----	809	569	2,193	3.85
All other-----	5,257	4,319	14,267	3.30
Direct brown dyes-----	214	220	1,212	5.50
Direct black dyes, total-----	4,505	3,989	9,959	2.50
Direct Black 22-----	1,399	1,056	1,504	1.42
Direct Black 80-----	455	407	1,036	2.55
All other-----	2,651	2,526	7,419	2.94

See footnotes at end of table

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1984--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
DISPERSE DYES				
Total-----	29,825	26,241	108,874	\$4.15
Disperse yellow dyes-----	3,105	2,501	10,660	4.26
Disperse orange dyes, total-----	4,614	4,037	10,923	2.71
Disperse Orange 25 and 25:1-----	286	351	936	2.67
Disperse Orange 30-----	1,200	1,925	3,932	2.04
Disperse Orange 37-----	569	246	585	2.38
Disperse Orange 44 and 44:1-----	362	358	1,323	3.69
All other-----	2,197	1,157	4,147	3.59
Disperse red dyes, total-----	6,685	5,934	30,715	5.18
Disperse Red 1-----	259	259	879	3.39
Disperse Red 177-----	797	696	2,767	3.97
Disperse Red 179-----	274	181	788	4.33
All other-----	5,355	4,798	26,281	5.48
Disperse violet dyes-----	328	374	2,536	6.78
Disperse blue dyes, total-----	12,421	11,434	44,909	3.93
Disperse Blue 79-----	5,695	5,644	13,129	2.33
All other-----	6,726	5,790	31,780	5.49
Disperse black, brown and green dyes, total-----	2,672	1,961	9,131	4.66
Disperse Brown 1-----	903	762	2,738	3.59
All other-----	1,769	1,199	6,393	5.34
FIBER-REACTIVE DYES				
Total-----	7,357	6,904	48,796	7.07
FLUORESCENT BRIGHTENING AGENTS				
Total-----	57,400	63,305	80,280	1.27
FOOD, DRUG, AND COSMETIC COLORS				
Total-----	6,760	6,402	65,538	10.24
Food, Drug and Cosmetic Dyes				
Total-----	6,352	6,019	58,500	9.72
FD&C Red No. 3-----	311	357	5,202	14.57
FD&C Yellow No. 5-----	1,775	1,458	8,005	5.49
FD&C Yellow No. 6-----	1,314	1,203	6,078	5.05
All other drug and cosmetic-----	2,952	3,001	39,215	13.07

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1984--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
FOOD, DRUG, AND COSMETIC COLORS--Continued				
Drug and Cosmetic External Drug and Cosmetic Dyes				
Total-----	408	383	7,038	\$18.39
D&C Yellow No. 10-----	52	71	2,353	32.99
D&C Red No. 7-----	139	...	...	...
D&C Red No. 36-----	4	4	48	11.91
All other drug and cosmetic and external drug and cosmetic dyes-----	213	308	4,637	15.04
MORDANT DYES				
Total-----	288	329	1,749	5.32
SOLVENT DYES				
Total-----	10,884	7,459	29,722	3.98
Solvent yellow dyes-----	952	683	4,626	6.78
Solvent orange dyes-----	980	904	3,530	3.90
Solvent red dyes-----	2,614	2,137	9,642	4.51
Solvent blue dyes-----	3,149	848	5,207	6.14
All other solvent dyes-----	3,189	2,887	6,717	2.33
VAT DYES				
Total-----	37,612	33,922	86,847	2.56
Vat red dyes-----	840	466	7,162	15.35
Vat blue dyes-----	29,749	28,737	54,081	1.88
Vat green dyes-----	1,977	1,356	4,848	3.57
All other vat dyes-----	5,046	3,363	20,756	6.17
All other dyes ² -----	14,865	14,852	32,771	2.21

¹Calculated from unrounded figures.²The 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 EITHER
REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984

[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)
ACID DYES	
*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-----	: FAB.
Acid Yellow 36-----	: VPC.
Acid Yellow 40-----	: CGY, CK.
*Acid Yellow 49-----	: CK, S(E); VPC.
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 128-----	: CK.
Acid Yellow 129-----	: CGY, CK.
Acid Yellow 135-----	: ICI.
*Acid Yellow 151-----	: CGY, CK, S(E), VPC.
Acid Yellow 159-----	: CGY, CK.
Acid Yellow 174-----	: FAB.
Acid Yellow 198-----	: CK.
Acid Yellow 199-----	: ICI.
Acid Yellow 200-----	: CK.
Acid Yellow 216-----	: VPC.
Acid Yellow 219-----	: CGY, CK, S(E).
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(E).
Acid Orange 51-----	: CGY.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID ORANGE DYES--CONTINUED	
Acid Orange 60	: CGY, CK.
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(E), 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, FAB.
Acid Red 14	: ATL, BAS.
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 182	: VPC.
Acid Red 194	: CGY.
Acid Red 213	: CGY.
Acid Red 226	: BAS.
Acid Red 257	: CGY.
Acid Red 266	: CK, ICI, VPC.
Acid Red 296	: BAS.
Acid Red 299	: ATL, CK, VPC.
Acid Red 337	: CK, S(E), VPC.
Acid Red 361	: CGY, CK.
Acid Red 364	: CK.
Acid Red 384	: CK.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID RED DYES--CONTINUED	
Acid Red 392-----	VPC.
Acid Red 396-----	ICI.
Acid red dyes, all other-----	ATL, CGY, CK, EKT.
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-----	ATL, CGY, CK, ICI, VPC.
Acid Blue 27-----	ATL.
*Acid Blue 40-----	CK, S(E), VPC.
Acid Blue 41-----	CK.
Acid Blue 45-----	BAS, CGY.
Acid Blue 80-----	CGY.
Acid Blue 104-----	ATL, BAS.
Acid Blue 113-----	CK.
*Acid Blue 145-----	ATL, CK, VPC.
Acid Blue 158, 158:1, and 158:2-----	CGY.
Acid Blue 277-----	ATL, CGY.
Acid Blue 283-----	S(E).
Acid Blue 288-----	S(E).
Acid Blue 298-----	CK.
*Acid Blue 324-----	CK, S(E), VPC.
Acid Blue 330-----	ATL.
Acid Blue 336-----	ICI.
Acid blue dyes, all other-----	BAS, CGY, CK, 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(E).
Acid Brown 45-----	CGY.
Acid Brown 50-----	BAS.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES—CONTINUED	
*ACID BROWN DYES—CONTINUED	
Acid Brown 97	FAB.
Acid Brown 98	CGY, CK.
Acid Brown 147	CK.
Acid Brown 160	BAS.
Acid Brown 161	BAS.
Acid Brown 165	BAS.
Acid Brown 227	BAS.
Acid Brown 239	CK.
Acid Brown 264	BAS.
Acid brown dyes, all other	BAS, CK.
*ACID BLACK DYES:	
*Acid Black 1	ATL, BAS, CGY, CK.
*Acid Black 52	CGY, CK, FAB, S(E).
Acid Black 60	CGY, CK.
Acid Black 63	BAS.
Acid Black 92	FAB.
*Acid Black 102	X.
Acid Black 107	CGY, CK, VPC.
*Acid Black 172	CGY, ICI, VPC.
Acid Black 194	BAS.
Acid black dyes, all other	CK, VPC.
AZOIC DYES AND COMPONENTS	
AZOIC COMPOSITIONS:	
AZOIC YELLOW COMPOSITIONS:	
Azoic Yellow 1	BUC.
AZOIC ORANGE COMPOSITIONS:	
Azoic Orange 3	BUC.
Azoic orange compositions, all other	BUC.
AZOIC RED COMPOSITIONS:	
Azoic Red 1	BUC.
Azoic Red 2	BUC.
Azoic Red 6	BUC.
Azoic red compositions, all other	ALL, BUC.
AZOIC VIOLET COMPOSITIONS:	
Azoic Violet 1	BUC.
Azoic violet compositions, all other	BUC.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AZOIC DYES AND COMPONENTS--CONTINUED	
AZOIC COMPOSITIONS--CONTINUED	
AZOIC BLUE COMPOSITIONS:	
Azoic Blue 3-----	BUC.
AZOIC BROWN COMPOSITIONS:	
Azoic Brown 7-----	BUC.
Azoic Brown 9-----	BUC.
Azoic brown compositions, all other-----	BUC.
AZOIC BLACK COMPOSITIONS:	
Azoic Black 4-----	BUC.
Azoic black compositions, all other-----	BUC.
AZOIC DIAZO COMPONENTS, BASES:	
Azoic Diazo Component 4, base-----	ALL.
Azoic Diazo Component 13, base-----	ALL, BUC.
Azoic Diazo Component 14, base-----	ALL.
Azoic Diazo Component 32, base-----	ALL.
Azoic Diazo Component 34, base-----	ALL.
AZOIC DIAZO COMPONENTS, SALTS:	
Azoic Diazo Component 1, salt-----	ALL, BUC.
Azoic Diazo Component 3, salt-----	ALL, BUC.
Azoic Diazo Component 5, salt-----	ALL, BUC.
Azoic Diazo Component 8, salt-----	ALL, BUC.
Azoic Diazo Component 9, salt-----	ALL, BUC.
Azoic Diazo Component 10, salt-----	ALL, BUC.
Azoic Diazo Component 11, salt-----	ALL.
Azoic Diazo Component 12, salt-----	ALL, BUC.
Azoic Diazo Component 13, salt-----	ALL, BUC.
Azoic Diazo Component 14, salt-----	ALL.
Azoic Diazo Component 20, salt-----	ATL.
Azoic Diazo Component 32, salt-----	ALL, ATL.
Azoic Diazo Component 34, salt-----	ALL.
Azoic Diazo Component 35, salt-----	ALL.
Azoic Diazo Component 42, salt-----	ALL.
Azoic Diazo Component 48, salt-----	ATL.
Azoic Diazo Component 49, salt-----	ALL, BUC.
Azoic diazo components, salt, all other-----	ALL.
AZOIC COUPLING COMPONENTS:	
Azoic Coupling Component 3-----	PCW.
Azoic Coupling Component 7-----	PCW.
Azoic Coupling Component 12-----	PCW.
Azoic Coupling Component 14-----	PCW.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AZOIC DYES AND COMPONENTS--CONTINUED	
AZOIC COUPLING COMPONENTS--CONTINUED	
Azoic Coupling Component 20-----	PCW.
Azoic Coupling Component 21-----	PCW.
Azoic Coupling Component 29-----	PCW.
Azoic Coupling Component 34-----	PCW.
Azoic Coupling Component 43-----	ALL.
BASIC DYES (CLASSICAL AND MODIFIED)	
BASIC YELLOW DYES:	
Basic Yellow 2-----	ACY.
Basic Yellow 11-----	ATL, CK, VPC.
Basic Yellow 13-----	ATL, VPC.
Basic Yellow 15-----	CK.
Basic Yellow 21-----	VPC.
Basic Yellow 25-----	BAS.
Basic Yellow 28-----	BAS.
Basic Yellow 29-----	BAS, VPC.
Basic Yellow 37-----	ACY.
Basic Yellow 49-----	BAS.
Basic Yellow 53-----	CK.
Basic Yellow 58-----	VPC.
Basic Yellow 65-----	BAS.
Basic Yellow 78-----	ACY.
Basic Yellow 79-----	BAS, CK.
Basic Yellow 81-----	BAS.
Basic Yellow 83-----	CK.
Basic Yellow 96-----	BAS.
Basic yellow dyes, all other-----	BAS, VPC, X.
Basic yellow dyes, all other, modified-----	CGY, CK.
*BASIC ORANGE DYES:	
Basic Orange 1-----	BAS, PSC.
*Basic Orange 2-----	ATL, BAS, CGY, CK, PSC.
Basic Orange 21-----	ATL, VPC.
Basic orange dyes, all other-----	VPC, X.
*BASIC RED DYES:	
*Basic Red 12-----	ACY, ATL, VPC.
Basic Red 14-----	BAS, VPC.
*Basic Red 15-----	ATL, BAS, CK.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)--CONTINUED	
*BASIC RED--CONTINUED	
Basic Red 17	: CK.
Basic Red 18	: ATL, VPC.
Basic Red 22	: CGY.
Basic Red 23	: VPC.
Basic Red 29	: BAS.
Basic Red 46	: CGY.
*Basic Red 49	: BAS, CGY, CK, VPC.
Basic Red 51	: BAS.
Basic Red 54	: BAS.
Basic Red 73	: CK.
Basic Red 104	: CK.
Basic red dyes, all other	: X.
Basic red dyes, all other, modified	: CK.
*BASIC VIOLET DYES:	
*Basic Violet 1	: ACY, BAS, BCG, DSC.
*Basic Violet 3	: ACY, BAS, CK, DSC.
Basic Violet 4	: DSC.
Basic Violet 10	: ACY, BAS.
Basic Violet 16	: BAS, VPC.
Basic Violet 35	: BAS.
*BASIC BLUE DYES:	
Basic Blue 1	: SHC, VPC.
Basic Blue 2	: DSC.
*Basic Blue 3	: BAS, CGY, CK, VPC.
Basic Blue 6	: BAS.
Basic Blue 7	: DSC, SDH.
Basic Blue 21	: CK.
Basic Blue 26	: DSC.
Basic Blue 41	: BAS, CGY, VPC.
Basic Blue 54	: BAS.
Basic Blue 60	: BAS.
Basic Blue 77	: CK.
Basic Blue 94 and 94:1	: CK.
Basic Blue 140	: VPC.
Basic blue dyes, all other	: VPC, X.
Basic blue dyes, all other, modified	: CK.
BASIC GREEN DYES:	
Basic Green 1	: DSC.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)--CONTINUED	
BASIC GREEN--CONTINUED	
Basic Green 4	ACY, BAS, DSC.
Basic green dyes, all other	X.
BASIC BROWN DYES:	
Basic Brown 1	CGY, PSC.
Basic Brown 4	CGY, PSC.
Basic Brown 94:1	CK.
Basic brown dyes, all other	BAS.
BASIC BLACK DYES:	
Basic black dyes, all other	VPC, X.
Basic black dyes, all other, modified	BAS.
DIRECT DYES	
*DIRECT YELLOW DYES:	
*Direct Yellow 4	ATL, BAS, CGY, CK, VPC.
Direct Yellow 5	ACY, BAS.
Direct Yellow 6	BAS, VPC.
Direct Yellow 11	BAS, VPC.
Direct Yellow 12	ATL, CK.
Direct Yellow 28	ATL, CK.
Direct Yellow 34	CK, S(E).
Direct Yellow 39	CK.
Direct Yellow 44	CGY, CK.
Direct Yellow 51	FAB.
Direct Yellow 84	BAS.
Direct Yellow 103	ATL.
Direct Yellow 106	CGY, CK.
Direct Yellow 107	CGY, CK.
Direct Yellow 118	CGY, CK.
Direct Yellow 119	VPC.
*Direct Yellow 127	BAS, CGY, CK, VPC.
Direct Yellow 131	VPC.
Direct Yellow 132	S(E).
Direct Yellow 137	VPC.
Direct Yellow 147	BAS, VPC.
Direct Yellow 148	S(E).
Direct Yellow 150	S(E).
Direct yellow dyes, all other	ATL, BAS, CK.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES--CONTINUED	
*DIRECT ORANGE DYES:	
Direct Orange 6-----	ATL.
*Direct Orange 15-----	BAS, CGY, VPC.
Direct Orange 26-----	CK.
Direct Orange 29-----	CGY.
Direct Orange 34-----	ATL, CK, FAB.
Direct Orange 39-----	CK, FAB.
Direct Orange 61-----	CK.
Direct Orange 72-----	CK, FAB.
Direct Orange 80-----	ATL.
*Direct Orange 102-----	BAS, CGY, FAB, VPC.
Direct Orange 105-----	CK.
Direct Orange 118-----	CGY, S(E).
Direct orange dyes, all other-----	BAS, CK.
*DIRECT RED DYES:	
Direct Red 2-----	ATL, FAB.
Direct Red 9-----	CK.
Direct Red 16-----	ATL, CGY, CK.
Direct Red 23-----	ATL, BAS, CK.
*Direct Red 24-----	ATL, CGY, CK, FAB.
Direct Red 26-----	ATL.
Direct Red 28-----	FAB.
Direct Red 31-----	ATL.
Direct Red 39-----	ATL, CK.
*Direct Red 72-----	ATL, BAS, CGY, CK.
Direct Red 73-----	ATL.
*Direct Red 80-----	ATL, CGY, CK.
*Direct Red 81-----	ATL, CGY, CK, FAB, LVR, VPC.
*Direct Red 83-----	ATL, CGY, CK, FAB.
Direct Red 89-----	CK.
Direct Red 153-----	ATL.
Direct Red 236-----	BAS, VPC.
Direct Red 238-----	VPC.
Direct Red 239-----	CGY, S(E).
*Direct Red 254-----	BAS, VPC.
Direct red dyes, all other-----	ACY, ATL, BAS, CK.
DIRECT VIOLET DYES:	
Direct Violet 9-----	CGY.
Direct Violet 66-----	ATL.
Direct Violet 99-----	VPC.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES—CONTINUED	
*DIRECT BLUE DYES:	
Direct Blue 1	: ATL.
Direct Blue 2	: FAB.
Direct Blue 8	: ATL.
Direct Blue 15	: ATL, S(E), VPC.
Direct Blue 25	: CK.
Direct Blue 71	: CK.
*Direct Blue 75	: CGY, CK, S(E).
Direct Blue 76	: BAS, CK.
*Direct Blue 80	: ATL, CGY, CK, FAB.
*Direct Blue 86	: ATL, BAS, CGY, CK, VPC.
Direct Blue 91	: CGY.
Direct Blue 98	: ATL, CK, FAB.
Direct Blue 100	: 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.
Direct Blue 191	: CK.
*Direct Blue 199	: BAS, CGY, VPC.
*Direct Blue 218	: CGY, CK, FAB, S(E), VPC.
*Direct Blue 262	: S(E).
Direct Blue 267	: S(E).
Direct Blue 269	: VPC.
Direct Blue 279	: VPC.
Direct Blue 280	: ATL.
Direct Blue 283	: ATL.
Direct Blue 285	: ATL.
Direct Blue 286	: ATL.
Direct blue dyes, all other	: ATL, BAS, CGY, CK, FAB, VPC.
DIRECT GREEN DYES:	
Direct Green 1	: FAB.
Direct Green 6	: FAB.
Direct Green 92	: ATL.
Direct green dyes, all other	: CK, FAB.
DIRECT BROWN DYES:	
Direct Brown 2	: FAB.
Direct Brown 6	: FAB.
Direct Brown 31	: FAB.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES—CONTINUED	
DIRECT BROWN DYES—CONTINUED	
Direct Brown 44	FAB.
Direct Brown 74	FAB.
Direct Brown 95	CK.
Direct Brown 154	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	CK, FAB.
*DIRECT BLACK DYES:	
Direct Black 4	FAB.
Direct Black 19	CGY.
*Direct Black 22	ATL, CGY, CK, VPC.
*Direct Black 80	ATL, CK, FAB.
Direct Black 165	ATL.
Direct Black 170	ATL.
Direct black dyes, all other	ATL, CK, FAB, VPC.
DISPERSE DYES	
DISPERSE YELLOW DYES:	
Disperse Yellow 3	CGY, CK.
Disperse Yellow 23	CGY, CK, S(E).
Disperse Yellow 34	EKT.
Disperse Yellow 42	CGY, SDC.
Disperse Yellow 54	BAS, CGY, VPC.
Disperse Yellow 58	VPC.
Disperse Yellow 64	BAS, CGY.
Disperse Yellow 67	CGY.
Disperse Yellow 77	VPC.
Disperse Yellow 86	EKT.
Disperse Yellow 88	EKT.
Disperse Yellow 99	EKT.
Disperse Yellow 108	CK, EKT.
Disperse Yellow 114	HST.
Disperse Yellow 125	SDC.
Disperse Yellow 126	ICI.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
DISPERSE YELLOW DYES--CONTINUED	
Disperse Yellow 198	BAS.
Disperse Yellow 200	EKT.
Disperse Yellow 210	S(E).
Disperse Yellow 219	SDC.
Disperse yellow dyes, all other	BAS, CK, EKT, HST, ICI.
*DISPERSE ORANGE DYES:	
Disperse Orange 3	ATL, CK.
Disperse Orange 5	ATL.
Disperse Orange 17	ATL.
*Disperse Orange 25 and 25:1	ATL, CGY, CK, EKT, ICI, VPC.
Disperse Orange 29	ATL, CK, S(E), SDC.
*Disperse Orange 30	BUC, CGY, S(E), VPC.
*Disperse Orange 37	ATL, CK, EKT.
Disperse Orange 41	CGY, S(E).
*Disperse Orange 44 and 44:1	CGY, CK, S(E), SDC.
Disperse Orange 55	BAS.
Disperse Orange 73	BAS.
Disperse Orange 79	CGY.
Disperse Orange 88	SDC.
Disperse Orange 89	CK.
Disperse Orange 94	SDC.
Disperse Orange 129	SDC.
Disperse Orange 136	EKT.
Disperse Orange 138	EKT.
Disperse Orange 145	EKT.
Disperse orange dyes, all other	CK.
*DISPERSE RED DYES:	
*Disperse Red 1	ATL, CGY, CK, EKT.
Disperse Red 5	ATL, CGY, CK.
Disperse Red 13	ATL, BAS.
Disperse Red 15	CGY.
Disperse Red 17	ATL, CGY, CK.
Disperse Red 30	CGY, EKT.
Disperse Red 35	EKT.
Disperse Red 50	CGY, CK.
Disperse Red 55	BAS, CGY, CK, VPC.
Disperse Red 60	BAS, CGY, VPC.
Disperse Red 65	CK, EKT.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE RED DYES--CONTINUED	
Disperse Red 73-----	: CK, FAB, ICI, S(E).
Disperse Red 74-----	: S(E).
Disperse Red 82-----	: CGY, VPC.
Disperse Red 86-----	: CGY.
Disperse Red 88-----	: EKT.
Disperse Red 90-----	: VPC.
Disperse Red 91-----	: BAS.
Disperse Red 108-----	: VPC.
Disperse Red 117-----	: EKT.
Disperse Red 118-----	: BAS.
Disperse Red 128-----	: CGY.
Disperse Red 133-----	: VPC.
Disperse Red 135-----	: CGY, CK.
Disperse Red 136-----	: EKT.
Disperse Red 137-----	: EKT.
Disperse Red 153-----	: FAB, SDC.
Disperse Red 159-----	: VPC.
Disperse Red 167 and 167:1-----	: BAS, CGY, CK, S(E).
*Disperse Red 177-----	: BUC, CK, ICI, S(E), SDC, VPC.
*Disperse Red 179-----	: BAS, CGY, CK, S(E).
Disperse Red 184-----	: HST.
Disperse Red 194-----	: CK.
Disperse Red 195-----	: SDC.
Disperse Red 263-----	: BAS, SDC.
Disperse Red 273-----	: SDC.
Disperse Red 274-----	: SDC.
Disperse Red 278-----	: ICI.
Disperse Red 305-----	: EKT.
Disperse Red 307-----	: EKT.
Disperse Red 309-----	: EKT.
Disperse Red 311-----	: ICI.
Disperse Red 313-----	: SDC.
Disperse Red 316-----	: SDC.
Disperse Red 319-----	: CK.
Disperse Red 325-----	: CGY, CK.
Disperse Red 333-----	: SDC.
Disperse Red 338-----	: EKT.
Disperse Red 339-----	: EKT.

IV -- DYES

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE RED DYES--CONTINUED	
Disperse Red 340-----	EKT.
Disperse Red 341-----	EKT.
Disperse Red 719-----	CK.
Disperse red dyes, all other-----	BAS, BUC, CK, EKT.
DISPERSE VIOLET DYES:	
Disperse Violet 1-----	CK.
Disperse Violet 17-----	VPC.
Disperse Violet 26-----	VPC.
Disperse Violet 28-----	CGY, CK, VPC.
Disperse Violet 33-----	ICI, SDC.
Disperse Violet 36-----	SDC.
Disperse Violet 40-----	VPC.
Disperse Violet 48-----	HST.
Disperse Violet 60-----	SDC.
Disperse Violet 81-----	SDC.
Disperse Violet 91-----	CK.
*DISPERSE BLUE DYES:	
Disperse Blue 3-----	CGY, CK, EKT, FAB.
Disperse Blue 27-----	EKT.
Disperse Blue 55-----	CGY.
Disperse Blue 56-----	CK, VPC.
Disperse Blue 60-----	BAS, CGY, VPC.
Disperse Blue 62-----	EKT.
Disperse Blue 64-----	CGY, EKT.
Disperse Blue 72-----	BAS.
Disperse Blue 73-----	S(E).
Disperse Blue 77-----	EKT.
*Disperse Blue 79-----	ATL, BAS, BUC, CGY, EKT, HST, ICI, S(E), VPC.
Disperse Blue 81-----	VPC.
Disperse Blue 95-----	HST.
Disperse Blue 102-----	CK, EKT.
Disperse Blue 112-----	EKT.
Disperse Blue 118-----	EKT.
Disperse Blue 122-----	ICI.
Disperse Blue 148-----	BAS.
Disperse Blue 165-----	CGY, HST, VPC.
Disperse Blue 177-----	SDC.
Disperse Blue 183-----	S(E).

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE BLUE DYES--CONTINUED	
Disperse Blue 200-----	ICI.
Disperse Blue 281-----	CGY, SDC.
Disperse Blue 284-----	ICI.
Disperse Blue 291-----	SDC.
Disperse Blue 333-----	HST.
Disperse Blue 337-----	EKT.
Disperse Blue 338-----	EKT.
Disperse blue dyes, all other-----	BAS, BUC, CK, EKT, HST, ICI, SDC.
DISPERSE GREEN DYES:	
Disperse Green 9-----	ICI.
Disperse green dyes, all other-----	CK.
*DISPERSE BROWN DYES:	
*Disperse Brown 1-----	ATL, BUC, CGY, CK, HST, ICI, SDC.
Disperse Brown 2-----	SDC.
Disperse Brown 10-----	SDC.
Disperse Brown 18-----	SDC.
Disperse Brown 22-----	EKT.
Disperse brown dyes, all other-----	CK, EKT, ICI.
DISPERSE BLACK DYES:	
Disperse Black 9-----	ATL, CGY, EKT.
Disperse Black 33-----	CGY.
Disperse black dyes, all other-----	BAS, CK, VPC.
FIBER-REACTIVE DYES	
REACTIVE YELLOW DYES:	
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.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES--CONTINUED	
REACTIVE ORANGE DYES:	
Reactive Orange 1-----	FAB, ICI.
Reactive Orange 4-----	ICI.
Reactive Orange 12-----	ICI.
Reactive Orange 13-----	ICI.
Reactive Orange 14-----	ICI.
Reactive Orange 16-----	HST.
Reactive Orange 20-----	CK.
Reactive Orange 70-----	CGY.
Reactive Orange 78-----	HST.
Reactive Orange 84-----	ICI.
Reactive Orange 86-----	ICI.
Reactive orange dyes, all other-----	HST.
REACTIVE RED DYES:	
Reactive Red 2-----	CK, ICI.
Reactive Red 11-----	CK, ICI.
Reactive Red 29-----	ICI.
Reactive Red 31-----	ICI.
Reactive Red 33-----	ICI.
Reactive Red 43-----	CK.
Reactive Red 49-----	HST.
Reactive Red 94-----	HST.
Reactive Red 105-----	HST.
Reactive Red 106-----	HST.
Reactive Red 108-----	HST.
Reactive Red 120-----	CGY, CK, ICI.
Reactive Red 141-----	ICI.
Reactive Red 180-----	HST.
Reactive red dyes, all other-----	CK, ICI, VPC.
REACTIVE VIOLET DYES:	
Reactive Violet 5-----	HST.
Reactive violet dyes, all other-----	HST.
REACTIVE BLUE DYES:	
Reactive Blue 3-----	ICI.
Reactive Blue 4-----	ICI.
Reactive Blue 5-----	ICI.
Reactive Blue 7-----	CGY.
Reactive Blue 13-----	ICI.
Reactive Blue 19-----	HST.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES—CONTINUED	
REACTIVE BLUE DYES—CONTINUED	
Reactive Blue 21	HST.
Reactive Blue 38	HST.
Reactive Blue 71	ICI.
Reactive Blue 89	HST, ICI.
Reactive Blue 137	CGY.
Reactive Blue 173	ICI.
Reactive Blue 174	ICI.
Reactive Blue 199	ICI.
Reactive blue dyes, all other	CK, HST, ICI, VPC.
REACTIVE GREEN DYES:	
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	HST.
Reactive Black 9	ICI.
Reactive black dyes, all other	HST.
FLUORESCENT BRIGHTENERS	
Fluorescent Brightener 22	CGY.
Fluorescent Brightener 24	CGY.
Fluorescent Brightener 28	CGY, SDH.
Fluorescent Brightener 49	CGY, S(E).
Fluorescent Brightener 52	S(E).
Fluorescent Brightener 61	ACY, CCW.
Fluorescent Brightener 71	CGY.
Fluorescent Brightener 102	CGY.
Fluorescent Brightener 126	SDH.
Fluorescent Brightener 128	SDH.
Fluorescent Brightener 134	CGY.
Fluorescent Brightener 191	VPC.
Fluorescent Brightener 200	VPC.
Fluorescent brighteners, all other	ACY, BAS, CGY, CK, S(E), VPC, X.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FOOD, DRUG, AND COSMETIC COLORS	
*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-----	KON, 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, WJ.
*Food, Drug, and Cosmetic Yellow 5-----	CK, KON, MRX, STG, WJ.
*Food, Drug, and Cosmetic Yellow 6-----	CK, KON, STG, WJ.
*DRUG AND COSMETIC DYES:	
Drug and Cosmetic Green 5-----	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.
Drug and Cosmetic Orange 17-----	SNA.
Drug and Cosmetic Red 3-----	KON.
Drug and Cosmetic Red 6-----	KON, MRX, SDH, SNA.
*Drug and Cosmetic Red 7-----	KON, MRX, SDH, SNA.
Drug and Cosmetic Red 8-----	KON, SNA.
Drug and Cosmetic Red 9-----	KON, MRX, SNA.
Drug and Cosmetic Red 17-----	KON.
Drug and Cosmetic Red 19-----	KON, SNA.
Drug and Cosmetic Red 21-----	SNA.
Drug and Cosmetic Red 22-----	SDH.
Drug and Cosmetic Red 27-----	SDH.
Drug and Cosmetic Red 28-----	SDH.
Drug and Cosmetic Red 30-----	KON.
Drug and Cosmetic Red 33-----	CK, KON.
Drug and Cosmetic Red 34-----	KON, SNA.
*Drug and Cosmetic Red 36-----	KON, SDH, SNA.
Drug and Cosmetic Yellow 5-----	KON.
Drug and Cosmetic Yellow 6-----	KON.
Drug and Cosmetic Yellow 8-----	KON, SDH.
Drug and Cosmetic Yellow 10-----	CK, KON, SDH, WJ.
Drug and Cosmetic Yellow 11-----	KON.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FOOD, DRUG, AND COSMETIC COLORS—CONTINUED	
DRUG AND COSMETIC DYES, EXTERNAL:	
External Drug and Cosmetic Orange 3	CK, KON.
External Drug and Cosmetic Yellow 7	KON.
MORDANT DYES	
MORDANT YELLOW DYES:	
Mordant Yellow 8	FAB.
Mordant Yellow 16	FAB.
Mordant Yellow 20	FAB.
MORDANT ORANGE DYES:	
Mordant Orange 1	FAB.
Mordant Orange 6	ATL, FAB.
Mordant Orange 8	FAB.
Mordant orange dyes, all other	FAB.
MORDANT RED DYES:	
Mordant Red 7	ATL.
Mordant Red 11	SDH, VPC.
MORDANT BROWN DYES:	
Mordant Brown 1	ATL, FAB.
Mordant Brown 18	FAB.
Mordant Brown 40	FAB.
Mordant Brown 70	FAB.
MORDANT BLACK DYES:	
Mordant Black 9	ATL.
Mordant Black 11	CGY.
SOLVENT DYES	
SOLVENT YELLOW DYES:	
Solvent Yellow 3	PSC.
Solvent Yellow 13	BAS.
Solvent Yellow 14	ATL, PSC.
Solvent Yellow 16	PSC.
Solvent Yellow 30	ACY.
Solvent Yellow 33	ACY, CIC.
Solvent Yellow 40	CK.
Solvent Yellow 42	ATL, CK.
Solvent Yellow 43	DGO.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES--CONTINUED	
SOLVENT YELLOW DYES--CONTINUED	
Solvent Yellow 44	DGO.
Solvent Yellow 56	PSC.
Solvent Yellow 72	PSC.
Solvent Yellow 88	CK.
Solvent Yellow 94	SDH.
Solvent Yellow 107	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 dyes, all other	CIC, DGO, MIL.
SOLVENT ORANGE DYES:	
Solvent Orange 2	PSC.
Solvent Orange 3	ATL, PSC.
Solvent Orange 7	ATL, PSC.
Solvent Orange 20	BAS.
Solvent Orange 23	ATL, CK.
Solvent Orange 25	MRT.
Solvent Orange 31	PSC.
Solvent Orange 60	CIC.
Solvent Orange 73	MRT.
Solvent Orange 74	MRT.
Solvent Orange 75	MRT.
Solvent Orange 76	MRT.
Solvent Orange 77	MRT.
Solvent orange dyes, all other	MRT, PSC.
SOLVENT RED DYES:	
Solvent Red 1	PSC.
Solvent Red 5	ATL.
Solvent Red 23	PSC.
Solvent Red 24	ATL, PSC.
Solvent Red 26	PSC.
Solvent Red 27	PSC.
Solvent Red 42	SDH.
Solvent Red 49	ACY.
Solvent Red 68	ATL, CK, MRT.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES--CONTINUED	
SOLVENT RED DYES--CONTINUED	
Solvent Red 74-----	ATL.
Solvent Red 125-----	CK.
Solvent Red 164-----	MRT.
Solvent Red 165-----	MRT.
Solvent Red 166-----	MRT.
Solvent Red 168-----	MRT.
Solvent Red 169-----	MRT.
Solvent Red 172-----	MRT.
Solvent Red 174-----	MRT.
Solvent Red 175-----	MRT.
Solvent Red 207-----	MRT.
Solvent Red 208-----	MRT.
Solvent Red 209-----	MRT.
Solvent Red 210-----	MRT.
Solvent red dyes, all other-----	CIC, CK, MIL, MRT.
SOLVENT VIOLET DYES:	
Solvent Violet 8-----	DSC.
Solvent Violet 9-----	DSC.
Solvent Violet 13-----	CK, MRT.
Solvent Violet 14-----	MRT.
Solvent Violet 38-----	MRT.
SOLVENT BLUE DYES:	
Solvent Blue 3-----	SW.
Solvent Blue 4-----	DSC.
Solvent Blue 5-----	DSC.
Solvent Blue 23-----	BAS.
Solvent Blue 35-----	MRT.
Solvent Blue 36-----	MRT.
Solvent Blue 38-----	SDH, TNI.
Solvent Blue 43-----	ATL.
Solvent Blue 56-----	VPC.
Solvent Blue 58-----	MRT.
Solvent Blue 59-----	VPC.
Solvent Blue 98-----	MRT.
Solvent Blue 99-----	MRT.
Solvent Blue 100-----	MRT.
Solvent Blue 101-----	MRT.
Solvent Blue 102-----	MRT.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES—CONTINUED	
SOLVENT BLUE DYES—CONTINUED	
Solvent Blue 128	MRT.
Solvent Blue 129	MRT.
Solvent blue dyes, all other	CK, MIL.
SOLVENT GREEN DYES:	
Solvent Green 1	DSC.
Solvent Green 3	CGY, MRT.
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 26	ATL, FAB.
Solvent Black 46	MRT.
Solvent Black 48	MRT.
Solvent Black 49	MRT.
Solvent black dyes, all other	PSC.
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:	
Leuco Sulfur Orange 1	SDC.
SULFUR RED DYES:	
Leuco Sulfur Red 10	SDC.
Leuco Sulfur Red 14	SDC.
SULFUR BLUE DYES:	
Leuco Sulfur Blue 7	SDC.
Leuco Sulfur Blue 13	SDC.
SULFUR GREEN DYES:	
Leuco Sulfur Green 2	SDC.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SULFUR DYES--CONTINUED	
SULFUR GREEN DYES--CONTINUED	
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.
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 96-----	SDC.
Leuco Sulfur Brown 95-----	SDC.
Sulfur Brown 96-----	SDC.
Sulfur brown dyes, all other-----	SDC.
SULFUR BLACK DYES:	
Leuco Sulfur Black 1-----	SDC.
Leuco Sulfur Black 2-----	SDC.
Leuco Sulfur Black 11, 11:1-----	SDC.
Leuco Sulfur Black 18-----	SDC.
Solubilized Sulfur Black 1-----	SDC.
Sulfur Black 1-----	SDC.
Sulfur Black 2-----	SDC.
Sulfur Black 11, 11:1-----	SDC.
VAT DYES	
VAT YELLOW DYES:	
Vat Yellow 2, 8-1/2%-----	CGY, VPC.
Vat Yellow 22, 10%-----	VPC.
Vat Yellow 33, 15%-----	CGY.
Vat Yellow 51-----	SDC.
VAT ORANGE DYES:	
Vat Orange 1, 20%-----	CGY, VPC.
Vat Orange 2, 12%-----	BAS, CGY.
Vat Orange 7, 11%-----	HST.
Vat Orange 9, 12%-----	CGY.
Vat Orange 15, 10%-----	VPC.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES--CONTINUED	
VAT RED DYES:	
Vat Red 10, 18%	BAS.
Vat Red 13, 11%	CGY.
Vat Red 14, 10%	HST.
Vat Red 15, 10%	CGY, HST.
Vat Red 29, 18%	SDC.
Vat Red 32, 20%	BAS, VPC.
VAT VIOLET DYES:	
Vat Violet 1, 11%	CGY, VPC.
Vat Violet 3, 15%	HST.
Vat Violet 13, 6-1/4%	BAS, CGY.
Vat Violet 21	VPC.
VAT BLUE DYES:	
Vat Blue 1, 20%	BAS, BCC.
Vat Blue 6, 8-1/3%	BAS, CGY.
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 74	SDC.
VAT GREEN DYES:	
Vat Green 1, 6%	CGY.
Vat Green 3, 10%	BAS, CGY.
Vat Green 7	SDC.
Vat Green 9, 12-1/2%	CGY.
Vat Green 32	VPC.
Vat green dyes, all other	CK, HST.
VAT BROWN DYES:	
Vat Brown 1, 11%	CGY, VPC.
Vat Brown 3, 11%	CGY, VPC.
Vat Brown 11, 12%	CGY.
Vat Brown 13, 17%	CGY.
Vat Brown 57, 12.8%	CGY, HST.
Vat brown dyes, all other	VPC.
VAT BLACK DYES:	
Vat Black 16	CGY.

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

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES--CONTINUED	
VAT BLACK DYES--CONTINUED	
Vat Black 22, 19%-----	: CGY.
Vat Black 25, 12-1/2%-----	: BAS, CGY.
Vat Black 63-----	: SDC.
Vat Black 64-----	: SDC.
Vat black dyes, all other-----	: SDC.
MISCELLANEOUS DYES	
All other dyes-----	: ALL, CGY.

SYNTHETIC ORGANIC CHEMICALS, 1984

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1984

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of dyes to the U.S. International Trade Commission for 1984 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 :	G. Lever Co., Inc.
ALL :	Alliance Chemical, Inc.	MCA :	Johnson Mattney, Inc., Pigments Dept.
ATL :	Atlantic Industries, Inc.	MIL :	Milliken & Co., Milliken Chemical Co.
BAS :	BASF Wyandotte Corp.	MRT :	Morton-Thiokol, Inc., Morton Chemical Div.
BGC :	Buffalo Color Corp.	OCC :	Orient Chemical Corp.
BUK :	Synalloy Corp., Blackman Uhler Chemical Div.	PCW :	Pfister Chemical, Inc.
CGY :	Ciba-Geigy Corp.	PSC :	Passaic Color & Chemical Co.
CIG :	Color Chem International Corp.	S :	Sandoz, Inc., Colors & Chemicals Div.
CK :	Crompton & Knowles Corp.	SDC :	Sandoz Chemical Corp.
DGO :	Day-Glo Color Corp.	SDH :	Sterling Drug, Inc., Hilton Davis Chemical Co.
DSC :	Dye Specialties, Inc.	SNA :	Sun Chemical Corp., Pigment Div.
EKT :	Eastman Kodak Co., Tennessee Eastman Co. Div.	STG :	McCormick & Co., Inc., McCormick/Stange Flavor Div.
FAB :	Fabricolor Manufacturing Corp.	SW :	Sherwin-Williams Co., Chemical Div.
HST :	American Hoechst Corp., Specialty Products Group, Rhode Island Works	TMS :	Sterling Drug, Inc., Hilton Davis Chemical Co.
ICI :	ICI Americas, Inc., Chemical Div.	TNI :	Gillette Co., Chemical Div.
KON :	H. Kohnstamm & Co., Inc.	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.

SECTION V -- ORGANIC PIGMENTS

83

STATISTICAL HIGHLIGHTS

STEPHEN WANSEER

202-523-0496

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

Statistics on production and sales of all organic pigments in 1984 are given in table 1.² 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 1984 was 85.7 million pounds-- 9.8 percent more than the 78.0 million pounds produced in 1983. Total sales of organic pigments in 1984 amounted to 76.2 million pounds, valued at \$493 million, compared with 69.3 million pounds, valued at \$422 million, in 1983. In terms of quantity, sales of organic pigments in 1984 were 98 percent higher than in 1983; in terms of value, sales in 1984 were 16.7 percent higher than in 1983.

Production of toners in 1984 amounted to 84.9 million pounds-- 9.8 percent more than the 77.3 million pounds reported in 1983. Sales in 1984 were 75.5 million pounds, valued at \$489 million, compared with 68.8 million pounds valued at \$420 million, in 1983. Sales in 1984 were 9.8 percent higher than those in 1983 in terms of quantity, and 16.4 percent higher in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1984 were Pigment Yellow 12, 15.5 million pounds; Pigment Blue 15.3, beta form, 8.0 million pounds; Pigment Red 49:1 barium toner, 6.2 million pounds; Pigment Red 57:1 calcium toner, 9.0 million pounds; Pigment Red 53:1, barium toner, 4.9 million pounds; and Pigment Yellow 14, 4.2 million pounds.

Production of lakes totaled 782,000 pounds in 1984, 13 percent higher than the 692,000 pounds reported for 1983. Sales of lakes in 1984 amounted to 609,000 pounds, valued at \$4.3 million. In terms of quantity, sales of lakes in 1984 were 21.3 percent higher than in 1983; in terms of value, sales in 1984 were 57.5 percent higher than in 1983.

¹Toners 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.

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

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1984

[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		
		QUANTITY	VALUE ¹	UNIT VALUE ²
	1,000 pounds dry basis ³	1,000 pounds dry basis ³	1,000 dollars	Per pound
Grand Total-----	85,664	76,154	492,954	\$6.47
TONERS				
Total-----	84,882	75,545	488,647	6.47
Yellow toners, total-----	24,419	19,903	105,211	5.29
Acetoacetarylide yellows:				
Pigment Yellow 1, C.I. 11 680-----	105	143	850	5.93
Pigment Yellow 3, C.I. 11 710-----	200	162	815	5.03
Pigment Yellow 74, C.I. 11 741-----	719	854	6,569	7.69
Diarylide yellows:				
Pigment Yellow 12, C.I. 21 090-----	15,493	12,015	56,884	4.73
Pigment Yellow 13, C.I. 21 100-----	443	390	2,437	6.25
Pigment Yellow 14, C.I. 21 095-----	4,229	3,438	14,410	4.19
Pigment Yellow 17, C.I. 21 105-----	610	573	3,459	6.03
Pigment Yellow 83, C.I. 21 108-----	1,054	866	7,862	9.07
All other-----	1,566	1,462	11,925	8.08
Orange toners, total-----	2,796	2,515	16,046	6.38
Pigment Orange 5, C.I. 21 075-----	888	853	4,032	4.73
Pigment Orange 13, C.I. 21 110-----	151	148	1,445	9.76
Pigment Orange 16, C.I. 21 160-----	760	633	3,865	6.10
All other-----	997	881	6,704	5.72
Red toners, total-----	29,796	26,880	169,630	6.31
Naphthol reds, total-----	2,009	1,804	12,610	6.99
Pigment Red 5, C.I. 12 490-----	59	53	666	12.51
Pigment Red 17, C.I. 12 390-----	48	27	286	10.44
Pigment Red 23, C.I. 12 355-----	105	112	1,413	12.57
All other naphthol reds-----	1,797	1,612	10,245	6.95
Pigment Red 3, C.I. 12 120-----	970	922	5,255	5.70
Pigment Red 4, C.I. 12 085-----	177	136	694	5.10
Pigment Red 38, C.I. 12 120-----	156	157	1,809	11.49
Pigment Red 48:1 barium toner, C.I. 15 865-----	456	489	3,060	6.25
Pigment Red 48:2, calcium toner, C.I. 15 865-----	1,101	1,253	7,828	6.24
Pigment Red 48:4, manganese toner C.I. 15 865-----	76	139	1,089	7.84
Pigment Red 49:1 barium toner, C.I. 15 630-----	6,164	4,673	17,781	3.81
Pigment Red 49:2, calcium toner, C.I. 15 630-----	886	835	3,913	4.69
Pigment Red 52:1, calcium toner, C.I. 15 860-----	1,141	1,411	6,994	9.96
Pigment Red 53:1, barium toner, C.I. 15 585-----	4,866	4,249	17,504	4.11
Pigment Red 57:1, calcium toner, C.I. 15 850-----	9,005	8,348	42,984	5.15
Pigment Red 81, PMA, C.I. 45 160-----	423	422	6,282	14.90
Pigment Red 81, PTA-----	37	...	...	...
All other-----	2,329	2,042	41,827	20.51

See footnotes at end of table.

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

ORGANIC PIGMENT	PRODUCTION	SALES		
		QUANTITY	VALUE ¹	UNIT VALUE ²
	1,000 pounds dry basis ³	1,000 pounds dry basis ³	1,000 dollars	Per pound
TONERS--Continued				
Violet toners, total-----	3,628	3,021	54,158	\$17.93
Pigment Violet 1, PTA, C.I. 45 170-----	38	47	726	15.41
Pigment Violet 19, C.I. 46 500-----	2,367	1,807	37,069	20.51
Pigment Violet 23, C.I. 46 500-----	225	216	6,516	30.18
All other-----	998	951	9,847	10.26
Blue toners, total-----	21,517	20,569	123,970	6.03
Pigment Blue 1 (PMA)-----	96	84	1,351	16.04
Pigment Blue 15, alpha form, C.I. 74 160-----	1,216	1,124	6,457	5.74
Pigment Blue 15:1, alpha form, C.I. 74 160-----	1,027	1,025	10,424	10.17
Pigment Blue 15:2, alpha form, C.I. 74 160-----	544	877	9,005	10.27
Pigment Blue 15:3, beta form, C.I. 74 160-----	8,014	7,549	44,159	5.85
Pigment Blue 15:4, beta form, C.I. 74 160-----	2,579	2,171	11,217	5.17
All other-----	8,041	7,739	41,357	5.34
Green toners, total-----	2,198	2,133	17,827	8.36
Pigment Green 7, C.I. 74 260-----	...	1,892	15,289	8.08
All other-----	2,198	241	2,538	10.52
Brown and Black toners, total-----	528	524	1,805	3.43
Pigment Brown 5-----	39	...	...	...
All other-----	489	...	...	...
LAKES				
Total-----	782	609	4,307	7.08
Pigment Red 83, C.I. 58 000-----	37	37	396	10.77
Pigment Violet 5:1, C.I. 58 055-----	66	62	537	8.69
All other lakes-----	679	510	3,374	6.62

¹The 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.

²Calculated from unrounded figures.

³Quantities 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 G.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, 1984

[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)
TONERS	
YELLOW TONERS:	
ACETOACETARYLIDE YELLOWS:	
*Pigment Yellow 1-----	: AMS, BAS, CGY, DUP, GLX, HSH, HST, KCW, KON, : MRX, ROM, SDH, SNA, VPC.
Pigment Yellow 2-----	: KCW.
*Pigment Yellow 3-----	: BNS, HSH, HST, KCW, SNA, VPC.
Pigment Yellow 42-----	: VPC.
Pigment Yellow 60-----	: HSH.
Pigment Yellow 65-----	: DUP, HSH, SNA, VPC.
Pigment Yellow 73-----	: HSH, HST, SNA, VPC.
*Pigment Yellow 74-----	: BAS, DUP, HSH, HST, SDH, SNA, VPC.
Pigment Yellow 75-----	: HST.
Pigment Yellow 97-----	: HST.
Pigment Yellow 98-----	: HST.
Pigment Yellow 116-----	: VPC.
Acetoacetarylide yellows, all others-----	: HST, KCW, VPC.
DIARYLIDE YELLOWS:	
*Pigment Yellow 12-----	: AMS, APO, BAS, GLX, HSH, HST, ICC, IDC, : IND, POP, ROM, SDH, SNA, VPC.
*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 127-----	: HST.
Pigment Yellow 152-----	: HST.
Diarylide yellows, other-----	: CGY, GLX, ROM, VPC.
YELLOW PIGMENTS, OTHER:	
(Basic Yellow 2), fugitive-----	: MRX.
Pigment Yellow 62-----	: CGY.

V -- ORGANIC PIGMENTS

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

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS—CONTINUED	
YELLOW TONERS—CONTINUED	
YELLOW PIGMENTS, OTHER—CONTINUED	
Pigment Yellow 110-----	CGY.
Pigment Yellow 139-----	VPC.
Pigment Yellow 150-----	CGY.
ORANGE TONERS:	
Pigment Orange 1-----	KCW.
Pigment Orange 2-----	UHL.
*Pigment Orange 5-----	CGY, HSH, HST, SDH, SNA.
*Pigment Orange 13-----	BAS, CGY, HSH, IND, ROM, SNA, 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, SNA.
Pigment Orange 38-----	HST, IND.
Pigment Orange 43-----	HST.
Pigment Orange 46-----	BAS, SDH, SNA, VPC.
Pigment Orange 48-----	DUP.
Pigment Orange 49-----	DUP.
Pigment orange toners, all other-----	CGY, GLX, VPC.
RED TONERS:	
NAPHTHOL REDS:	
Pigment Red 2-----	GLX, HSH, HST, KCW.
*Pigment Red 5-----	CGY, GLX, HSH, ROM.
Pigment Red 7-----	GLX.
Pigment Red 9-----	HST, MRX.
Pigment Red 13-----	KCW.
*Pigment Red 17-----	BNS, IND, SNA, UHL.
Pigment Red 21-----	BNS.
Pigment Red 22-----	CGY, DUP, SNA.
*Pigment Red 23-----	DUP, GLX, HSH, IND, KCW, SNA, UHL.
Pigment Red 31-----	ROM, SDH.
Pigment Red 52-----	VPC.
Pigment Red 112-----	CGY, HST, VPC.
Pigment Red 146-----	HST.
Pigment Red 147-----	HSH.
Pigment Red 170-----	GLX, HST.
Naphthol reds, all other-----	BUC, GLX, HST, IND, KCW, ROM, SNA, VPC, X, X.

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

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS—CONTINUED	
RED TONERS—CONTINUED	
RED PIGMENTS, OTHER:	
Pigment Red 1, (light)-----	HSB.
Pigment Red 2, (dark)-----	ALE.
*Pigment Red 3-----	BAS, CGY, CIK, HSH, KCW, MRX, SDH, SNA, UHL.
*Pigment Red 4-----	ALE, CGY, HSH, KCW, KON, MRX, SDH, UHL.
Pigment Red 6-----	DUP, KCW.
*Pigment Red 38-----	HSB, HST, SNA, VPC.
Pigment Red 41-----	VPC.
Pigment Red 48-----	CGY, DUP.
*Pigment Red 48:1, (barium)-----	AMS, BAS, BOR, CIK, DUP, HSH, MGR, MRX, SNA, UHL.
*Pigment Red 48:2, (calcium)-----	AMS, BAS, CIK, DUP, HSH, MGR, MRX, SDH, SNA, UHL, VPC.
Pigment Red 48:3, (strontium)-----	CGY, HSH.
Pigment Red 48:4, (manganese)-----	CGY, DUP, HSH, SNA, VPC.
Pigment Red 49, (sodium)-----	VPC.
Pigment Red 49:1, (barium)-----	AMS, BAS, BNS, BOR, CIK, ICC, IDC, MGR, SDH, SNA, UHL.
*Pigment Red 49:2, (calcium)-----	AMS, BNS, BOR, CIK, IDC, MGR, SDH, SNA.
*Pigment Red 52:1, (calcium)-----	BAS, CGY, MGR, SNA, UHL.
Pigment Red 52:2, (manganese)-----	BAS, CGY, HSH, UHL.
Pigment Red 53, (sodium)-----	ICC.
*Pigment Red 53:1, (barium)-----	AMS, APO, BAS, BOR, CIK, HSH, ICC, IDC, MGR, MRX, SDH, SNA, UHL.
Pigment Red 57-----	BNS.
Pigment Red 57:1, (calcium)-----	AMS, APO, BAS, BNS, BOR, CGY, CIK, DUP, HSH, ICC, IDC, KON, MGR, SDH, SNA, UHL.
Pigment Red 63-----	HSB, SNA.
Pigment Red 81, (PMA)-----	LVR, MGR, MRX, SNA, UHL, VPC.
*Pigment Red 81, (PTA)-----	MGR, MRX, UHL.
Pigment Red 88-----	VPC.
Pigment Red 90-----	SDH.
Pigment Red 119-----	VPC.
Pigment Red 122-----	SNA.
Pigment Red 123-----	VPC.
Pigment Red 166-----	CGY.
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, 1984—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 200	BAS, SNA.
Pigment Red 202	CGY, DUP, SNA.
Pigment Red 206	DUP.
Pigment Red 207	CGY, DUP.
Pigment Red 209	SNA.
Pigment Red 211	VPC.
Pigment Red 224	VPC.
Pigment Red 245	IND.
Pigment Red 500	VPC.
Pigment red toners, all other	CGY, DUP, HST.
VIOLET TONERS:	
Pigment Violet 1, (fugitive)	KCW, UHL.
Pigment Violet 1, (PMA)	MGR, MRX, UHL.
Pigment Violet 1, (PTA)	MGR, MRX, SNA, UHL.
Pigment Violet 3, (fugitive)	KCW, MGR, UHL.
Pigment Violet 3, (PMA)	BAS, KON, MGR, MRX, SDH, UHL.
Pigment Violet 3, (PTA)	MGR, MRX, UHL.
Pigment Violet 3	VPC.
Pigment Violet 4, (fugitive)	KCW.
*Pigment Violet 19	DUP, SNA, VPC.
*Pigment Violet 23	HST, ROM, SNA, VPC.
Pigment Violet 29	VPC.
Pigment Violet 42	DUP.
Pigment violet toners, all other	BUC, UHL, VPC, X.
BLUE TONERS:	
*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, (α form)	BAS, CGY, DUP, HSH, SDH, SNA, USM, VPC.
*Pigment Blue 15:1, (α form)	BAS, CGY, DUP, SDH, SNA, VPC.
*Pigment Blue 15:2, (α form)	BAS, CGY, DUP, SDH, SNA, VPC.
*Pigment Blue 15:3, (β form)	AMS, APO, BAS, BOR, BUC, CGY, CIK, CUS, DUP, IDC, IPP, MGR, POP, ROM, SDH, SNA, VPC.
*Pigment Blue 15:4, (β form)	BAS, CGY, DUP, SNA.

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

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
BLUE TONERS--CONTINUED	
Pigment Blue 19-----	SW.
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)-----	UHL.
Pigment Green 4, (fugitive)-----	UHL.
Pigment Green 4, (PMA)-----	UHL.
Pigment Green 4, (PTA)-----	UHL.
*Pigment Green 7-----	ALG, CIK, DUP, POP, SDH, SNA.
Pigment Green 8-----	CGY, KCW.
Pigment Green 10-----	DUP.
Pigment Green 36-----	SNA, VPC.
Pigment green toners, all other-----	VPC, X.
BROWN TONERS:	
Pigment Brown 2-----	UHL.
Pigment Brown 3, (fugitive)-----	KON.
Pigment Brown 3, (PMA)-----	KON.
Pigment Brown 5-----	GLX, ICC, VPC.
Pigment Brown 22-----	VPC.
Pigment brown toners, all other-----	SDH, VPC.
BLACK TONERS:	
Pigment black toners, all other-----	UHL, VPC.
LAKES	
YELLOW LAKES:	
(Acid Yellow 1)-----	KCW.
(Acid Yellow 23)-----	KON, MRX.
ORANGE LAKES:	
Pigment Orange 17-----	KCW.
RED LAKES:	
(Acid Red 26)-----	KCW.
(Basic Red 1)-----	BNS.
Pigment Red 60:1-----	HSH, MRX, SNA.
*Pigment Red 83-----	CGY, HSH, MRX, UHL.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
REPORTED, IDENTIFIED BY MANUFACTURER, 1984--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 5:1-----	HSH, KON, MRX, UHL, VPC.
BLUE LAKES:	
(Basic Blue 9)-----	LVR.
(Basic Blue 14, (PMA))-----	LVR.
(Basic Blue 1, (PTA))-----	LVR.
Pigment Blue 24-----	SDH.
GREEN LAKES:	
(Acid Green 3)-----	KCW.
(Basic Green 1, (PMA))-----	LVR.

V -- ORGANIC PIGMENTS

93

TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1984

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of organic pigments to the U.S. International Trade Commission for 1984 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.	IND :	Indol Color Co., Inc.
ALG :	Allegheny Chemical Corp.	IPP :	Spectrachem Corp.
AMS :	Ridgway Color Co.		
APO :	Apollo Colors, Inc.	KCW :	Keystone Color Works, Inc.
		KON :	H. Kohnstamm & Co., Inc.
BAS :	BASF Wyandotte Corp.		
BNS :	Binney and Smith, Inc.	LVR :	G. Lever Co., Inc.
BUC :	Synalloy Corp., Blackman Uhler Chemical Div.		
		MCA :	Johnson Mattney, Inc., Pigment Dept.
CGY :	Ciba-Geigy Corp.	MGR :	Magruder Color Co., Inc.
CIK :	Flint Ink Corp., Cal/Ink Div.		
CUS :	Customs Pigments Corp.	POP :	Pope Chemical Corp.
DUP :	E. I. duPont de Nemours & Co., Inc., Chemicals and Pigments Dept.	ROM :	Roma Color, Inc.
GLX :	Galaxie Chemical Corp.	SDH :	Sterling Drug, Inc., Hilton Davis Chemical Co.
		SNA :	Sun Chemical Corp., Pigment Div.
HSH :	Harshaw/Filtrol Partnership	SW :	Sherwin-Williams Co., Chemical Division
HST :	American Hoechst Corp., Specialty Products Group, Rhode Island Works		
		TMS :	Sterling Drug, Inc., Hilton Davis Chemical Co.
ICC :	Inmont Corp. Div. of United Technologies Corp.		
		UHL :	Paul Uhlich & Co., Inc.
IDC :	Industrial Color, Inc.		
		VPC :	Mobay Chemical Corp., Dyes & Pigments Div.

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

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.

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.¹ 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 1984 amounted to 278.6 million pounds. Total sales of bulk medicinal chemicals in 1984 amounted to 152.4 million pounds, valued at \$1,369.4 million. Beginning in 1980, methionine and most other amino acids and their salts are reported in the section on Miscellaneous End-Use Chemicals and Chemical Products. Section totals are not, therefore, comparable with years prior to 1980.

Production of the larger groups of medicinal chemicals in 1984 was as follows: Antibiotics, 30.4 million pounds, 4.5 percent less than in 1983; anti-infective agents other than antibiotics, 27.2 million pounds, 19.0 percent more than in 1983; central nervous system depressants and stimulants, 69.2 million pounds, 7.2 percent more than in 1983; gastrointestinal agents

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

and therapeutic nutrients, 54.7 million pounds, 6.1 percent less than in 1983, and vitamins, 49.9 million pounds, 28.2 percent more than in 1983.

Production of some of the more important individual products in the table was as follows: Choline chloride, 49.5 million pounds, 6.2 percent less than in 1983; aspirin, 33.9 million pounds, 10.4 percent more; and vitamin E, 11.6 million pounds, 33.4 percent more.

SECTION VI -- MEDICINAL CHEMICALS

97

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1984

[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 ¹	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	278,640	152,448	1,369,435	\$9.01
Acyclic-----	54,910	44,091	128,739	2.92
Benzenoid ³ -----	146,274	70,879	696,945	9.95
Cyclic nonbenzenoid ⁴ -----	77,456	37,478	543,751	14.13
Antibiotics, total-----	30,442	9,912	447,067	45.10
Cephalosporins-----	1,432	...	...	...
Penicillins, semisynthetic, total-----	2,032	259	13,472	52.12
Amoxicillin-----	880	...	...	...
Ampicillin-----	728	...	...	...
Cloxacillin, sodium-----	36	...	...	...
Dicloxacillin, sodium-----	60	...	...	...
Oxacillin, sodium-----	41	...	...	...
All other (semisynthetic) ⁵ -----	287	259	13,472	52.12
Penicillins (except semisynthetic), for all uses-----	...	562	8,530	15.18
Other antibiotics, total-----	26,978	9,091	425,065	46.76
For medicinal use ⁶ -----	8,358	1,990	304,057	152.79
For nonmedicinal uses ⁷ -----	18,620	7,101	121,008	17.04
Antihistamines, total-----	221	154	7,891	51.24
Antinauseants-----	54	51	2,144	42.04
All other-----	167	103	5,747	56.34
Anti-infective agents (except antibiotics), total-----	27,234	9,111	44,112	4.84
Anthelmintics-----	10,064	3,993	5,669	1.42
Antiprotozoan agents, total-----	10,645	1,559	9,660	6.20
Urinary antiseptics-----	124	...	...	...
Other anti-infective agents ⁸ -----	6,401	3,559	28,783	8.09
Autonomic drugs, total-----	1,033	816	17,515	21.46
Sympathomimetic (adrenergic) agents, total-----	1,010	812	15,344	18.90
Phenylpropanolamine hydrochloride-----	471	...	...	...
All other-----	539	812	15,344	18.90
Other autonomic drugs-----	23	4	2,171	723.67
Central depressants and stimulants, total-----	69,211	46,767	328,810	6.88
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents, total-----	61,706	42,633	130,052	3.05
Aspirin-----	33,938	...	...	...
Acetaminophen-----	24,064	22,627	55,823	2.47
All other ⁹ -----	3,704	20,006	74,229	3.71
Anticonvulsants, hypnotics, and sedatives-----	1,760	300	34,004	113.35
Antidepressants-----	132	18	1,684	93.56
Antitussives, total-----	295	293	50,361	171.88

See footnotes at end of table.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MEDICINAL CHEMICALS	PRODUCTION ¹	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Central depressants and stimulants--Continued				
Tranquilizers-----	170	35	6,569	\$187.69
Phenothiazine derivatives-----	48	5	3,327	831.75
All other-----	122	30	3,242	108.10
Other central depressants and stimulants ¹⁰ -----	5,148	3,488	106,140	30.46
Dermatological agents-----	...	4,218	4,939	1.17
Expectorants and mucolytic agents-----	1,202	954	7,110	7.45
Gastrointestinal agents and therapeutic nutrients, total ¹¹ -----	54,663	42,058	31,646	.75
Choline chloride, all grades-----	49,538	39,423	21,420	.54
All other-----	5,125	2,635	10,226	3.88
Local anesthetics, total-----	154	144	1,661	11.53
Lidocaine-----	...	19	273	14.37
All other-----	154	125	1,388	11.10
Renal-acting and edema-reducing agents-----	1,113	198	12,035	60.78
Smooth muscle relaxants ¹² -----	62	...	...	...
Vitamins, total-----	49,940	34,821	194,178	5.58
Vitamin E-----	11,639	6,692	75,806	11.33
All other vitamins ¹³ -----	38,301	28,129	118,372	4.21
Miscellaneous medicinal chemicals ¹⁴ -----	43,365	3,295	272,471	82.64

¹The 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.

²Calculated from rounded figures.

³Benzenoid, 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.

⁴Includes antibiotics of unknown structure.

⁵Includes sales quantity and value of amoxicillin; ampicillin; cloxacillin, sodium; dicloxacillin, sodium; and oxacillin, sodium.

⁶Includes production and sales of antifungal and antitubercular antibiotics and tetracyclines; and sales quantity and value of cephalosporins; and production of penicillins (except semisynthetic).

⁷Includes production and sales of tetracyclines; and production of penicillins (except semisynthetic).

⁸Includes sales quantity and value of urinary antiseptics; does not include production of sulfaguanidine used as an intermediate in the production of anti-infective sulfonamides.

⁹Includes sales quantity and value of aspirin.

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

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

¹²Includes theophylline derivatives.

¹³Includes production and sales of vitamin A, vitamin B, vitamin C, vitamin D, and vitamin K.

¹⁴Includes production and sales of antineoplastic agents, cardiovascular agents, diagnostic agents, hematological agents, and unclassified medicinal chemicals. Also includes sales quantity and value of hormones and synthetic substitutes, and smooth muscle relaxants.

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

[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)
*ANTIBIOTICS:	
*CEPHALOSPORINS:	
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.
* PENICILLINS, SEMISYNTHETIC:	
*AMOXICILLIN:	
Amoxicillin (trihydrate)-----	BEE, BOC, BRS.
Amoxicillin (anhydrous)-----	BRS, WYT.
*AMPICILLIN:	
Ampicillin (anhydrous)-----	BRS, WYT.
Ampicillin (trihydrate)-----	BEE, BOC, BRS.
OTHER SEMISYNTHETIC PENICILLINS:	
Ampicillin, sodium-----	BEE, BRS, WYT.
Carbenicillin, disodium-----	BEE, PFZ.
Carbenicillin indanyl, sodium-----	PFZ.
Cloxacillin, benzathine-----	BEE, BRS.
*Cloxacillin, sodium-----	BEE, BOC, BRS.
Cyclacillin-----	BRT, WYT.
*Dicloxacillin, sodium-----	BEE, BOC, BRS, WYT.
Hetacillin, potassium-----	BRS.
Methicillin, sodium-----	BRS.
Nafcillin, sodium-----	BEE, BRS, WYT.
*Oxacillin, sodium-----	BEE, BOC, BRS.
Piperacillin-----	BRS.
Ticarcillin, disodium-----	BEE.
* PENICILLINS (EXCEPT SEMISYNTHETIC):	
FOR MEDICINAL USE:	
Penicillin V-----	PFZ, WYT.
Penicillin G, benzathine-----	WYT.
Penicillin G, potassium-----	PFZ, WYT.
Penicillin V, potassium-----	BRS, LIL.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED	:
*PENICILLINS (EXCEPT SEMISYNTHETIC)--CONTINUED	:
FOR MEDICINAL USE--CONTINUED	:
Penicillin G, procaine (medicinal grade)-----	PFZ.
FOR NONMEDICINAL USES:	:
Penicillin G, procaine (animal feed grade)-----	MRK, PFZ.
TETRACYCLINES:	:
FOR MEDICINAL USE:	:
Chlortetracycline (medicinal grade)-----	ACY.
Demeclocycline-----	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.
Tobramycin-----	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.
Chloramphenicol, monosuccinic acid ester-----	PD.
Clindamycin-----	UPJ.
Erythromycin-----	ABB, UPJ.
Erythromycin estolate-----	LIL.
Erythromycin stearate-----	UPJ.
Gentamycin-----	SCH.
Imipenem-----	MRK.
Kanamycin-----	BRS.
Lincomycin (medicinal grade)-----	UPJ.
Moxalactam-----	LIL.
Neomycin (medicinal grade)-----	UPJ.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED	
*PENICILLINS (EXCEPT SEMISYNTHETIC)--CONTINUED	
FOR MEDICINAL USE--CONTINUED	
*OTHER ANTIBIOTICS FOR MEDICINAL USE--CONTINUED	
Netilmicin-----	SCH, UPJ.
Novobiocin, sodium-----	UPJ.
Polymyxin B-----	PFZ.
Sisomicin-----	SCH.
Spectinomycin (medicinal grade)-----	ABB, UPJ.
Thiostrepton-----	TRD.
Vancomycin-----	LIL.
*FOR NONMEDICINAL USES:	
Bacitracin (animal feed grade)-----	IMC.
Cycloheximide-----	UPJ.
Hygromycin B-----	LIL.
Lasalocid-----	HOF, X.
Lincomycin (animal feed grade)-----	UPJ.
Monesin-----	LIL.
Neomycin (animal feed grade)-----	PFZ, UPJ.
Streptomycin-----	LIL, PFZ.
Tylosin-----	LIL.
*ANTI-HISTAMINES:	
*ANTI-NAUSEANTS:	
Cyclizine hydrochloride-----	BUR.
Dimenhydrinate-----	GAN.
Meclizine hydrochloride-----	PFZ.
Metoclopramide hydrochloride-----	LLI.
Trimethobenzamide hydrochloride-----	HOF.
*OTHER ANTI-HISTAMINES:	
Azatadine maleate-----	SCH.
Brompheniramine maleate-----	HEX, LLI.
Chlorpheniramine maleate-----	HEX, SK.
Cyproheptadine hydrochloride-----	MRK.
Dexbrompheniramine maleate-----	HEX.
Dexchlorpheniramine maleate-----	SCH.
Dimethindene maleate-----	CGY.
Diphenhydramine citrate-----	WYK.
Diphenhydramine hydrochloride-----	PD, WYK.
Doxylamine succinate-----	BKC, HOF.
Phenindamine tartrate-----	HOF.
Phenyltoloxamine citrate-----	GAN.
Pyrilamine maleate-----	HEX.
Tripeleennamine-----	CGY.
Tripeleennamine citrate-----	CGY.
Tripeleennamine hydrochloride-----	CGY.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFECTIVE AGENTS (EXCEPT ANTIBIOTICS):	
*ANTHELMINTICS:	
Dichlorvos-----	: SHC.
Diethylcarbamazine citrate-----	: SK.
Ivermectin-----	: MRK.
Phenothiazine-----	: WAG.
Piperazine-----	: TX, UCC.
Piperazine dihydrochloride-----	: FLM.
Piperazine hexahydrate-----	: TX.
Piperazine hydrochloride-----	: DAN, FLM, TX, WHL.
Piperazine phosphate-----	: TX.
Pyrantel pamoate-----	: PFZ.
Pyrantel tartrate-----	: PFZ.
Thenium closylate-----	: SFS.
Thiabendazole-----	: MRK.
*ANTIPROTOZOAN AGENTS:	
ARSENIC AND BISMUTH COMPOUNDS:	
Arsanilic acid-----	: FLM, WHL.
Bismuth subsalicylate-----	: NOR.
Carbarsone-----	: WHL.
Nitarsons-----	: SAL.
Roxarsone-----	: SAL.
Roxarsone, sodium-----	: SAL.
Sodium arsanilate-----	: WHL.
OTHER ANTIPROTOZOAN AGENTS:	
Aklomide-----	: SAL.
Amodiaquine hydrochloride-----	: PD.
Amprolium-----	: MRK.
Dinitolmide-----	: SAL.
Ethopabate-----	: MRK.
Hydroxychloroquine sulfate-----	: SDW.
Iodochlorhydroxyquin-----	: CGY.
Ipronidazole-----	: HOF.
Metronidazole-----	: SRL.
Nitromide-----	: SAL.
Primaquine phosphate-----	: SDW.
SULFONAMIDES:	
Mafenide-----	: SDW.
Mafenide acetate-----	: SDW.
Sulfabenzamide-----	: ACY.
Sulfacetamide-----	: SCH.
Sulfadiazine-----	: ACY.
Sulfadimethoxine-----	: HOF.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFECTIVE AGENTS (EXCEPT ANTIBIOTICS)—CONTINUED	:
SULFONAMIDES—CONTINUED	:
Sulfamethazine-----	SAL.
Sulfamethazine, sodium-----	SAL.
Sulfamethizole-----	ACY.
Sulfamethoxazole-----	HOF.
Sulfanilamide-----	SAL.
Sulfanitran-----	SAL.
Sulfasalazine-----	SAL.
Sulfathiazole, sodium-----	SAL.
Sulfisoxazole-----	HOF.
Sulfisoxazole, acetyl-----	HOF.
*URINARY ANTISEPTICS:	:
Methenamine-----	PD.
Methenamine hippurate-----	RIK.
Methenamine mandelate-----	ARN, PD.
*OTHER ANTI-INFECTIVE AGENTS:	:
ANTIFUNGAL AGENTS:	:
Benzoic acid-----	KLM.
Calcium undecylenate-----	WTL.
Sodium caprylate-----	LEM.
Zinc undecylenate-----	WTL.
ANTILEPTIC AND ANTITUBERCULAR AGENTS:	:
Aminosalicylic acid-----	HXL.
Sulfoxone, sodium-----	ABB.
MERCURY COMPOUNDS:	:
Merbromin-----	HYN.
GENERAL ANTISEPTICS AND ANTIBACTERIAL AGENTS:	:
Benzethonium chloride-----	PD.
Bromchlorenone-----	MHI.
Carbadox-----	PFZ.
Cetylpyridinium chloride-----	HEX, HXL.
Chlorhexidine gluconate-----	WHL.
Chlorobutanol-----	SFS.
m-Cresyl acetate-----	ADC.
8-Hydroxy-5-quinolinesulfonic acid-----	MRK, RSA.
Iodoform-----	DPW.
Nalidixic acid-----	SDH.
Ormetoprim-----	HOF.
Povidone - iodine-----	GAF.
Pyrrithione, zinc-----	NES.
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, 1984--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*AUTONOMIC DRUGS:	:
*SYMPATHOMIMETIC AGENTS:	:
Dobutamine hydrochloride-----	: LIL.
Dopamine hydrochloride-----	: HEX.
Mephentermine sulfate-----	: ARA.
Methoxyphenamine hydrochloride-----	: HXL.
Naphazoline hydrochloride-----	: CGY.
Phenylephrine-----	: SDW.
Phenylephrine bitartrate-----	: GAN.
Phenylephrine hydrochloride-----	: GAN, LLI, SDW.
*Phenylpropanolamine hydrochloride-----	: ARS, GAN, NEP, ORT.
Propylhexedrine-----	: PD, SK.
Pseudoephedrine hydrochloride-----	: BUR, GAN.
Pseudoephedrine sulfate-----	: GAN.
Terbutaline sulfate-----	: CGY.
Tetrahydrozoline hydrochloride-----	: PFZ.
*OTHER AUTONOMIC DRUGS:	:
PARASYMPATHOLYTIC QUATERNARY AMMONIUM COMPOUNDS	:
(EXCEPT TROPANE DERIVATIVES):	:
Glycopyrrolate-----	: LLI.
Isopropamide iodide-----	: SK.
Propantheline bromide-----	: SRL.
Tridihexethyl chloride-----	: ACY.
PARASYMPATHOLYTIC TERTIARY AMINES (EXCEPT TROPANE	:
DERIVATIVES):	:
Oxybutynin chloride-----	: PD.
Oxyphencyclimine hydrochloride-----	: PFZ.
Trihexyphenidyl hydrochloride-----	: ACY.
PARASYMPATHOLYTIC TROPANE DERIVATIVES:	:
Anisotropine methylbromide-----	: ARA.
Benztropine mesylate-----	: ARA.
PARASYMPATHOMIMETIC AGENTS:	:
Bethanechol chloride-----	: GAN.
Neostigmine methylsulfate-----	: HOF.
Pyridostigmine bromide-----	: HOF.
SYMPATHOLYTIC AGENTS:	:
Timolol maleate-----	: MRK.
*CENTRAL DEPRESSANTS AND STIMULANTS:	:
*ANALGESICS, ANTIPYRETICS, AND NONHORMONAL ANTI-	:
INFLAMMATORY AGENTS:	:
*Acetaminophen-----	: MAL, MON, PEN, SWD.
Aminobenzoic acid-----	: WYK.
*Aspirin-----	: DOW, MON, NOR, SD.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS:	
*ANALGESICS, ANTIPYRETICS, AND NONHORMONAL ANTI- INFLAMMATORY AGENTS--CONTINUED	
Aurothioglucose-----	SCH.
Choline magnesium salicylate-----	LEM.
Diflunisal-----	MRK.
Fenoprofen-----	LIL.
Ibuprofen-----	TNA.
Indomethacin-----	MRK.
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-----	DUP, MAL, PEN.
Oxyphenbutazone-----	CGY.
Pentazocine-----	SD.
Pentazocine hydrochloride-----	SD.
Phenylbutazone-----	CGY.
Piroxicam-----	PFZ.
Potassium aminobenzoate-----	GAN.
Potassium salicylate-----	KLM.
Propoxyphene hydrochloride-----	GAN, LIL.
Propoxyphene napsylate-----	GAN, LIL.
Salicylates, all other-----	DOW.
Salsalate-----	WYK.
Sodium aminobenzoate-----	GAN.
Sodium salicylate-----	KLM.
Sulindac-----	MRK.
*ANTICONVULSANTS, HYPNOTICS, AND SEDATIVES:	
ANTICONVULSANTS (EXCEPT BARBITURATES):	
Aminogluthethimide-----	CGY.
Carbamazepine-----	CGY.
Ethosuximide-----	PD.
Ethotoin-----	ABB.
Methsuximide-----	PD.
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, 1984--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
BARBITURATES:	
Amobarbital-----	GAN.
Amobarbital, sodium-----	GAN.
Butabarbital-----	GAN.
Butabarbital, sodium-----	ABB, GAN.
Butalbital-----	GAN.
Mephobarbital-----	GAN.
Metharbital-----	ABB.
Pentobarbital-----	GAN.
Pentobarbital, sodium-----	ABB, GAN.
Phenobarbital-----	GAN.
Phenobarbital, sodium-----	GAN.
Secobarbital-----	GAN.
Secobarbital, sodium-----	GAN.
Talbutal-----	GAN.
Thiamylal, sodium-----	ABB, PD.
Thiopental, sodium-----	ABB.
HYPNOTICS AND SEDATIVES (EXCEPT BARBITURATES):	
Alprazolam-----	UPJ.
Ethchlorvynol-----	ABB.
Glutethimide-----	CGY, GAN.
Methypylon-----	HOF.
*ANTIDEPRESSANTS:	
Amitriptyline hydrochloride-----	GAN, MRK.
Doxepin hydrochloride-----	PFZ, SK.
Imipramine hydrochloride-----	CGY.
Maprotiline hydrochloride-----	CGY.
Nortriptyline hydrochloride-----	LIL.
*ANTITUSSIVES:	
Benzonatate-----	CGY.
Caramiphen edisylate-----	SK.
Codeine-----	MAL, MRK, PEN.
Dextromethorphan hydrobromide-----	AMD, HOF.
Hydrocodone bitartrate-----	MAL.
Noscapine-----	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, 1984--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	:
*TRANQUILIZERS:	:
*PHENOTHIAZINE DERIVATIVES--CONTINUED	:
Prochlorperazine maleate-----	SK.
Promazine hydrochloride-----	WYT.
Promethazine hydrochloride-----	WYT.
Trifluoperazine-----	SK.
Trifluoperazine hydrochloride-----	SK.
*OTHER TRANQUILIZERS:	:
Buclicine hydrochloride-----	PFZ.
Chlormezanone-----	SDW.
Chlorprothixene-----	HOF.
Clorazepate dipotassium-----	ABB.
Hydroxyzine pamoate-----	LEM, PFZ.
Lorazepam-----	WYT.
Meprobamate-----	ABB.
Molindone hydrochloride-----	PD.
Oxazepam-----	WYT.
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-----	CPR, GNF.
Caffeine, synthetic-----	PFZ.
OTHER RESPIRATORY AND CEREBRAL STIMULANTS:	:
Diethylpropion hydrochloride-----	BKC, GAN.
Doxapram hydrochloride-----	LLI.
Methylphenidate hydrochloride-----	CGY.
Nikethamide-----	CGY.
Phendimetrazine tartrate-----	GAN.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS—CONTINUED	:
RESPIRATORY AND CEREBRAL STIMULANTS—CONTINUED	:
OTHER RESPIRATORY AND CEREBRAL STIMULANTS—CONTINUED	:
Phentermine	: GAN, HEX, SWD.
Phentermine hydrochloride	: HEX.
SKELETAL MUSCLE RELAXANTS:	:
Methocarbamol	: LLI.
Orphenadrine citrate	: RIK.
Succinylcholine chloride	: ABB, BUR.
Tubocurarine	: ABB.
*DERMATOLOGICAL AGENTS:	:
Allantoin	: HFT.
Aluminum phenolsulfonate	: SAL.
Ammonium phenolsulfonate	: SAL.
Salicylic acid	: DOW, KLM, MON.
Zinc phenolsulfonate	: MAL, SAL.
*EXPECTORANTS AND MUCOLYTIC AGENTS:	:
Ethylenediamine dihydroiodide	: AJY, DPW, WAG, WHL.
Guaifenesin	: LLI.
Iodinated glycerol	: X.
Potassium guaiacolsulfonate	: KLM.
*GASTROINTESTINAL AGENTS AND THERAPEUTIC NUTRIENTS:	:
GASTROINTESTINAL AGENTS:	:
*CHOLINE CHLORIDE (ALL GRADES):	:
Choline chloride (animal feed grade)	: CHO, HFT, IMC, NUT, TMH.
Choline chloride (medicinal grade)	: HFT.
*OTHER GASTROINTESTINAL AGENTS:	:
Betaine hydrochloride	: HFT.
Calcium polycarbophil	: LLI.
Choline bicarbonate	: HFT, IMC.
Choline bitartrate	: HFT.
Choline citrate	: HFT.
Choline dihydrogen citrate	: HFT.
Cimetidine	: SK.
Cimetidine hydrochloride	: SK.
Colestipol hydrochloride	: UPJ.
Dextrothyroxine, sodium	: BAX.
Dihydroxyaluminum aminoacetate	: CHT.
Diphenoxylate	: MAL.
Docusate, calcium	: ACY.
Docusate, potassium	: ACY.
Docusate, sodium	: ACY, MAL.
Gemfibrozil	: PD.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*GASTROINTESTINAL AGENTS AND THERAPEUTIC	:
NUTRIENTS--CONTINUED	:
GASTROINTESTINAL AGENTS--CONTINUED:	:
OTHER GASTROINTESTINAL AGENTS--CONTINUED	:
Lipotropic agents and cholesterol reducers, other	:
than choline salts, all other-----	UPJ.
Phenolphthalein-----	SCH.
Sitosterols-----	UPJ.
THERAPEUTIC NUTRIENTS:	:
Calcium gluceptate-----	PFN.
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.
Oxandrolone-----	SRL.
Stanozolol-----	SD.
Testosterone-----	UPJ.
Testosterone cypionate-----	UPJ.
Testosterone enanthate-----	UPJ.
Testosterone propionate-----	UPJ.
Zeranol-----	IMC.
Anabolic agents and androgens, all other-----	X.
CORTICOSTEROIDS:	:
Acclomethasone-----	SCH.
Betamethasone-----	SCH.
Betamethasone dipropionate-----	SCH.
Betamethasone sodium phosphate-----	SCH.
Betamethasone valerate-----	SCH.
Cortisone acetate-----	UPJ.
Dexamethasone-----	MRK, SCH, UPJ.
Dexamethasone sodium phosphate-----	MRK.
Difflorasone diacetate-----	UPJ.
Fludrocortisone acetate-----	UPJ.
Fluorometholone-----	UPJ.
Halcinonide-----	TRD.
Hydrocortisone-----	UPJ.
Hydrocortisone acetate-----	UPJ.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
HORMONES AND SYNTHETIC SUBSTITUTES--CONTINUED	
CORTICOSTEROIDS--CONTINUED	
Medrysone-----	UPJ.
Meprednisone-----	UPJ.
Meprednisone acetate-----	UPJ.
Methylprednisolone-----	ABB, UPJ.
Prednisolone-----	UPJ.
Prednisolone acetate-----	UPJ.
Prednisone-----	UPJ.
Triamcinolone-----	TRD, X.
Triamcinolone acetonide-----	TRD, UPJ.
Triamcinolone diacetate-----	TRD, UPJ.
Corticosteroids, all other-----	X.
ESTROGENS AND PROGESTOGENS:	
ESTROGENS:	
Dienestrol-----	X.
Estradiol cypionate-----	UPJ.
Estrogens, conjugated-----	ORG.
Estrogens, esterified-----	ORG.
Estrone-----	SRL.
Estrogens, all other-----	ORG.
PROGESTOGENS:	
Hydroxyprogesterone caproate-----	UPJ.
Medroxyprogesterone acetate-----	SRL, UPJ.
Megestrol acetate-----	UPJ.
Melengestrol acetate-----	UPJ.
Progesterone-----	UPJ.
Progestins, all other-----	UPJ.
SYNTHETIC HYPOGLYCEMIC AGENTS:	
Acetohexamide-----	LIL.
Chlorpropamide-----	PFZ.
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, 1984--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THYROID HORMONE AND ANTITHYROID AGENTS:	
*LOCAL ANESTHETICS:	
Benzocaine-----	WYK.
Butamben-----	ABB.
Cocaine-----	MRK.
Dibucaine-----	CGY.
Dibucaine hydrochloride-----	CGY.
*Lidocaine-----	LEM, SDW, WYK.
Lidocaine hydrochloride-----	LEM, WYK.
Mepivacaine hydrochloride-----	LEM.
Pramoxine hydrochloride-----	ABB.
Prilocaine hydrochloride-----	WYK.
*RENAL-ACTING AND EDEMA-REDUCING AGENTS:	
BENZOTHIADIAZINE DERIVATIVES:	
Benzthiazide-----	PFZ.
Chlorothiazide-----	MRK.
Hydrochlorothiazide-----	ABB, CGY, MRK, SK.
Methyclothiazide-----	ABB.
Trichlormethiazide-----	SCH.
OTHER RENAL-ACTING AND EDEMA-REDUCING AGENTS:	
Acetazolamide-----	ACY.
Amiloride hydrochloride-----	MRK.
*Canrenoate, potassium-----	MRK.
Dichlorphenamide-----	MRK.
Ethacrynic acid-----	MRK.
Probenecid-----	MRK, SAL.
Spironolactone-----	SRL.
Sulfinpyrazone-----	CGY.
Triamterene-----	SK.
*SMOOTH MUSCLE RELAXANTS:	
Flavoxate hydrochloride-----	SK.
Oxtriphylline-----	NEP, PD.
Theophylline sodium glycinate-----	CHT.
*VITAMINS:	
VITAMIN A:	
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.

TABLE 2.—MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1984—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:	
Dexpanthenol-----	HOF.
Panthenol-----	HOF.
OTHER B-COMPLEX VITAMINS:	
Biotin-----	HOF.
Cyanocobalamin (animal feed grade)-----	MRK.
Cyanocobalamin (medicinal 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.
Sodium ascorbate-----	HOF.
VITAMIN D:	
Cholecalciferol (Vitamin D ₃)-----	VTM.
Ergocalciferol (Vitamin D ₂)-----	VTM.
*VITAMIN E:	
DL-ALPHA TOCOPHERYL ACETATE (ALL GRADES):	
dl- α Tocopheryl acetate (animal feed grade)-----	BAS, HOF.
dl- α Tocopheryl acetate (medicinal grade)-----	BAS, HOF.
OTHER VITAMIN E:	
d- α Tocopherol-----	EKT, SCP.
dl- α Tocopherol-----	HOF.
d- α Tocopheryl acetate-----	EKT, SCP.
d- α Tocopheryl acid succinate-----	EKT, SCP.
VITAMIN K:	
MENADIONE 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, 1984--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*MISCELLANEOUS MEDICINAL CHEMICALS--CONTINUED	:
ANTINEOPLASTIC AGENTS--CONTINUED	:
Mercaptopurine-----	BUR.
Methotrexate-----	BRS.
Thioguanine (hemihydrate)-----	BUR, LIL.
Vinblastine sulfate-----	LIL.
Vincristine sulfate-----	LIL.
CARDIOVASCULAR AGENTS:	:
ANTIHYPERTENSIVE AGENTS:	:
Captopril-----	TRD.
Diazoxide-----	SCH.
Guanabenz-----	WYT.
Guanethidine sulfate-----	CGY.
Hydralazine hydrochloride-----	CGY.
Methyldopa-----	MRK.
Metoprolol tartrate-----	CGY.
Nadolol-----	TRD.
Prazosin hydrochloride-----	PFZ.
Enalapril maleate-----	MRK.
VASODILATORS:	:
Amyl nitrite-----	BUR, FKE.
Flecainide acetate-----	RIK.
Nifedipine-----	PFZ.
OTHER CARDIOVASCULAR AGENTS:	:
Digoxin-----	BUR.
Disopyramide phosphate-----	SRL.
Procainamide hydrochloride-----	PD, WYK.
Tocainide-----	MRK.
DIAGNOSTIC AGENTS:	:
ROENTGENOGRAPHIC CONTRAST MEDIA:	:
Diatrizoate, meglumine-----	SDW.
Diatrizoate, sodium-----	SDW.
Iopanoic acid-----	SDW.
Iothalamate, meglumine-----	MAL.
Meglumine-----	SDW.
Tyropanoate, sodium-----	SDW.
Roentgenographic contrast media, all other-----	SDW.
OTHER DIAGNOSTIC AGENTS:	:
Albumin-----	SPR.
Aminohippuric acid-----	WYK.
Glutamyl-p-nitroaniline (liver function test)-----	REG.
Indocyanine green-----	HYN.
Metyrapone-----	CGY.
Phenolsulfonphthalein-----	HYN.

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

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*MISCELLANEOUS MEDICINAL CHEMICALS--CONTINUED	
HEMATOLOGICAL AGENTS:	
ANTICOAGULANTS:	
Ammonium heparin-----	RIK, SPR.
Anisindione-----	SCH.
Benzalkonium heparin-----	RIK.
Lithium heparin-----	RIK, SPR.
Potassium warfarin-----	X.
Sodium heparin-----	SPR.
Warfarin-----	SDW.
OTHER HEMATOLOGICAL AGENTS:	
Cellulose, oxidized-----	EKT.
Dextran-----	PHR.
UNCLASSIFIED MEDICINAL CHEMICALS:	
Allopurinol-----	BUR.
Carbidopa-----	MRK.
Etidronate, disodium-----	NOR.
Levodopa-----	MON.

SECTION VI -- MEDICINAL CHEMICALS

115

TABLE 3.--MEDICINAL CHEMICALS: DIRECTORY OF MANUFACTURERS, 1984

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of medicinal chemicals to the U.S. International Trade Commission for 1984 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	:: MHI :	Morton-Thiokol, Inc., Ventron Div.
ACY :	American Cyanamid Co.	:: MON :	Monsanto Co.
ADC :	Anderson Development Co.	:: MRK :	Merck & Co., Inc.
AJY :	Ajay Chemicals, Inc.	:: :	:
AMD :	Cyclo Products, Inc.	:: NEP :	Nepera, Inc.
ARA :	Syntex Chemicals, Inc.	:: NES :	Ruetgers-Nease Chemical Co.
ARN :	Arenol Chemical Corp.	:: NOR :	Norwich Eaton Pharmaceutical, Inc.
ARP :	Armour Pharmaceutical Co.	:: NUT :	Nutrius, Inc.
ARS :	Arsynco, Inc.	:: :	:
:	:	:: OH :	Anaquest
BAS :	BASF Wyandotte Corp.	:: ORG :	Organics/LaGrange, Inc.
BAX :	Baxter Travenol Laboratories, Inc.	:: ORT :	Roehr Chemicals, Inc.
BEE :	Beecham, Inc., Beecham Laboratories Div.	:: :	:
BIB :	Beckman Instruments, Inc., Spinco Div.	:: PD :	Parke-Davis Div. of Warner-Lambert Co.
BKC :	J. T. Baker Chemical Co.	:: PEN :	CPC International, Inc., Penick Corp.
BOC :	Biocraft Laboratories, Inc.	:: PFN :	Pfanstiehl Laboratories, Inc.
BRS :	Bristol-Myers Co.	:: PFZ :	Pfizer, Inc. and Pfizer Pharmaceuticals,
BUR :	Burroughs-Wellcome Co.	:: :	Inc.
:	:	:: PHR :	Pharmachem Corp.
CGY :	Ciba-Geigy Corp.	:: :	:
CHO :	Cholineco, Inc.	:: REG :	Regis Chemical Co.
CHT :	Chattem, Inc.	:: RIK :	Riker Laboratories, Inc. Sub of 3M Co.
CPR :	Certified Processing Corp.	:: RIL :	Reilly Tar & Chemical Corp.
:	:	:: RSA :	R.S.A. Corp.
DAN :	Dan River, Inc., Chemical Products Div.	:: :	:
DOW :	Dow Chemical Co.	:: SAL :	Salsbury Laboratories, Inc.
DPW :	Deepwater, Inc.	:: SCH :	Schering Corp.
DUP :	E. I. duPont de Nemours & Co., Inc.	:: SCP :	Henkel Corp.
:	:	:: SD :	Sterling Drug, Inc.:
EK :	Eastman Kodak Co.:	:: SD :	Sterling Pharmaceuticals, Inc.
EKT :	Tennessee Eastman Co. Div.	:: SDH :	Hilton Davis Chemical Co.
:	:	:: SDW :	Sterling Organics Div.
FRE :	Frank Enterprises, Inc.	:: SFS :	Stauffer Chemical Co., Specialty &
FLM :	Fleming Laboratories, Inc.	:: :	Intermediates Div.
:	:	:: SHC :	Shell Oil Co. Shell Chemical Co. Div.
GAF :	GAF Corp., Chemical Group	:: SK :	SmithKline Beckman Corp., SmithKline Chemicals
GAN :	Gane's Chemicals, Inc.	:: :	Div.
GNF :	General Foods Manufacturing Corp., Maxwell	:: SPR :	Scientific Protein Laboratories
:	House Coffee Div.	:: SRL :	G.D. Searle & Co.
:	:	:: :	:
HET :	Heterochemical Corp.	:: TMH :	Thompson-Hayward Chemical Co.
HEX :	Hexagon Laboratories, Inc.	:: TNA :	Ethyl Corp.
HFT :	Syntex Agribusiness, Inc.	:: TRD :	Squibb Manufacturing, Inc.
HOF :	Hoffmann-LaRoche, Inc.	:: TX :	Texaco, Inc., Texaco Chemical Co.
HXL :	Hexcel Corp., Hexcel Chemical Products	:: :	:
HYN :	Hynson, Westcott & Dunning, Inc.	:: UCC :	Union Carbide Corp.
:	:	:: UPJ :	Upjohn Co.
IMC :	International Minerals & Chemical Corp.	:: :	:
:	:	:: VTM :	Vitamins, Inc.
KLM :	Kalama Chemical, Inc.	:: :	:
KPT :	Koppers Co., Inc.	:: WAG :	West Design-Chemical, Inc.
:	:	:: WHL :	Whitmoyer Laboratories, Inc.
LEM :	Napp Chemicals, Inc.	:: WTL :	Pennwalt Corp., Lucidol Div.
LIL :	Eli Lilly & Co., U.S. and Puerto Rico	:: WYK :	Wyckott Chemical Co., Inc.
LLI :	Lee Laboratories, Inc.	:: WYT :	Wyeth Laboratories, Inc., Wyeth Laboratories
MAL :	Mallinckrodt, Inc.	:: :	Div. of American Home Products Corp.
:	:	:: :	:

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

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 1984 amounted to 178.7 million pounds. Sales of these materials in 1984 amounted to 114.7 million pounds, valued at \$636.8 million, compared with 111.2 million pounds, valued at \$344.8 million, in 1983. These totals do not include benzyl alcohol, which, before 1973, was included in flavor and perfume materials but is now shown in the miscellaneous cyclic section of this series. U.S. production of flavor and perfume materials in 1984 increased by 2.7 percent from the level in 1983 while the quantity of sales increased by 3.2 percent.

Production of cyclic flavor and perfume materials in 1984 amounted to 113.9 million pounds; sales amounted to 83.3 million pounds, valued at \$581.6 million. Individual publishable chemicals in the cyclic group produced in the greatest volume in 1984 were anethole and eugenol.

U.S. output of acyclic flavor and perfume materials in 1984 amounted to 64.8 million pounds; sales of these materials amounted to 31.4 million pounds, valued at \$55.2 million. Monosodium glutamate was by far the most important of the acyclic chemicals in 1984, although the data are not publishable. Other important acyclic compounds included are linalyl alcohol and geraniol.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1984

[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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	178,719	114,709	636,802	\$5.55
CYCLIC				
Total-----	113,913	83,287	581,613	6.98
Benzenoid and Naphthalenoid				
Total-----	98,029	71,794	535,907	7.46
4-Allyl-2-methoxyphenol (Eugenol)-----	360	288	1,136	3.94
Benzyl propionate-----	45	...	...	...
Phenethyl isobutyrate-----	...	6	35	5.96
2-Phenethyl phenylacetate-----	23	16	106	6.57
Phenylacetaldehyde, dimethyl acetal-----	140	138	673	4.87
p-Propenylanisole (Anethole)-----	3,191	3,147	7,664	2.44
All other benzenoid and naphthalenoid materials-----	94,270	68,199	526,293	7.72
Terpenoid, Metaracyclic, and Acyclic				
Total-----	15,884	11,493	45,706	3.98
Cedryl acetate-----	199	...	...	...
Ionones-----	177	115	1,082	9.37
Methylionone (α and β)-----	297	168	1,607	9.56
γ -Methylionone-----	591	384	3,185	8.30
Vetivenyl acetate-----	30	14	660	47.12
All other terpenoid, heterocyclic, and alicyclic materials-----	14,590	10,812	39,172	3.62
ACYCLIC				
Total-----	64,806	31,422	55,189	1.76
Citronellyl acetate-----	76	62	263	4.22
Citronellyl formate-----	21	16	121	7.53
3,7-Dimethyl-cis-2,6-octadien-1-ol acetate (Neryl acetate)-----	25	23	114	4.95
3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	1,574	1,361	4,662	3.43
Ethyl heptanoate-----	6	4	20	4.82
Geranyl acetate-----	207	147	607	4.14
Geranyl butyrate-----	6	...	...	...
Geranyl formate-----	16	...	...	...
2-Hexenal-----	9	7	53	8.01
Isopentyl acetate (Isoamyl acetate)-----	112	...	...	...
Isopentyl butyrate-----	99	88	185	2.09
Isopentyl isovalerate-----	24	18	81	4.62
Lauraldehyde-----	130	83	625	7.58
All other acyclic materials-----	62,501	29,613	48,458	1.64

¹Calculated from the unrounded figures.

TABLE 2.—FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984

[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 (β -Methyl naphthyl ketone)-----	GIV.
1-Acetoxy-2-sec-butyl-1-ethylcyclohexane-----	GIV, IFF.
p-Allylanisole-----	SCM, X.
Allyl anthranilate-----	RT.
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)-----	CI, X.
*4-Allyl-2-methoxyphenol (Eugenol)-----	BDS, CI, ELN, GIV, IFF, UNG.
4-Allyl-2-methoxyphenol acetate (Eugenol acetate)-----	CI, IFF.
α -Amyl cinnamic aldehyde-----	IFF.
p-Anisaldehyde-----	GIV, FB, OPC.
Anisole (Methoxybenzene) (Methyl phenyl ether)-----	OPC.
Anisyl acetate-----	ELN, GIV.
Anisyl butyrate-----	RT.
Aurantiol-----	BDS.
Benzal acetone-----	FB.
Benzaldehyde glyceryl acetal-----	GIV.
Benzophenone-----	CWN, PD.
Benzyl acetate-----	GIV, MON.
Benzyl benzoate-----	MON, MRF.
Benzyl cinnamate-----	FB.
Benzyl butyrate-----	ELN, FB.
Benzyl formate-----	ELN.
Benzyl isobutyrate-----	ELN.
Benzyl isoeugenyl ether-----	GIV.
Benzyl isopentyl ether-----	GIV.
Benzyl isovalerate-----	ELN, FB.
Benzyl laurate-----	GIV.
Benzyl phenylacetate-----	ELN, GIV.
*Benzyl propionate-----	ELN, IFF, FB.
Benzyl salicylate-----	FB, MON.
p-tert-Butyl- α -methylhydrocinnamaldehyde-----	GIV, RDA.
3-Butyl phthalide-----	FB.
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.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
Carvaceol-----	GIV.
Cineole (Eucalyptol)-----	NCI.
Cinnamaldehyde-----	CI, FB.
Cinnamyl acetate-----	ELN, FB.
Cinnamyl alcohol-----	FB.
Cinnamyl butyrate-----	FB.
Cinnamyl cinnamate-----	FB, FEL.
Cinnamyl nitrile-----	IFF.
Cinnamyl propionate-----	ELN.
Cinnamyl tiglate-----	FB.
Coumarin-----	RDA.
Cuminyol acetate-----	IFF.
Cuminyol alcohol-----	IFF.
trans-Decahydro- β -naphthol-----	IFF.
2-4-Dibromo-6-nitro-m-cresyl methyl ether-----	GIV.
Dihydrocoumarin-----	ARS.
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrol)-----	FB.
3,7-Dimethyl-2,6-octadienyl phenylacetate (Geranyl phenylacetate)-----	GIV, SBC.
α,α -Dimethylphenethyl alcohol-----	IFF.
Dimethyl phenylethyl carbinol-----	IFF.
Diphenylmethane (Benzylbenzene)-----	PD.
p-Ethoxybenzaldehyde-----	GIV.
2-Ethoxynaphthalene-----	GIV.
Ethyl anthranilate-----	FB.
Ethyl benzoate-----	ELN.
Ethyl cinnamate-----	ELN.
Ethyl- α,β -epoxy- β -methylhydrocinnamate-----	ELN.
2-Ethyl hexyl salicylate-----	ELN, FEL, MON.
Ethyl phenylacetate-----	ELN, GIV, OPC.
Ethyl salicylate-----	FB.
Geranyl benzoate-----	GIV.
α -Hexylcinnamaldehyde-----	CI, IFF.
Hexyl salicylate-----	IFF.
Hydratropaldehyde-----	GIV.
Hydratropaldehyde, dimethyl acetal-----	GIV.
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, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
Hydroxycitronellal methyl anthranilate-----	FB, GIV, IFF.
4-Hydroxy-3-ethoxybenzaldehyde (Ethylvanillin)-----	RDA.
4-Hydroxy-3-methoxybenzaldehyde (Vanillin)-----	MON.
4(4-Hydroxy-3-methoxyphenyl)-2-butanone	:
(Vanillylacetone)-----	GIV.
Isoamyl phenylacetate-----	ELN.
Isoamyl salicylate-----	IFF.
Isobutyl benzoate-----	ELN.
Isobutyl phenylacetate-----	ELN, FB.
Isobutylquinoline-----	IFF.
Isobutyl salicylate-----	FB.
Isopentyl benzoate-----	GIV.
Isopentyl salicylate-----	FB, MON.
p-Isopropyl- α -methylhydrocinnamaldehyde (Cyclamen-	:
aldehyde)-----	GIV, RDA.
1-Limonene-----	RT.
1-Limonene-----	SCM.
Linalyl anthranilate-----	BDS, FMT.
p-Mentha-1,8-diene (Limonene)-----	IFF.
Menthyl anthranilate-----	HPC.
o-Methoxy benzaldehyde-----	FB.
p-Methoxybenzyl alcohol (Anisyl alcohol)-----	ELN, GIV, OPC.
o-Methoxy annamic aldehyde-----	FB.
o-Methoxycinnamic aldehyde crystals-----	CI.
2-Methoxynaphthalene-----	GIV.
1-p-Methoxyphenyl penten-1-one-3 (α -Methyl-	:
anisylacetone)-----	GIV.
2-Methoxy-4-propenylphenol (Isoeugenol)-----	CI, IFF.
2-Methoxy-4-propenylphenol, acetate-----	ELN.
p-Methylanisole-----	GIV.
Methyl anthranilate-----	FB, SW, UNG.
Methyl benzoate-----	KLM, MRF.
α -Methylbenzyl acetate (Styralyl acetate)-----	CI.
α -Methylcinnamaldehyde-----	CI, FB.
Methyl cinnamate-----	FB.
6-Methylcoumarin-----	GIV.
p-Methylhydratropaldehyde-----	GIV.
1-Methyl-isohexyl-hexahydrobenzaldehyde-----	GIV.
Methyl phenylacetate-----	ELN, OPC.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
Methyl salicylate-----	DOW, KLM, MON.
Musk 89-----	IFF.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan (Moskene)-----	GIV.
α -Pentylcinnamaldehyde-----	CI, FB.
Phenethyl acetate-----	BDS, IFF.
Phenethyl alcohol-----	OPC.
Phenethyl benzoate-----	IFF.
Phenethyl formate-----	ELN, IFF.
*Phenethyl isobutyrate-----	ELN, GIV, IFF.
Phenethyl isovalerate-----	ELN, FB.
*2-Phenethyl phenylacetate-----	BDS, ELN, GIV, IFF.
Phenethyl propionate-----	ELN.
Phenethyl salicylate-----	GIV.
2-Phenoxyethyl isobutyrate-----	ELN, IFF.
Phenylacetaldehyde-----	GIV.
*Phenylacetaldehyde, dimethyl acetal-----	CI, ELN, GIV.
Phenylacetic acid-----	GIV.
Phenylacetic acid, isopentyl ester-----	GIV.
α -Phenylanisole-----	GIV.
Phenylethyl anthranilate-----	RT.
Phenylethyl 2-methyl butyrate-----	SCM.
Phenylethyl tiglate-----	FB.
3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	FB.
3-Phenylpropyl acetate-----	ELN, GIV.
3-Phenylpropyl cinnamate-----	FB.
Piperonal (Heliotropin)-----	AMB.
*p-Propenylanisole (Anethole)-----	ARZ, FB, HPC, NCI, SCM.
4-Propenyl-1,2-dimethoxybenzene (Methyl isoeugenol)-----	CI.
p-Propylanisol (Dihydroanethole)-----	FB, GIV.
SWEETENERS, SYNTHETIC:	
Aspartame-----	SFR.
Cyclohexanesulfamic acid, calcium salt (Calcium cyclamate)-----	ABB.
Cyclohexanesulfamic acid, sodium salt (Sodium cyclamate)-----	ABB.
Saccharin (1,2-Benzisothiazolin-3-one,-1,1-dioxide)---	SW.
Saccharin, calcium salt-----	ABB.
Saccharin, sodium salt-----	SW.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
p-Tolualdehyde	FB, GIV.
p-Tolylacetaldehyde	GIV.
p-Tolylacetate	ELN.
p-Tolylisobutyrate	GIV.
p-Tolylphenylacetate	GIV.
Trimethylcyclohexyl salicylate	ARS.
All other benzenoid or naphthalenoid chemicals	IFF.
TERPENOID, HETEROCYCLIC, AND ALICYCLIC:	
Acetoxymethyl-4-nonene	FB.
Acetyl-n-butyryl (2,3-Hexanedione)	FB.
Acetyl cedrene (Vertoflex)	BDS.
Acetyl propionyl (2,3-Pentanedione)	FB.
Allo-ocimene	GIV, IFF, SCM, X.
Allyl cyclohexyl propionate	GIV.
Amyl cyclohexyl acetate	IFF.
Amyris acetate	GIV.
Beta methyl ionone coeur	IFF.
p-tert-Butylcyclohexylacetate (Verbeniex)	CI, IFF.
2-tert-Butylcyclohexanol	IFF.
p-tert-Butylcyclohexanone	IFF.
2-sec-Butylcyclohexanone	GIV.
Cadinene	FB.
1-Carvone	SCM.
β -Caryophyllene	BDS, GIV, SCM.
Caryophyllene oxide	GIV.
α -Cedrene epoxide (Andrane)	BDS, IFF.
Cedrenol	ELN, IFF.
Cedrol	ELN.
*Cedryl acetate	BDS, ELN, IFF.
Cedryl formate	IFF.
Cyclohexadecen-7-olide	IFF.
Cyclohexyl acetate	RT.
Cyclohexyl butyrate	RT.
2-Cyclohexylcyclohexanone	GIV, IFF.
Dihydro-iso-jasmone	FB.
Dihydronordicyclopentadienyl acetate (Cyclacet)	BDS, CI, IFF.
Dihydronordicyclopentadienyl propionate (Cyclaprop) (Verdyl propionate extra)	BDS, CI.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED	
Dihydro terpineol-----	IFF, SCM.
Dihydroterpinyl acetate-----	IFF, SCM.
Dimethyl pseudo ionone-----	FB.
Furfural acetone-----	RT.
Furfuryl acetate-----	RT.
Furfuryl isovalenate-----	RT.
Furfuryl octanoate-----	RT.
Galaxolide (1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8- hexamethyl-cyclopenta- γ -2-benzopyran)-----	IFF.
Guaiacwood acetate-----	ELN, FB, GIV.
Guaiene-----	FB.
Hexadecanolide-----	IFF.
2-Hexyl-2-cyclopenten-1-one-----	FB.
3-Hydroxy-2-ethyl-4-pyrone (Ethylmaltol)-----	PFZ.
4-Hydroxyhexanoic acid (Lactone)-----	FB.
4-(4-Hydroxy-4-methyl pentyl)-3-cyclohexene-10- carboxaldehyde (Lyrall)-----	IFF.
3-Hydroxy-2-methyl-4-pyrone (Maltol)-----	PFZ.
4-Hydroxynonanonic acid, γ -lactone (γ -Nonalactone)-----	ELN, FB.
4-Hydroxyundecanoic acid, γ -lactone (γ -Undecalactone)-----	ELN.
Ionone(α - and β -)-----	BDS, GIV, NCI.
α -Ionone-----	BDS, GIV, HOF, IFF.
β -Ionone-----	BDS, HOF.
Isoamyl furoate-----	RT.
Isobornyl acetate-----	NCI, RDA.
Isobornyl methyl ether-----	SCM.
Isobornyl propionate-----	ELN.
d-iso-Menthol-----	SCM.
Isomenthone-----	GIV.
2-Isopropylcyclohexanol-----	GIV.
Isopulegyl acetate-----	GIV.
Jasmal-----	IFF.
p-Mentha-1,3-diene (α -Terpinene)-----	SCM.
p-Mentha-1,4-diene (γ -Terpinene)-----	SCM.
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.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED	
1-l-p-Menthen-6-yl-1-propanone	: GIV.
d-Menthol	: HAR, NCI.
dl-Menthol, synthetic	: GIV, HAR, SCM.
Menthone	: SCM.
Menthyl acetate	: FB, GIV.
l-Menthyl acetate	: SCM.
Menthyl butyrate	: RT.
p-Mentha-6,8-dien-2-0 (Carveol)	: FB.
p-Mentha-6,8-dien-2-one (Carvone) (Carvol)-*	: FB.
*Methylionone(α - and β -)	: GIV, IFF, NCI.
* γ -Methylionone	: BDS, GIV, NCI.
6-Methyl- α -ionone	: BDS, GIV.
6-Methyl- β -ionone	: BDS.
Nopol	: NCI.
Nopyl acetate	: FEL, NCI.
3-Pentyl tetrahydro-4-pyridine	: IFF.
Rose oxide	: FB.
α -Santalol	: GIV.
β -Santalol	: IFF.
α -Santalyl acetate	: GIV.
Sassafrass oil, hydrogenated	: GIV.
Terpinene-ol	: SCM, X.
α -Terpineol	: HPC, NCI, SCM.
α -Terpinyl acetate	: GIV, IFF, NCI, SCM.
α -Terpinyl propionate	: ELN.
3,3,5-Trimethyl cyclohexanol (m-Homomenthol)	: ARS, OPC.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien	: 3-one (Allyl- α -ionone)
	: IFF.
Vetivenol	: GIV.
*Vetivenyl acetate	: BDS, ELN, FB, GIV, IFF.
All other terpenoid, heterocyclic, or alicyclic flavor and perfume chemicals	: IFF, SCM.
ACYCLIC	
Acetyl iso-valeryl	: FB.
Allyl disulfide	: IFF.
Allyl heptanoate	: ELN, FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/ORSALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Allyl hexanoate-----	ELN, FB.
Allyl isothiocyanate (Synthetic mustard oil)-----	OPC.
Allyl isovalerate-----	RT.
Allyl mercaptan-----	RT.
Allyl octanoate (Allyl caprylate)-----	RT.
Allyl sulfide-----	RT.
Ammonium isovalerate-----	RSA.
Butter acids-----	RT.
Butter esters-----	RT.
Butyl butyryl lactate-----	ARS, ELN, RT.
Butyl undecylenate-----	FB, GIV.
α -Butyryl dimethyl succinate-----	FB.
Citral dimethyl acetal-----	CI, IFF.
Citronellic acid-----	HPC.
*Citronellyl acetate-----	BDS, ELN, GIV, IFF, NCI.
Citronellyl butyrate-----	GIV.
*Citronellyl formate-----	BDS, ELN, GIV.
Citronellyl isobutyrate-----	ELN, GIV, IFF.
Citronellyl nitrile-----	CI.
Citronellyl propionate-----	GIV, IFF.
Crude acetate mixture (Linalyl, neryl, geranyl acetates, main components)-----	X.
Crude caryophyllene mixture (α , β , γ and isomers)-----	X.
Decanal (Capraldehyde)-----	CI, GIV.
Decyl acetate-----	GIV.
2,5-Dichloro-2,5-dimethyl hexane-----	FB.
Diethyl acetal-----	FB.
Diethyl sebacate-----	ELN.
Diethyl succinate-----	ELN, MRF.
Dihexyl fumarate-----	FB.
d-Dihydrocarveol-----	SCM.
Dihydrocarvone-----	SCM.
Dihydrolinalool-----	SCM.
Dihydro myrcenol-----	IFF.
2,6 Dimethyl-5-hepten-1-al-----	GIV.
Dimethyl hexanediol-----	X.
2,5-Dimethyl-3-hexyne-2,5-diol-----	X.
3,7-Dimethyl-trans-2,6-octadienal (Citral A, Geranial)-----	BDS, FB, FEL, GIV.
3,7-Dimethyl-2,6-octadienal (Citrals A&B)-----	NCI, SCM.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)-----	ELN, FB, GIV, IFF, NCI, SCM.
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)-----	ELN, FEL, GIV, IFF, NCI, SCM.
3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	:
(Linalyl alcohol)-----	ELN, FB, FEL, GIV, IFF, NCI, SCM.
*3,7-Dimethyl-cis-2,6-octadienol, acetate (Neryl	:
acetate)-----	ELN, GIV, IFF.
3,7-Dimethyl-1,6-octadien-3-ol, acetate (Linalyl	:
acetate)-----	ELN, FB, GIV, NCI, SCM(E).
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl	:
isobutyrate)-----	ELN, GIV.
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl	:
propionate)-----	ELN, FB, GIV.
Dimethyloctanal-----	GIV, IFF, SCM.
3,7-Dimethyloctanol-1 (tetrahydrogeraniol)-----	GIV, NCI, SCM.
3,7-Dimethyl-3-octanol-----	GIV, SCM.
Dimethyloctanyl acetate-----	FB.
3,7-Dimethyl-6-octen-1-al (Citronellal)-----	SCM.
*3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	ELN, FB, GIV, IFF, NCI, SCM.
3,7-Dimethyl-7-octenol 70%, 6-octenol isomer 30%-----	GIV.
Dimethyl succinate-----	FB.
Dimyrcetol-----	IFF.
Ethylacetate-----	FB.
Ethyl butyrate-----	ELN, FB, NW.
Ethyl caprate-----	ELN, FB.
Ethyl crotonate-----	RT.
Ethyl formate-----	FB.
*Ethyl heptanoate-----	ELN, FB, FEL.
Ethyl hexanoate-----	ELN, FB, NW.
Ethyl isobutyrate-----	FB.
Ethyl isovalerate-----	ELN, FB.
Ethyl laurate-----	ELN, FB.
Ethyl-2-methyl butyrate-----	HPC, SCM, X.
Ethyl-2 methyl pentanoate-----	HPC.
Ethyl myristate-----	ELN, HPC.
Ethyl nonanoate-----	ELN, FB.
Ethyl octanoate-----	ELN, FB.
Ethyl propionate-----	FB, NW.
Ethyl valerate-----	ELN.
*Geranyl acetate-----	BDS, CI, ELN, FEL, GIV, HPC, IFF, NCI, NW.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*Geranyl butyrate-----	: ELN, FB, GIV.
Geranyl crotonate-----	: FB.
Geranyl ethyl ether-----	: IFF.
*Geranyl formate-----	: BDS, ELN, GIV.
Geranyl isobutyrate-----	: IFF.
Geranyl isovalerate-----	: FB.
Geranyl and methyl tiglate-----	: FMT.
Geranyl nitrile (Citralva)-----	: CI, IFF.
Geranyl propionate-----	: ELN, FB.
Geranyl tiglate-----	: FB.
Glutamic acid, monosodium salt (Monosodium glutamate)-----	: SFF.
Glyceryl tripropionate-----	: HPC.
Heptanolide-----	: FB.
Hexaldehyde diethyl acetal-----	: FB.
Hexanoic acid (Caproic acid)-----	: SCM.
*2-Hexenal-----	: CI, FB, GIV, SCM.
2-Hexenol-----	: FB, SCM.
cis-3-Hexen-1-yl acetate-----	: BDS, GIV.
cis-3-Hexenyl benzoate-----	: BDS.
cis-3-Hexenyl butyrate-----	: SCM.
cis-3-Hexenyl isovalerate-----	: SCM.
cis-3-Hexenyl salicylate-----	: 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, OPC, SCM.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal)-----	: GIV.
4-Hydroxymethyl-4-nonene-----	: FB.
Hydroxy-2-propanone (Acetol)-----	: FB.
Isobutyl acetate-----	: FB.
Isobutyl butyrate-----	: FB.
Isodecyl neopentanoate-----	: SBC.
*Isopentyl acetate (Isoamyl acetate)-----	: ELN, FB, HPC, NW.
*Isopentyl butyrate-----	: FB, GIV, HPC, NW.
Isopentyl caproate-----	: FB.
Isopentyl caprylate-----	: FB.
Isopentyl formate-----	: ELN, FB, RT.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*Isopentyl isovalerate	: ELN, FB.
Isopentyl propionate	: FB.
*Lauraldehyde	: FB, GIV, SCM.
2-Methylbutyl isovalerate	: SCM.
Methyl butynol	: X.
3-Methyl butyraldehyde	: UCC.
Methyl crotonate	: FB, RT.
3-Methyl-5-heptanone oxime	: GIV.
Methyl hexyl ether	: SCM.
Methyl isobutyrate	: HPC.
Methyl isovalerate	: FB.
Methyl-2-methyl butyrate	: SCM.
3-Methyl-2-[and3]nonene nitrile	: GIV.
Methyl-2-nonenoate	: RT.
Methyl nonen-3-oate	: X.
Methyl-octyl aldehyde	: CI.
Methylol methyl hexyl ketone	: GIV.
Methyl pentynol	: X.
α -Methyl thiopropionaldehyde	: RT.
2-Methylundecanal	: CI, GIV.
2-Methyl undecanal dimethylacetal	: CI.
Myrcenyl acetate	: IFF.
Myristaldehyde	: GIV.
Nonanal	: CI.
1,3-Nonanediol acetate	: ELN, GIV.
1,3-Nonanediol diacetate	: SBC.
4-Nonene-4-carboxaldehyde	: FB.
Nonyl acetate	: IFF.
Nonylenic acid	: HPC.
Ocimene	: IFF.
Octanal	: GIV.
Octanal dimethylacetal	: CI.
3-Octanol	: SCM.
3-Octanone (Ethyl amyl ketone)	: GIV.
N-Octyl acetate	: ELN, FB.
Octyl formate	: FB.
Octyl isobutyrate	: FB.
Octyl isovalerate	: GIV.
Pseudo linalyl acetate (Neobergamate)	: IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE
EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Rhodinol-----	FB, FEL, GIV, IFF.
Rhodiny1 acetate-----	IFF.
Tepyl acetate-----	ELN.
Tetrahydro-allocimerol-----	X.
Tetrahydro allo-ocimene-----	IFF.
1,1,3-Triethoxyhexane-----	FB.
1,1,3-Triethoxyoctane-----	FB.
Undecanal-----	CI, GIV.
9-Undecenal-----	GIV.
All other acyclic flavor and perfume materials-----	IFF.

TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 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	KLM :	Kalama Chemical, Inc.
AMB :	American Bio-Synthetics Corp.	MON :	Monsanto Co.
ARS :	Arsynco, Inc.	MRF :	Morflex Chemical Co., Inc.
ARZ :	Arizona Chemical Co.	NCI :	Union Carbide Corp., Terpene and Aromatics Div.
BDS :	Biddle Sawyer Corp.	NW :	Northwestern Chemical Co.
CI :	Chem-Fluer, Inc.	OPC :	Orbis Products Corp.
CWN :	Upjohn Co., Fine Chemical Div.	PD :	Parke-Davis, Div. of Warner-Lambert Co.
DOW :	Dow Chemical Co.	PFZ :	Pfizer, Inc.
ELN :	Elan Chemical Co.	RDA :	Rhone-Poulenc, Inc.
FB :	Fritzsche Dodge & Olcott, Inc.	RSA :	R.S.A. Corp.
FEL :	Felton International, Inc.	RT :	Ritter International
FMT :	Fairmount Chemical Co., Inc.	SBC :	Scher Chemicals, Inc.
GIV :	Givaudan Corp.	SCM :	SCM Corp., Organic Chemicals Div.
HAR :	Haarmann & Reimer Corp.	SFF :	Stauffer Chemical Co., Food Ingredients Div.
HOF :	Hoffmann-LaRoche, Inc.	SFR :	Searle Food Resources, Inc.
HPC :	Hercules, Inc.	SW :	Sherwin-Williams Co., Chemical Div.
IFF :	International Flavors & Fragrances, Inc.	UCC :	Union Carbide Corp.
		UNG :	Ungerer & Co.

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

STATISTICAL HIGHLIGHTS

Edward J. Taylor
202-523-3709

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 1984 are given in table 1. U.S. production of plastics and resin materials in 1984 totaled 48,255 million pounds, or 9.0 percent more than the 44,281 million pounds produced in 1983. Sales in 1984 totaled 40,751 million pounds, valued at \$20,923 million, compared with 38,075 million pounds, valued at \$18,371 million, in 1983.

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 7,997 million pounds in 1984, compared with 7,215 million pounds in 1983. Production of the most important products in 1984 included phenolic (1,656 million pounds), amino (or urea and melamine) resins (1,619 million pounds), polyester resins, unsaturated (1,372 million pounds), and alkyd resins (783 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 40,257 million pounds in 1984 (or 83.4 percent of the total plastics and resin materials output for 1984), compared with 37,065 million pounds in 1983. Production of the most important products in 1984 included polyethylene (15,003 million pounds), polypropylene (5,216 million pounds), vinyl resins (8,292 million pounds), and styrene type materials (6,857 million pounds).

VIII -- PLASTICS AND RESIN MATERIALS

135

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1984

(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 ¹
	1,000 pounds dry basis ²	1,000 pounds dry basis ²	1,000 dollars	Per pound
Grand total-----	48,254,776	40,750,576	20,922,638	\$0.51
THERMOSETTING RESINS				
Total-----	7,997,278	6,419,946	4,043,544	.63
Alkyd resins, total-----	783,058	449,841	290,869	.65
Alkyd-acrylate copolymer resins-----	9,600	...	...	...
Phthalic anhydride type-----	656,936	382,677	235,250	.61
Polybasic acid type-----	50,079	30,770	28,196	.92
Styrenated-alkyds or copolymer alkyds-----	13,066	5,890	3,950	.67
Vinyl toluene alkyds-----	28,438	26,212	18,351	.70
Other copolymer alkyds-----	24,939	4,292	5,122	1.19
Epoxy resins: ^{3 4}				
Unmodified-----	445,511	348,485	457,610	1.31
Advanced-----	(301,073)	(129,989)	(187,697)	(1.44)
Furfuryl type resins-----	24,432	24,245	18,734	.77
Glyoxal-formaldehyde resins-----	15,554	9,010	10,372	1.55
Melamine-formaldehyde resins (an amino resin)-----	229,475	173,607	152,141	.88
Phenolic and other tar acid resins-----	1,656,299	1,245,999	686,473	.55
Polyester resins, unsaturated ⁵ -----	1,371,995	1,308,424	842,557	.64
Polyether and polyester polyols for urethanes ⁶ -----	1,542,224	1,210,702	754,700	.62
Polyurethane elastomers and plastics products, total-----	385,111	268,246	409,257	1.53
Elastomers ⁷ -----	216,763	171,484	303,476	1.77
Plastics-----	168,348	96,762	105,781	1.09
Silicone resins-----	16,062	13,546	57,644	4.20
Urea-formaldehyde resins (an amino resin)-----	1,389,991	1,219,871	238,214	.20
Other thermosetting resins ³ -----	137,566	147,970	124,973	.84
THERMOPLASTIC RESINS				
Total-----	40,257,498	34,330,630	16,879,094	.49
Acrylic resins, total ⁹ -----	1,360,778	953,381	996,194	1.04
Butyl acrylate-ethyl acrylate copolymers resins-----	27,630	...	...	...
Homopolymer resins, except PMMA, of acrylic or methacrylic acid esters-----	82,980	17,552	28,677	1.63
Polymethyl methacrylate (PMMA)-----	503,686	341,856	357,842	1.02
Thermosetting acrylics-----	130,688	26,418	32,632	1.24
Other acrylics-----	615,794	567,555	577,043	1.02
Engineering plastics ¹⁰ -----	744,228	541,671	885,992	1.64
Petroleum hydrocarbons resins-----	292,135	245,519	116,824	.48
Polyamide resins, total-----	386,296	372,534	566,143	1.52
Nylon type ^{10 11} -----	316,891	309,421	496,619	1.60
Non-nylon type-----	69,405	63,113	69,524	1.10

See footnote at end of table.

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

PLASTICS AND RESIN MATERIALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds dry basis ²	1,000 pounds dry basis ²	1,000 dollars	Per pound
THERMOPLASTICS RESINS--Continued				
Polyester resins, saturated, total ^{9 12}	1,191,384	902,539	770,425	\$0.85
Polybutylene terephthalate, (PBT)	112,872	54,449	78,700	1.45
Polyethylene terephthalate (PET)	1,023,947	801,795	657,324	.82
Other saturated polyesters	54,565	46,295	34,401	.74
Polyethylene resins, total	15,003,227	13,428,392	5,084,857	.38
Ethylene-vinyl acetate and other copolymer resins	382,590	316,114	177,721	.56
Specific gravity 0.940 and below ¹³	8,559,395	7,496,690	2,962,810	.40
Specific gravity over 0.940	6,061,242	5,615,588	1,944,326	.35
Polypropylene resins	5,216,443	4,022,896	1,534,552	.38
Polyterpene resins	34,681	36,355	27,629	.76
Polytetrafluoroethylene (PTFE) resins	28,361	22,945	139,425	6.08
Rosin modifications, total	391,125	371,116	187,894	.51
Modified rosin (unesterified)	194,346	186,001	65,693	.35
Modified rosin esters	146,667	137,797	90,433	.66
Rosin esters, unmodified (Ester gums)	50,112	47,318	31,768	.67
Styrene plastics materials, total	6,856,998	5,867,107	3,356,639	.57
Acrylonitrile-butadiene-styrene terpolymer (ABS) resins	1,220,289	1,106,845	925,522	.84
Expandable polystyrene beads	486,874	480,108	284,078	.59
Rubber modified polystyrene	1,406,717	1,397,923	633,236	.45
Straight polystyrene	1,916,593	1,315,177	463,626	.35
Styrene-acrylonitrile copolymer resins (SAN)	658,972	531,911	261,212	.47
All other styrene copolymer resins	311,130	233,516	182,600	.78
Styrene-butadiene latexes	595,805	588,073	388,382	.66
All other styrene latexes	71,957	43,740	32,446	.74
All other styrene plastics materials ¹⁴	188,661	169,814	185,537	1.09
Vinyl resins, total ¹⁵	8,291,936	7,306,868	2,767,335	.38
Polyvinyl acetate ¹⁶	676,948	505,970	299,196	.59
Polyvinyl alcohol ¹⁷	165,746	147,983	124,992	.84
Polyvinyl chloride and copolymers	6,827,541	6,161,105	1,951,904	.32
Polyvinylidene chloride resins, latex type	28,496	26,750	22,738	.85
Vinyl acetate-acrylate copolymers	323,204	286,622	123,221	.43
Other vinyl and vinylidene resins ¹⁸	270,001	178,438	245,284	1.37
All other thermoplastic resins ¹⁹	459,906	259,307	445,185	1.72

¹Calculated from unrounded figures.²Dry weight basis unless otherwise specified. Dry weight basis is the total weight of the materials including resin and coloring agents, extenders, fillers, plasticizers, and other additives, but excluding water and other liquid diluents unless they are an integral part of the materials.³Includes reactive diluents which are an integral part of the resin. Excludes the weight of hardeners sold in association with the resin as part of a two-component system.⁴Data shown for advanced epoxy resins are that part of the unmodified epoxy resins which is further processed; therefore, the total in parentheses are not included in the grand total.⁵Polyester resins are unsaturated alkyd resins, later to be copolymerized with a monomer (Such as styrene or methyl methacrylate), and polyallyl resins (such as diallyl phthalate and diglycol carbonate). Data are on an "as sold" basis, including monomer if part of the resin system.⁶In addition to the polyols, the other principal starting materials used in the production of urethane products are the isocyanic acid derivatives, mainly the 80/20 mixture of toluene-2,4- and 2,6-diisocyanate. Statistics for the isocyanic acid derivatives are reported in the "Cyclic Intermediates" section of the Synthetic Organic Chemicals report.⁷The data on urethane elastomers are believed to be not fully representative of the total urethane market in view of the very large number of urethane elastomer producers.⁸Includes acetone-formaldehyde resins, dicyandiamide resins, polybutadiene resins, thiourea resins, and certain other thermosetting resins.⁹Does not include production or sales for fiber use.

FOOTNOTES--CONTINUED

¹⁰ 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.

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

¹² 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.

¹³ Combines conventional low density polyethylene resins with linear low density polyethylene resins.

¹⁴ Includes data for α -methyl styrene polymers, p-methyl styrene polymers, methyl methacrylate-butadiene-styrene (MBS) resins, 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.

¹⁵ 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.

¹⁶ 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.

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

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

¹⁹ Includes cellulose plastics, coumarone-indene resins, fluorocarbon resins (except PTFE), 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, 1984

[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

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS	
Acetone-formaldehyde resins-----	ACY, DRR, GP.
*ALKYD RESINS:	
*Alkyd-Acrylate copolymer resins-----	FRE, KMC, MNP, OBC, PPG, SCM.
Alkyl phenol-----	X.
*Phthalic anhydride type alkyd resins-----	ACO, ASH, AZS, BAK, BAL, BEN, BFF, BLC, BRU, CCC, CEI, CEL, CGL, CJO, CPV, DEG, DRC, DSO, DUP, ENP, EW, FJI, FMO, FOC, GAI, GEI, GRV, HAN, ICF, JOB, JSC, KMC, KMP, LIC, MCC, MID, MNP, MCP, OBC, PER, PPG, PRT, QCP, RCI, REL, SCM, SCN, SDH, SKT, SM, SRY, SW, TNA, UNO, USS, VSP, X, X.
*Polybasic acid type alkyd resins-----	ACY, BEN, CJO, CPV, DEG, DSO, EW, FJI, FOC, FRE, GAI, GEI, GRV, HAN, ICF, IOV, MCC, OBC, PPG, RCI, REL, SCM, SCN, SKT, SW.
*Styrenated-alkyds, or copolymer alkyds-----	ACY, BLC, CJO, CPV, DSO, EW, FRE, GEI, GRV, HAN, JOB, MCC, MID, MNP, MRT, OBC, REL, RUO, SCM, SW, VSP.
*Vinyl toluene alkyds-----	BLC, CGL, CPV, CSD, FJI, FRE, GEI, JOB, MCC, MNP, OBC, PPG, PRT, REL, SCM, SW.
Alkyd copolymers, all other-----	CGL, DEG, ENP, GEI, MCC, PPG, SW.
Dicyandiamide resins-----	APX, ECC, JSC, S(E), SNW, STC, VPC.
AMINO RESINS:	
*Melamine-formaldehyde resins-----	ACY, AUX, BOR, CBD, CEL, CGL, CPV, DGO, DRC, GAI, GP, GRV, HAN, JSC, LIC, MID, MNP, MON, NVM, OCF, PLS, PMC, PPG, PPL, PST, RCI, REL, SCM, SNW, STC, VSP, WPG, WRD, X.
Thiourea resins-----	CMP.
*Urea-formaldehyde resins-----	ACY, APX, AUX, BOR, CBD, CCC, CEL, CGL, CMP, CPV, DAN, DSO, GAF, GP, GRV, JSC, MMM, MON, PKI, PMC, PPG, PPL, PST, RBI, RCI, REL, SAC, SM, SNW, SOR, VAL, VPC, VSP, X.
Amino resins, all other-----	BAK.
EPOXY RESINS:	
*Epoxy, resins advanced-----	ASH, BEN, CEL, CGL, CGY, CJO, CNI, DSO, ENP, EW, FMO, GAI, GE, GRV, ICF, MCC, MID, MIL, MMM, MRT, OCF, PPG, RCI, SCM, SCN, SW, VSP.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER
REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS--CONTINUED	
EPOXY RESINS--Continued	
*Epoxy, resins unmodified-----	ADC, AZS, CEL, CGY, CLU, CMP, DOW, DSO, ICF, JOB, PPG, PRT, RCI, SHC, UCC, VSP, X.
*Furfuryl type resins-----	ACR, CEI, CLU, DRR, HVG, NCP, UNO, WRD.
*Glyoxal-formaldehyde resins-----	AUX, CMP, RBI, RCI, SNW, WPG.
*Phenolic and other tar acid resins-----	ABS, ACR, ASH, BAK, BME, BOR, BSC, CBD, CEI, CLK, CLU, CPV, DRC, DRR, DSO, EW, GE, GEI, GP, GRG, HER, HKD, HPC, HVG, ICF, INL, IRI, KPT, MCA, MID, MMM, MON, NCI, NCJ, NCP, NTC, NVM, OBC, OCF, PAI, PKI, PLS, PPG, PPL, PSL, PYZ, RAB, RCI, RH, SIM, SKT, SPL, STC, SW, UCC, UNO, USR, VPC, VSV, WCA, WRD, X.
Polybutadiene resins-----	ATR, CCS, CNI, CRS, LC, SCN.
*POLYESTER RESINS, UNSATURATED, AND ALLYL RESINS:	
Allyl resins-----	DRC, FMC, GEI, MCC.
Diallyl isophthalate-----	FMC, GEI.
Polyester resins, unsaturated-----	ACS, ACY, ADC, APH, ASH, AZS, CGL, CJO, CPV, DOW, DSO, ENP, EW, FJI, FRE, GEI, GRG, ICF, ICI, IPC, KPT, MCC, MID, MRT, OCF, PPG, PPL, RCI, SCM, SDH, SIC, SLC, SW, UCC, USS, VSP.
*Polyether and polyester polyols for urethanes-----	ARK, BAS, BPT, CHC, CJO, CPV, CXI, DOW, FRE, ICI, JOB, MCC, MID, MMM, MOB, MRT, NCP, OCF, OMC, PPG, RCI, RUO, SHX, SKT, TX, UNO, UPJ, WLN, WM, WTC.
*POLYURETHANE ELASTOMER AND PLASTIC PRODUCTS:	
*Polyurethane elastomers-----	ACY, ADC, ARO, BFG, BMC, BPT, CAS, CNI, CWN, DA, DCC, DNS, DRC, EEP, EPI, GRD, HXL, ICF, INP, MMM, MOB, MON, MRT, PLN, PPG, PRC, PYI, RUO, SBG, SLC, UPJ, USR, WTC.
*Polyurethane resins-----	ACO, CGL, DSO, DUP, ENP, EW, FRE, GEI, HYC, INP, LC, MCC, MID, MOB, OMC, PEL, PVI, QUN, RBI, RCI, SCM, SCN, SW, UPJ, USM, WTC.
*Silicone resins-----	ARA, CJO, DCC, JOB, LIC, MCC, PEL, SCM, SPD, VPS.
Thiourea-formaldehyde resins-----	APX.
Thermosetting resins, benzenoid, all other-----	ACY, BAK, BAS, DEG, DRC, DSO, ENP, MCC, MID, REL, SCM, SM, VAL, VSP, WPG.
Thermosetting resins, nonbenzenoid, all other-----	BAK, S(E).

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER
REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTIC RESINS	
*ACRYLIC RESINS:	
COPOLYMER RESINS OF ACRYLIC AND/OR METHACRYLIC ACID	
RESINS:	
*Butyl acrylate-ethyl acrylate copolymer resins-----	DSO, QUN, RH, SNW, SYT, UOC, VAL.
Butyl methacrylate-ethyl methacrylate copolymer	
resins-----	UOC, WTC.
Ethyl acrylate-----	DSO.
2-Ethylhexyl acrylate-methy acrylate copolymer	
resins-----	DSO, SYT, UOC.
Lauryl methacrylate-stearyl methacrylate copolymer	
resins-----	TX.
Other copolymer resins of acrylic and/or methacrylic	
acid esters-----	ACO, AZS, BPT, DRB, DRC, DSO, FLH, FMO, GAF, GLC, ICF, JNS, JSC, MID, NSC, OBC, PPG, PRT, PYI, RH, SCP, SM, UCC, WTC.
Ethyl acrylate butyl acrylate copolymer-----	VAL.
HOMOPOLYMER RESINS OF ACRYLIC AND/OR METHACRYLIC	
ACID RESINS:	
*Homopolymer resins of acrylic or methacrylic	
acid esters, except PMMA-----	CPV, CYR, DA, DUP, GLC, GRV, ICF, PVI, PYI, RH, SAR, SW, UOC.
*Polymethyl methacrylate (PMMA)-----	CTP, CYR, DUP, ICF, IOC, JOB, MRT, PKL, PPG, PTC, PVI, RH, SAR, SNW, SYT, USS, WTC.
Polyethyl methacrylate-----	TX.
*Thermosetting acrylate resins-----	ACY, AZS, CEL, CHP, CPV, DA, DSO, DUP, EFH, FMO, FRE, GAI, GRV, HAN, ICF, LIC, MCC, MID, PPG, SCM, VSP.
CELLULOSE PLASTICS AND RESINS:	
Cellulose acetate-----	EKT.
Cellulose acetate butyrate-----	EKT.
Cellulose acetate propionate-----	EKT.
Ethyl cellulose-----	X.
Cellulose plastics, all other-----	DOW, DUP.
Coumarone-indene resins-----	HPC, NEV.
*ENGINEERING PLASTICS:	
Acetal resins-----	CEL, DUP, MCC, MNP, PPG, RAS, WPG.
Polycarbonate resins-----	DOW, GE, MOB, PPG.
Polyimides and amide-imide polymers-----	AMO, DUP, EW, GE, PDI.
Polyphenylene oxide type resins-----	GE.
Polyphenylene 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, 1984--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTIC RESINS--CONTINUED	
FLUOROCARBON RESINS:	
*Polytetrafluoroethylene (PTFE)-----	ACS, DUP, ICI.
Polyvinylidene fluoride resin-----	PAS.
Fluorocarbon resins, all other-----	DUP.
*Petroleum hydrocarbon resins-----	BLC, CFX, CXI, EKK, ENJ, GYR, HPC, ICF, LII, NEV, RCI, X.
Phenoxy (R) resin (other than for coating and adhesives)-----	UCC.
*POLYAMIDE RESINS:	
*Non-nylon type, polyamide resins-----	COO, EFH, EMR, ENJ, HYC, LII, MCC, MON, NCI, PAC, S(E), SCP, SM, SNW, USM.
*Nylon type, polyamide resins-----	ACS, AGI, BCM, CEL, CTR, DGO, DUP, MON, RSN, SCP, USM.
Polybutylene type resins-----	SHC.
*POLYESTER RESINS, SATURATED:	
*Polybutylene terephthalate (PBT)-----	AGI, CEL, GAF, GE, USM.
*Polyethylene terephthalate (PET)-----	COO, DUP, EK, EKT, GEI, GYR, HST, ICI, MMM, MRT, SNW, USM.
*Polyester resins, saturated, all other-----	BPT, CPV, DUP, EKT, FMO, GAI, HYC, ICI, LII, MNP, PPG, SCM, UCC.
*POLYETHYLENE AND COPOLYMERS RESINS:	
*Ethylene-vinyl acetate (EVA) copolymer resins-----	CPX(E), DOW, ENJ, NSC, USI.
*Other ethylene copolymer resins-----	EKT, EKK, PPG, SNW.
*Specific gravity 0.940 and below-----	ACS, CPX(E), DOW, DUP, EKK, ELP, ENJ, GOC, HIM, NWP, SM, SNW, UCC, USI, X.
*Specific gravity 0.940 and below-----	ENJ, NWP, PLC, SM, USI.
*Specific gravity over 0.940-----	ACS, AMO, CPX(E), DOW, DUP, ENJ, GOC, HST, PLC, SLT, UCC, USI.
Polyphenyl aromatic ester resins-----	HPC, MON.
*Polypropylene polymer and copolymer resins-----	AMO, CSD, EKK, ELP, ENJ, GOC, HIM, MIL, NWP, PLC, SHC, SLT, USS.
*Polyterpene resins-----	ARZ, HPC, RCI, SCN.
*ROSIN MODIFICATIONS:	
*Modified rosin (Unesterified)-----	ARZ, CJO, DPP(E), HPC, MON, NCI, SYL.
*Modified rosin esters-----	AZS, BAK, DPP(E), EW, FJI, FRP, GRV, HPC, MCC, NCI, RCI, SCM, STC, SW, SYL.
*Rosin esters, unmodified (Ester gums)-----	ARZ, DPP(E), FRP, HPC, LII, NCI, PRT, RCI, SYL.
*STYRENE TYPE PLASTICS MATERIALS:	
*Acrylonitrile-butadiene-styrene (ABS) terpolymer resins-----	DOW, GRD, GYR, MCB, MON.
p-Methyl styrene polymers-----	SM.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTIC RESINS--CONTINUED	
STYRENE TYPE PLASTICS MATERIALS--Continued	
-Methyl styrene polymers-----	AMO.
*Styrene-acrylonitrile copolymer resins (SAN)-----	BFG, GSD, DOW, MCB, MON, RCI, SM.
POLYSTYRENE:	
*Expandable polystyrene beads-----	ATR, BAS, CSD, HST, MRT, TXS, VIT.
*Rubber modified polystyrene-----	API, CSD, DOW, DPI, HST, MON, PLR, SM.
*Straight polystyrene-----	AEP, AMO, ATR, CSD, DOW, DPI, GAF, GOC, HGC, HST, KTP, MMM, MON, PLR, SM, TXS.
STYRENE LATEXES:	
*Styrene-butadiene latexes-----	DOW, GNT, GRD, GYR, PLR, PYI, UOC.
*Styrene latexes, all other-----	ADC, DOW, GNT, GRD, MCC, MON, PVI, UCC, UOC.
*OTHER STYRENE COPOLYMERS:	
*Methyl methacrylate-butadiene-styrene (MBS) resins----	CYR, RH.
Styrene-allyl alcohol copolymer resins-----	HPC.
Styrene-divinylbenzene copolymer resins-----	RH.
Styrene-maleic anhydride copolymer resins-----	ATR, MON.
Styrene-methyl methacrylate copolymer resins-----	MCC, RCD.
*Styrene copolymers, all other-----	ARZ, BFG, DOW, DSO, DUP, ENP, GYR, IOC, JNS, MON, PLC, PPG, RCD, X.
*Styrene type plastics materials, all other-----	JNS.
*VINYL RESINS:	
*Polyvinyl acetate resins-----	AIP, AZS, BOR, DAN, DSO, FJI, FLH, FLN, GLC, GRD, JOB, JSC, KMP, MNP, MON, NSC, PYI, RCI, RPC, SCM, SCO, SNW, UCC, UOC, X, X.
*Polyvinyl alcohol resins-----	AIP, AZS, DUP, MON.
Polyvinyl butyral resins-----	DUP, MON.
Polyvinyl formal resin-----	EW, MON.
*Vinyl acetate-acrylate copolymers-----	ACO, DSO, FLN, MCC, NCJ, NTC, OBC, PYI, SCM, SNW, SPC, UCC, UOC.
*POLYVINYL CHLORIDE AND COPOLYMER RESINS:	
Polyvinyl chloride copolymer resins, all other-----	BFG, CNT, GNT, HKP, HN.
Polyvinyl chloride homopolymer resins-----	AIP, BFG, BOR, CNT, FOR, GNT, GP, HKP, HN, KYS, MIL, PNT, SHT, UCC, VST.
Vinyl chloride-acetate copolymer resins-----	MCC.
POLYVINYLIDENE CHLORIDE RESINS:	
*Latex type polyvinylidene chloride resins-----	BFG, DOW, GRD, MRT, UOC.
*Vinyl resins, all other-----	DOW, DSO, DUP, NTC, RH, SCM, UCC.
*Thermoplastic resins, all other-----	DPP(E), DUP, MON, MRT, SW, UOC.

VIII -- PLASTICS AND RESIN MATERIALS

143

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 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.	CRS	Colorado Resins, Inc.
ACR	CPC International, Inc., Acme Resin Corp.	CSD	Cosden Oil & Chemical Co.
ACO	Adco Chemical Co.	CTP	Continental Polymers, Inc.
ACY	American Cyanamid Co.	GTR	Custom Resins Div. of Bemis Co., Inc.
ADC	Anderson Development Co.	CWN	Upjohn Co., Fine Chemical Div.
AEP	A & E Plastics Corp.	CYR	CYRO Industries
ACS	Allied Corp., Chemical Section	CXI	Chemical Exchange Industries, Inc.
AGI	EMS-American Grilon, Inc.		
AIP	Air Products & Chemicals, Inc.	DA	Diamond Shamrock Corp., Chemicals Co.
AMO	Standard Oil Co. (Indiana)	DAN	Dan River, Inc., Chemical Products Div.
APH	The Alpha Corporation of Tennessee	DCC	Dow Corning Corp.
API	Asoma Polymers, Inc.	DEG	Degen Oil & Chemical Co., Inc.
APX	Apex Chemical Co., Inc.	DGO	Day-Glo Color Corp.
ARA	Syntex Chemical, Inc.	DNS	Dennis Chemical Co.
ARK	Armstrong World Industries, Inc.	DOW	Dow Chemical Co.
ARO	Arnco	DPI	Dart Polymers, Inc. Sub of Dart Container Corp.
ARZ	Arizona Chemical Co.		
ASH	Ashland Oil, Inc.	DPP	Dixie Pine Chemicals, Inc.
ATR	Atlantic Richfield Co., Arco Chemical Co.	DRB	The Derby Co., Inc.
AUX	Auralux Corp.	DRC	Dock Resins Corp.
AZS	AZS Corp. & AZS Chemical Corp.	DRR	Delta Resins & Refractories
		DSO	DeSoto, Inc.
BAK	Baker International - Magna Corp.	DUP	E. I. duPont de Nemours & Co., Inc.
BAL	Sherwin-Williams Co., Consumers Div.		
BAS	BASF Wyandotte Corp.	ECC	Eastern Color & Chemical Co.
BCM	Belding Chemical Industries	EEP	Eaton Corp., Industrial Polymer Product Div.
BEN	Bennett Paint and Glass	EFH	E. F. Houghton & Co.
BFF	Beatrice Foods Co., Farboil Co. Div.	EK	Eastman Kodak Co.:
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	EKT	Tennessee Eastman Co. Div.
		EKK	Texas Eastman Co. Div.
BLC	Ranbar Technology, Inc. d/b/a Ball Chemical Co.	ELP	El Paso Products Co.
BMC	Brin-Mont Chemicals, Inc.	EMR	Emery Chemicals Div. of National Distillers & Chemical Corp.
BME	Allied Bendix Corp., Friction Materials Div.	ENJ	Exxon Chemical Americas
BOR	Borden, Inc., Borden Chemical Div.	ENP	Insilco Corp., Enterprise Companies Div.
BPT	Beatrice Foods Co., Permethane Div.	EPI	Eagle Pitcher Industries, Ohio Rubber Co. Div.
BRU	M. A. Bruder & Sons, Inc.		
BSC	Cascade Resins, Inc.	EW	Westinghouse Electric Corp., Insulating Materials Div.
CAS	Caschem, Inc.	FJI	Foy-Johnston, Inc.
CBD	Chembond Corp.	FLH	H. B. Fuller Co.
CCC	C.N.C. Chemical Corp.	FLN	Franklin International
CCS	Colorado Chemical Specialties, Inc.	FMO	Ford Motor Co., Paint Plant
CEI	Combustion Engineering, Inc., C-E Cast Products	FMC	FMC Corp.
CEL	Celanese Corp.:	FOG	Handschy Industries, Inc., Farac Varnishes & Chemicals
	Celanese Engineering Resin		
	Celanese Specialty Resins	FOR	Formosa Plastics Corp. - U.S.A.
CFX	Chemfax, Inc.	FRE	Freeman Chemical Corp.
CGL	Cargill, Inc.	FRP	FRP Co.
CGY	Ciba-Geigy Corp.		
CHC	Carpenter Chemical Co.	GAF	GAF Corp., Chemical Group
CHP	C. H. Patrick & Co., Inc.	GAI	Glasurit America, Inc.
CJO	C. J. Osborn Chemicals, Inc.	GE	General Electric Co.:
CLK	Clark Oil & Refining Corp.	GEI	Insulating Materials
CLU	Core-Lube, Inc.	GLC	General Latex & Chemical Corp.
CHP	Commercial Products Co., Inc.	GNT	Gencorp Polymer Div.
CNI	Conap, Inc.	GOC	Gulf Oil Corp., Gulf Oil Products Co.
CNT	Certainteed Corp.	GP	Georgia-Pacific Corp.:
COO	The Terrell Corp.		Plaquemine Div.
CPV	Cook Paint & Varnish Co.		PVC Compound Div.
CPX	Chemplex Co.		Resins Operations

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1984--Continued

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

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1984--CONTINUED

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
SKT :	Textron, Inc., Spencer Kellogg Div.	UNO :	United-Erie, Inc.
SLC :	Soluol Chem Co., Inc.	UOC :	Union Oil Co. of California
SLT :	Soltex Polymer Corp.	UPJ :	Upjohn Co. and Polymer Chemical Div.
SM :	Mobil Oil Corp.:	UPS :	Upjohn Co.
:	Mobil Chemical Co.:	USI :	National Distillers & Chemical Corp.:
:	Chemical Coatings Div.	:	U.S. Industrial Chemicals Co.:
:	Petrochemical Div.	:	National Petro Chemical Corp.
SNW :	Sun Chemical Corp., Chemicals Div.	USM :	Emhart Corp., Bostik U.S. Div.
SOR :	MW Manufacturers, Inc., Southern Resin	USR :	Uniroyal, Inc., Chemical Group
:	Div.	USS :	U.S. Steel Corp., USS Chemicals Div.
SPC :	Insilco Corp., Sinclair Paint Co. Div.	:	:
SPD :	General Electric Co., Silicone Products	VAL :	United Merchants & Manufacturers, Inc.,
:	Dept.	:	Valchem Div.
SPL :	Spaulding Fiber Co., Inc., Industrial	VIT :	Vititek Corp.
:	Plastics Div.	VPC :	Mobay Chemical Corp., Dye & Pigment Div.
SRY :	Synray Corp.	VSP :	The Valspar Corp.
STC :	American Hoechst Corp., Sou-Tex Works	VST :	Vista Polymers, Inc.
SW :	Sherwin-Williams Co., Chemical Div.	VSV :	Valentine Sugars, Inc., Valite Div.
SYL :	Sylvachem Corp.	:	:
SYT :	Synthron, Inc.	WCA :	West Coast Adhesives Co.
:	:	WLN :	Wilmington Chemical Corp.
TNA :	Ethyl Corp.	WM :	Inolex Chemical Co.
TX :	Texaco, Inc., Texaco Chemical Co.	WPG :	West Point-Pepperell, Inc., Grifftex Chemical
TKS :	Texstyrene Plastics, Inc.	:	Co. Sub.
:	:	WRD :	Weyerhaeuser Co.
UCC :	Union Carbide 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.

STATISTICAL HIGHLIGHTS

Jesse Lawrence Johnson
202-523-0127

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 1984 are given in table 1.¹

Production of rubber-processing chemicals as a group in 1984 amounted to 288 million pounds, or 2 percent less than the 293 million pounds produced in 1983. Sales of rubber-processing chemicals in 1984 amounted to 176 million pounds, valued at \$287 million, compared with 203 million pounds, valued at \$312 million, in 1983.

The production of cyclic rubber-processing chemicals in 1984 amounted to 260 million pounds, or 6 percent more than the 246 million pounds produced in 1983. Sales of cyclic rubber-processing chemicals in 1984 totaled 154 million pounds, valued at \$261 million, compared with 163 million pounds, valued at \$279 million, in 1983. Of the total production of cyclic rubber-processing chemicals in 1984, antioxidants, antiozonants, and stabilizers accounted for 62 percent, and accelerators, activators, and vulcanizing agents for 34 percent. Production of antioxidants, antiozonants, and stabilizers, which amounted to 161 million pounds in 1984, included 98 million pounds of amino compounds and 63 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants, antiozonants, and stabilizers in 1984 amounted to 57 million pounds, valued at \$87 million; sales of phenolic and phosphite antioxidants, antiozonants, and stabilizers were 38 million pounds, valued at \$61 million.

Production of acyclic rubber-processing chemicals in 1984 amounted to 28 million pounds, or 40 percent less than the 46 million pounds produced in 1983. Sales in 1984 totaled 22 million pounds, valued at \$26 million, compared with 40 million pounds, valued at \$33 million, in 1983. Dithiocarbamic acid derivatives accounted for 20 percent of the production of acyclic rubber-processing chemicals in 1984.

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

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

[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 ¹
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Grand Total-----	287,579	175,909	286,509	\$1.63
CYCLIC				
Total-----	259,777	153,960	260,701	1.69
Accelerators, activators, and vulcanizing agents				
total-----	89,578	49,579	81,767	1.65
Thiazole derivatives, total-----	80,269	42,765	62,719	1.47
2,2'-Dithiobis[benzothiazole]-----	7,755	6,892	8,548	1.24
2-Mercaptobenzothiazole-----	...	6,531	5,671	.87
All other thiazole derivatvies-----	72,514	29,342	48,500	1.65
All other accelerators, activators, and vulcanizing agents ^{2 3} -----	9,309	6,814	19,048	2.80
Antioxidants, antiozonants, and stabilizers, total----	160,706	95,775	148,594	1.55
Amino compounds, total-----	98,023	57,434	87,109	1.52
Substituted p-phenylenediamines-----	57,944	30,266	48,806	1.61
All other amino compounds ⁴ -----	40,079	27,168	38,303	1.41
Phenolic and phosphite compounds, total -----	62,683	38,341	61,485	1.60
Phosphites-----	48,509	...	...	...
Polyphenolics (including bisphenols)-----	6,640	7,846	22,244	2.84
All other phenolic and phosphite compounds-----	7,534	30,495	39,241	1.29
All other cyclic rubber-processing chemicals ⁶ -----	9,493	8,606	30,340	3.53
ACYCLIC				
Total-----	27,802	21,949	25,808	1.18
Accelerators, activators, and vulcanizing agents,				
total-----	8,763	...	...	...
Dithiocarbamic acid derivatives, total ³ -----	5,590	...	...	...
Dibutyldithiocarbamic acid, nickel salt-----	...	506	1,788	3.53
All other accelerators, activators, and agents ⁷ -----	3,173	...	...	...
All other acyclic rubber-processing chemicals ⁸ -----	19,039	21,443	24,020	1.12

¹Calculated from unrounded figures.

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

³Data 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."

⁴Includes aldehyde- and acetone-amine reactions products.

⁵Also includes other antioxidants, antiozonants, and stabilizers.

⁶Includes blowing agents, peptizers, and other cyclic rubber-processing chemicals.

⁷Includes thiram, xanthates, sulfides, and other accelerators, activators, and vulcanizing agents.

⁸Includes blowing agents, polymerization regulators, shortstops, and other acyclic rubber processing chemical.

TABLE 2.—RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1984

[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]

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
ALDEHYDE-AMINE REACTION PRODUCTS:	
Heptaldehyde-aniline condensate	USR.
Tetrahydro-3,5-dimethyl-4H-1,3,5-oxadiazine-4-thione	RBC.
Triethyltrimethylenetriamine	USR.
Aldehyde-amine reaction products, cyclic, other	DUP.
DITHIOCARBAMIC ACID DERIVATIVES:	
Dibenzylidithiocarbamic acid, sodium salt	USR.
Dibenzylidithiocarbamic acid, zinc salt	USR.
2,4-Dinitrophenyl dimethyldithiocarbamate	USR.
GUANIDINES:	
Diccatechol borate, di-o-tolylguanidine salt	DUP.
*THIAZOLE DERIVATIVES:	
1,3-Bis(2-benzothiazolylmercaptomethyl) urea	RBC.
N-tert-Butyl-2-benzothiazolesulfenamide	BFG, MON, USR.
N-Cyclohexyl-2-benzothiazolesulfenamide	MON, USR.
2,5-Dimercapto-1,3,4-thiadiazole	VNC.
*2,2'-Dithiobisbenzothiazole	BFG, GYR, MON, USR.
*2-Mercaptobenzothiazole	GYR, MON, USR.
2-Mercaptobenzothiazole, copper salt	ACY.
2-Mercaptobenzothiazole derivative	VNC.
2-Mercaptobenzothiazole, zinc salt	GYR, USR, VNC.
N-Morpholinyl-2-benzothiazolyl disulfide	GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide	BFG, USR.
N-Oxydiethylenethiocarbamyl-N'-oxydiethylene-sulfenamide	BFG.
Thiazole derivatives, cyclic, other	X.
*ALL OTHER CYCLIC ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
Bis(morpholinothiocarbamoyl) disulfide	ACY.
Dibenzylamine	USR.
1,3-Dihydro-4(or 5)-methyl-2H-benzimidazole-2-thione	VNC.
Dimethylammonium hydrogen isophthalate	VNC.
Di-N,N'-pentamethylenethiuram tetrasulfide	DUP, VNC.
4,4'-Dithiodimorpholine	MON, USR.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1984--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-----	VNC.
m-Phenylenebismaleimide-----	DUP.
Tetramethylthiuram tetrasulfide-----	GYR.
p-Toluenesulfinic acid, zinc salt-----	USR.
Accelerators, activators, and vulcanizing agents, cyclic, other-----	DUP.
*ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS:	
*AMINO ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS:	
ALDEHYDE- AND ACETONE-AMINE REACTION PRODUCTS:	
Butyraldehyde-aniline 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.
Diarylenediamines, mixed-----	GYR.
N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine-----	GYR, UPM.
N,N'-Di-2-naphthyl-p-phenylenediamine-----	BFG.
N,N'-Diphenyl-p-phenylenediamine-----	BFG.
N-Isopropyl-N'-phenyl-p-phenylenediamine-----	USR.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine-----	UMP.
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-, and tri)-----	USR.
Octyldiphenylamine-----	BFG, USR.
Octyldiphenylamine, alkylated-----	BFG.
p-(p-Toluenesulfonamido)diphenylamine-----	USR.

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

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC—CONTINUED	
*ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS—CONTINUED	
*PHENOLIC AND PHOSPHITE ANTIOXIDANTS AND STABILIZERS:	
PHOSPHITES:	
Alkylaryl phosphites mixed-----	FER, MCB.
Nonylphenyl phosphites, mixed-----	FER, 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-butyldecylhydroquinone-----	USR.
2,5-Di-(1,1-dimethylpropyl)hydroquinone-----	MON.
2,2'-Methylenebis(6-tert-butyl-p-cresol)-----	ACY, FER.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)-----	ACY.
1,1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl) butane-----	ICI.
ALL OTHER PHENOLIC ANTIOXIDANTS AND STABILIZERS:	
Phenol, alkylated-----	ACY, BFG, GYR, NEV, RCI.
Phenol, hindered-----	OMC, USR.
Phenol, styrenated, mixtures-----	GYR, NEV, USR.
N-Stearoyl-p-aminophenol-----	HXL.
BLOWING AGENTS:	
Dinitrosopentamethylenetetramine-----	OMC.
p,p'-Oxybis(benzenesulfonylhydrazide)-----	OMC, USR.
5-Phenyltetrazole-----	OMC.
p-Toluenesulfonylhydrazide-----	USR.
p-Toluenesulfonylsemicarbazide-----	USR.
PEPTIZERS:	
2',2'''-Dithiobis(benzanilide)-----	ACY.
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'-diphenylmethylenedicarbamate-----	USR.
Rubber-processing chemicals, cyclic, all other-----	ACY, FER.

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

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
*DITHIOCARBAMIC ACID DERIVATIVES:	
Dialkylldithiocarbamic acid derivative-----	VNC.
*Dibutylldithiocarbamic acid, nickel salt-----	DUP, USR, VNC.
Dibutylldithiocarbamic acid, sodium salt-----	DUP, USR, VNC.
Dibutylldithiocarbamic acid, zinc salt-----	RBC, VNC.
Diethylldithiocarbamic acid, cadmium salt and bis(diethylthiocarbamoyl)disulfide, mixture-----	VNC.
Diethylldithiocarbamic acid, selenium salt-----	VNC.
Diethylldithiocarbamic acid, sodium salt-----	VNC.
Diethylldithiocarbamic acid, tellurium salt-----	VNC.
Diethylldithiocarbamic acid, zinc salt-----	GYR, VNC.
Dimethylldithiocarbamic acid, bismuth salt-----	VNC.
Dimethylldithiocarbamic acid, copper salt-----	VNC.
Dimethylldithiocarbamic acid, lead salt-----	VNC.
Dimethylldithiocarbamic acid, selenium salt-----	VNC.
Dimethylldithiocarbamic acid, sodium salt and sodium polysulfide-----	BFG.
Dimethylldithiocarbamic acid, zinc salt-----	GYR, USR, VNC.
Dithiocarbamic acid derivatives, acyclic, other-----	DUP, X.
THIURAMS:	
Bis(dibutylthiocarbamoyl) disulfide-----	VNC.
Bis(diethylthiocarbamoyl) disulfide-----	GYR.
Bis(dimethylthiocarbamoyl) disulfide-----	GYR.
Bis(dimethylthiocarbamoyl) sulfide-----	GYR.
N,N'-Dioctadecyl-N,N'-diisopropyl thiuram disulfide---	USR.
XANTHATES AND SULFIDES:	
Di-n-butylxantho disulfide-----	USR.
Diisopropylxantho disulfide-----	BFG.
Zinc isopropyl xanthate-----	VNC.
*ALL OTHER ACYCLIC ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
p-Aminocyclohexylmethane carbonate-----	DUP.
n-Butyraldehyde-butylamine condensate-----	DUP.
BLOWING AGENTS:	
1,2-Hydrazinedicarboxylic acid, bis(1-methylethyl) ester-----	USR.

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

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

TABLE 3.--RUBBER-PROCESSING CHEMICALS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 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.	MCB :	Borg-Warner Corp., Borg-Warner Chemicals
ALC :	Alco Chemical Corp.	MON :	Monsanto Co.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical Group	NEV :	Neville Chemical Co.
DUP :	E. I. duPont de Nemours & Co., Inc.	OMC :	Olin Corp.
FER :	Ferro Corp., Ferro Chemical Div.	PAS :	Pennwalt Corp.
GYR :	Goodyear Tire & Rubber Co.	PLC :	Phillips Petroleum Co.
HXL :	Hexcel Corp., Hexcel Chemical Products	RBC :	Fike Chemicals, Inc.
ICI :	ICI Americas, Inc., Chemicals Div.	RCI :	Reichhold Chemicals, Inc.
KPI :	Kenrich Petrochemicals, Inc.	UPM :	UOP, Inc., UOP Process Div.
		USR :	Uniroyal, Inc., Chemical Group
		VNC :	Vanderbilt Chemical Corp.

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

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 a substance, 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 its 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 1984 are shown in table 1.¹

Total U.S. production² of synthetic rubber in 1984 amounted to 4,609 million pounds, an increase of 14.9 percent from that produced in 1983. Total sales of elastomers in 1984 amounted 2,686 million pounds, a decrease of 0.10 percent from that sold in 1983.

Styrene-butadiene rubber (SBR, or S-type rubber) in 1984 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 S-type rubber, including 22 million pounds of its vinylpyridine sub-type, amounted to 2,000 million pounds in 1984. Solution polymerized butadiene rubber, a stereo type elastomer, was produced domestically in 1984 in the next largest amount--675 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 435 million pounds in 1984; and butadiene-acrylonitrile (NBR-type) rubber, production of which was 146 million pounds.

Sales of S-type rubber by U.S. producers in 1984 amounted to 970 million pounds. Sales of solution polymerized butadiene rubber amounted to 291 million pounds, and those of ethylene-propylene rubber to 349 million pounds. Sales of NBR-type rubber in 1984 amounted to 104 million pounds.

¹ 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.

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

TABLE 1.--ELASTOMERS (SYNTHETIC RUBBER): U.S. PRODUCTION AND SALES, 1984

(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 ²	SALES		
		QUANTITY ²	VALUE	UNIT VALUE ³
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Grand total-----	4,609,305	2,685,808	2,266,325	\$0.84
Butadiene-acrylonitrile type (NBR-type)-----	145,859	104,342	106,127	1.02
Ethylene-propylene type (EP-type)-----	435,048	348,898	274,844	.79
Polyacrylate ester type-----	6,249	4,675	10,124	2.17
Polybutadiene (solution polymerized) type (BR-type)---	675,412	291,239	160,164	.55
Styrene-butadiene type (SBR-type)-----	1,977,321	970,139	442,840	.46
Styrene-butadiene-vinylpyridine type-----	22,420	...	...	...
All other elastomers ⁴ -----	1,346,996	966,515	1,272,226	1.32

¹The term "elastomers" is defined as substance 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.

²Includes oil content of oil-extended elastomers.

³Calculated from unrounded figures.

⁴Includes acrylic ester, butyl, chlorinated natural rubber, chloroprene, epichlorohydrin, fluorinated elastomers, polybutadiene type (emulsion), polyisoprenes, 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, 1984

[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)
CYCLIC ELASTOMERS	
STYRENE-BUTADIENE TYPE:	
*Styrene-butadiene (SBR-Type)-----	ASY, BFG, CPY, FRS, GNT, GRD, GYR, MMM, PLC, PLR, USR.
*Styrene-butadiene-vinylpyridine-----	BFG, FRS, GNT, GYR.
Polyisoprene, cyclized-----	WAY.
ALL OTHER CYCLIC ELASTOMERS:	
Elastomers, cyclic, all other-----	HPC, SHC.
ACYCLIC ELASTOMERS	
*POLYACRYLATE ESTER TYPE:	
Polyacrylate ester, type elastomers-----	ACY, BFG.
Polyalkalene oxide-----	PRC.
POLYALKALENE SULFIDE TYPE:	
Butadiene-acrylic acid-acrylonitrile-----	ASY.
Polyalkalene sulfide, type elastomers-----	MRT.
*BUTADIENE-ACRYLONITRILE TYPE (NBR-TYPE):	
*Butadiene-acrylonitrile type (NBR-Type)-----	BFG, CPY, GYR, MMM, USR.
POLYBUTADIENE TYPE (BR-Type):	
*Polybutadiene type (Solution polymerized)-----	GYR, LC, MRT.
POLYCHLOROPRENE TYPE (NEOPRENE):	
Polychloroprene type (Neoprene)-----	DKA, DUP.
Epichlorohydrin rubbers-----	DUP, HPC.
Fluoroelastomers-----	DUP, MMM.
POLYISOBUTYLENE TYPE:	
Polisobutylene, type elastomers-----	ENJ.
ISOBUTYLENE-ISOPRENE TYPE (BUTYL):	
Isobutylene-isoprene type (Butyl)-----	ENJ.
PRODUCTS OF NATURAL RUBBER::	
Polymerized chlorinated natural rubbers-----	HPC.
SILICONE TYPE:	
Silicone type elastomers-----	DCC, PTS, SPD, SWS.
STEREOISOMER TYPE:	
*Ethylene-propylene rubber (EP-type)-----	CPY, DUP, ENJ, USR.
*Polybutadiene (Solution polymerized)-----	ASY, FRS, GNT, GYR, PLC.
Polyisoprene (Solution polymerized)-----	GYR.
Stereoisomer type, all other-----	ADC, FRS.
ALL OTHER ACYCLIC ELASTOMERS:	
Elastomers, acyclic, all other-----	BFG, DUP.

TABLE 3.--ELASTOMERS (SYNTHETIC RUBBER): DIRECTORY OF MANUFACTURERS, 1984

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of elastomers to the U.S. International Trade Commission for 1984 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.	HPC :	Hercules, Inc.
ADC :	Anderson Development Co.	LC :	Lord Corp., Chemical Products Group
ASY :	American Synthetic Rubber Corp.	MMM :	Minnesota Mining and Manufacturing Co.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical Group	MRT :	Morton-Thiokol, Inc., Morton Chemical Co. Div.
CPY :	Copolymer Rubber & Chemical Corp.	PLC :	Phillips Petroleum Co.
DCC :	Dow Corning Corp.	PLR :	Polysar, Inc., Latex Div.
DKA :	Denka Chemical Corp.	PRC :	Products Research & Chemical Corp..
DUP :	E. I. duPont de Nemours & Co., Inc.	PTS :	Petrarch Systems, Inc.
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 :	Gencorp, Polymers Div.	SWS :	Stauffer Chemical Co., SWS Silicones Div.
GRD :	W. R. Grace & Co., Polymers & Chemical Div.	USR :	Uniroyal, Inc., Chemical Group
GYR :	Goodyear Tire & Rubber Co.	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.

SECTION XI -- PLASTICIZERS

163

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 1,788 million pounds in 1984, an increase of 4.5 percent from the 1,710 million pounds reported for 1983. Sales of plasticizers totaled 1,685 million pounds, valued at \$849 million, in 1984, compared with 1,597 million pounds, valued at \$775 million, in 1983.

Production of cyclic plasticizers in 1984, which consisted chiefly of the esters of phthalic anhydride, phosphoric acid, and trimellitic acid, amounted to 1,338 million pounds, an increase of 4.5 percent from the 1,280 million pounds reported for 1983. Sales of cyclic plasticizers in 1984 totaled 1,307 million pounds, valued at \$578 million, compared with 1,232 million pounds, valued at \$518 million, in 1983. The most important cyclic plasticizers were the dioctyl phthalates, with production of 301 million pounds, in 1984.

Production of acyclic plasticizers in 1984 totaled 449 million pounds, an increase of 4.5 percent from the 430 million pounds reported for 1983. Sales of acyclic plasticizers totaled 378 million pounds, valued at \$271 million, in 1984, compared with 365 million pounds, valued at \$257 million, in 1983. Epoxidized soya oils were the most important acyclic plasticizers in 1984 with production of 104 million pounds.

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1984

[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	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,787,528	1,685,207	848,777	\$0.50
Benzenoid ³ -----	1,496,939	1,425,899	666,926	.47
Nonbenzenoid-----	290,589	259,308	181,851	.70
CYCLIC				
Total-----	1,338,362	1,307,210	577,694	.44
Phosphoric acid esters ⁴ -----	58,242	55,604	56,301	1.01
Phthalic anhydride esters, total-----	1,179,054	1,151,267	451,773	.39
Dibutyl phthalates (including diisobutyl phthalates)-----	22,212	18,901	8,384	.44
Diethyl phthalate-----	17,745	15,104	22,284	1.48
Diisodecyl phthalate-----	145,815	140,802	52,771	.37
Dimethyl phthalate-----	8,637	8,721	5,686	.65
Dioctyl phthalates, total ⁵ -----	301,124	322,078	110,495	.34
Di-tridecyl phthalate-----	21,787	19,468	11,388	.58
All other phthalic anhydride esters-----	661,734	626,193	240,765	.38
Trimellitic acid esters, total-----	53,793	55,928	39,125	.70
Trioctyl trimellitates-----	12,762	12,201	7,698	.63
All other trimellitic acid esters-----	41,031	43,727	31,427	.73
All other cyclic plasticizers ⁶ -----	47,273	44,411	30,495	.67
ACYCLIC				
Total-----	449,166	377,997	271,083	.72
Adipic acid esters, total-----	124,854	87,904	60,163	.68
Di(2-ethylhexyl) adipate-----	27,579	28,530	16,035	.56
Diisooctyl adipate-----	1,490	2,043	1,272	.62
Diisopropyl adipate-----	246	354	323	.91
Ditridecyl adipate-----	7,726	7,464	6,360	.85
All other adipic acid esters-----	87,813	49,513	36,173	.73
Complex linear polyesters and polymeric plasticizers, total-----	45,270	32,794	30,671	.94
Adipic acid type-----	12,737	10,998	10,694	.97
All other-----	32,533	21,796	19,977	.92
Epoxidized esters, total-----	122,430	116,899	69,519	.59
Epoxidized linseed oils-----	4,764	4,663	3,649	.78
Epoxidized soya oils-----	104,196	100,167	57,283	.57
All other epoxidized esters-----	13,470	12,069	8,587	.71
Oleic acid esters, total-----	12,850	11,830	7,567	.64
Butyl oleate-----	1,715	1,831	1,158	.63
Decyl oleate-----	282	278	404	1.45
All other oleic acid esters-----	10,853	9,721	6,005	.62

See footnotes at end of table.

TABLE 1.--PLASTICIZERS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

PLASTICIZERS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
Palmitic acid esters-----	5,436	...	...	...
Phosphoric acid esters-----	31,098	24,325	26,909	1.11
Di(2-ethylhexyl) sebacate-----	3,459	4,241	6,397	1.51
Stearic acid esters, total-----	10,790	11,116	8,579	.77
n-Butyl stearate-----	7,054	7,087	4,091	.58
all other stearic acid esters-----	3,736	4,029	4,488	1.11
All other acyclic plasticizers-----	92,979	88,888	61,278	.69

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

²Calculated from unrounded figures.

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

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

⁵The difference between the production reported here and that shown on the Preliminary Report on U.S. Production of Selected Organic Chemicals (including Synthetic Plastics and Resins Materials, 1983), results from a combination of incorrect reporting by some companies, end-of-year inventory adjustments, and rounding.

⁶Includes data for glycol dibenzoates, toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

⁷Includes 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, 1984

[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 benzenesulfonamide	TNA.
Coumarone-indene plasticizers	NEV.
Dibenzyl azelate	HAL.
Diethylene glycol dibenzoate	KLM, VEL.
Dipropenediol dibenzoate (Dipropylene glycol dibenzoate)	KLM, VEL.
N-Ethyl-p-toluenesulfonamide	MON, NES.
*PHOSPHORIC ACID ESTERS:	
Diphenyl octyl phosphate	MON.
Isodecyl diphenyl phosphate	SFS.
Tricresyl phosphate	FMC, SFS.
Triphenyl phosphate	EK, MON, SFS.
Phosphoric acid esters, all other	FMC, MON, SFS.
*PHTHALIC ANHYDRIDE ESTERS:	
Alkyl benzyl phthalates	MON.
Bis(2-ethylhexyl)terephthalate	EKT.
Butyl benzyl phthalate	MON.
Butyl 2-ethylhexyl phthalate	DBC.
Butyl octyl phthalates	RCI, USS.
Di(2-butoxyethyl) phthalate	HAL.
*Dibutyl phthalate (Including diisobutyl phthalate)	DBC, EKT, HCC, NOD, RCI, USS, WTH.
Dicyclohexyl phthalate	MRF.
Diethylene glycol phthalate	CMB.
Diethyl isophthalate	X.
*Diethyl phthalate	DBC, EKT, KF, MON, MRF.
*Diisodecyl phthalate	DBC, ENJ, NOD, RCI, TEK, USS.
Diisohexyl phthalate	ENJ.
Diisononyl phthalate	DBC, ENJ, TEK, USS.
Di(2-methoxyethyl) phthalate	EKT.
Dimethyl isophthalate	X.
*Dimethyl phthalate	EKT, KF, MRF, WTC.
Dinonyl phthalate	ENJ.
*Di-tridecyl phthalate	ENJ, HCC, NOD, RCI, SM, TEK, USS.
Diundecyl phthalate	MON.
Di-(n-heptyl-n-nonyl) undecyl phthalate	ENJ.
Hexyl n-decyl phthalate	VST.

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

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

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

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ADIPIC ACID ESTERS--CONTINUED:	
Dimethyl adipate	PFZ, X.
Di-n-octyl adipate	WM, WTH.
Di-n-propyl adipate	HCC.
*Di-tridecyl adipate	EMR, HCC, NOD, SM, WM.
Ethylene glycol adipate	HAL.
Neopentyl glycol adipate	HAL.
n-Octyl n-decyl adipate	HAL, HCC, MON, RCI, TEK, USS.
Propylene glycol adipate	HAL.
*Adipic acid esters, all others	DBC, HAL, HCC, WTC.
AZELAIC ACID ESTERS:	
Bis(hydroxypropyl) azelate	EMR.
Dibutyl azylate	EKT.
Di(2-ethylhexyl) azelate	EKT, EMR, RCI.
Diiso-octyl azelate	EMR.
CITRIC AND ACETYLCITRIC ACID ESTERS:	
Tributyl acetylcitrate	X.
Tributyl citrate	X.
Triethyl acetylcitrate	MRF, PFZ.
Triethyl citrate	MRF.
Citric and acetylcitric acid esters, all other	X.
*COMPLEX LINEAR POLYESTERS AND POLYMERIC PLASTICIZERS:	
*Adipic acid type complex linear polyesters and polymeric plasticizers	HAL, MRF, SHX, TEK, WTC, WTH.
*Complex linear polyesters and polymeric plasticizers, all other	EKX, EMR, HPC, MON, RCI, SFS, SM, VND, WM, WTC.
Poly(2,2,4-trimethyl-1,3-pentanediol) maleate	EKT.
Di(2-(2-butoxyethoxy)ethyl) methane	MRT.
*EPOXIDIZED ESTERS:	
*Epoxidized linseed oils	FER, UCC, 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.
Glyceryl tripropionate	EKT.
GLUTARIC ACID ESTERS:	
Butylene glycol glutarate	HAL.
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, 1984--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
MYRISTIC ACID ESTERS:	
Isopropyl myristate	WM, WTH.
Myristyl ethoxy myristate	SCP.
OCTANOIC ACID ESTERS:	
Palmityl octanoate	SBC.
Octanoic acid esters, all other	HAL.
*OLEIC ACID ESTERS:	
*Butyl oleate	CHL, EMR, HAL, TCH, WTC, WTH.
*Decyl oleate	SBC, SCP, VND.
2-Ethylhexyl oleate	HAL.
Glyceryl trioleate (Triolein)	EMR, WTC.
Isobutyl oleate	DA.
Isooctyl oleate	HAL.
Methyl oleate	DA, EMR, TCH, WTC.
Neopentyl glycol dioleate	HCC.
Oleyl oleate	SBC.
Oleic acid esters, all other	EMR, HAL.
Trimethylolpropane trioleate	HCC.
PROPYL OLEATES:	
n-Propyl oleate	CHL, EMR, TCH.
*PALMITIC ACID ESTERS:	
n-Butyl palmitate	EKT.
2-Ethylhexyl palmitate	VND, WTH.
Isopropyl palmitate	TCH, WM, WTH.
2-Methoxyethyl palmitate	EKT.
PELARGONIC ACID ESTERS:	
2-Ethylhexyl pelargonate	SBC.
Glycol pelargonate	EMR, TCH.
Isodecyl pelargonate	EMR.
*PHOSPHORIC ACID ESTERS:	
Tri(2-butoxyethyl) phosphate	FMC, MON.
Tri(2-chloroethyl) phosphate	SFS.
Tri(2-chloropropyl) phosphate	FER, SCS.
Triethyl phosphate	EKT.
Trioctyl phosphate	SFS.
Phosphoric acid esters, all other	SFS.
RICINOLEIC AND ACETYLRICINOLEIC ACID ESTERS:	
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, 1984--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
RICINOLEIC AND ACETYLRICINOLEIC 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	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, SCP, TCH, WM, WTC, WTH.
Diethylene glycol succinate	CMB.
2-Ethylhexyl stearate	STC, TCH.
Glyceryl triacetyl stearate	CAS.
Hexadecyl stearate	HCC, STC.
Isobutyl stearate	DA, TCH, WTH.
Isodecyl stearate	WM.
Methyl hydroxy stearate	CAS.
Methyl pentachlorostearate	VDM.
Myristyl stearate	VND.
2-Octyldecyl-12-stearoyl stearate	VND.
Propylene glycol monohydroxystearate	CAS.
Tridecyl stearate	HCC.
*Stearic acid esters, all other	HPC, 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)	UCC.
Triethylene glycol di(2-ethylhexanoate)	EKT, HAL.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	EKK.
*Acyclic plasticizers, all other	ARZ, EMR, HCC, HPC, TCH.

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1984

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of plasticizers to the U.S. International Trade Commission for 1984 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.	MRT :	Morton-Thiokol, Inc., Morton Chemical Div.
CAS :	Caschem, Inc.	NES :	Ruetgers-Nease Chemical Co.
CHL :	Chemol, Inc.	NEV :	Neville Chemical Co.
CMB :	Cambridge Industries Co.	NOD :	Nuodex, Inc.
DA :	Diamond Shamrock Corp., Chemicals Co.	PFZ :	Pfizer, Inc.
DBC :	Badische Corp.	RCI :	Reichhold Chemicals, Inc.
DOW :	Dow Chemical Co.	SBC :	Scher Chemicals, Inc.
DUP :	E. I. duPont de Nemours & Co., Inc.	SCP :	Henkel, Inc.
EK :	Eastman Kodak Co.:	SFS :	Stauffer Chemical Co., Specialty and
EKT :	Tennessee Eastman Co. Div.		Intermediates Div.
EKK :	Texas Eastman Co. Div.	SHX :	Sherex Chemical Co., Inc.
EMR :	Emery Chemicals Div. of National Distillers	SM :	Mobil Oil Corp., Mobil Chemical Co., Chemical
	& Chemical Corp.		Coatings Div.
ENJ :	Exxon Chemical Americas	STC :	American Hoechst Corp., Sou-Tex Works
FER :	Ferro Corp.:	TCH :	Emery Industries, Inc., Trylon Div.
	Ferro Chemical Div.	TEK :	Teknor Apex Co.
	Grant Chemical Div.	TNA :	Ethyl Corp.
FMC :	FMC Corp.	UCC :	Union Carbide Corp.
HAL :	G. P. Hall Co.	USS :	U.S. Steel Corp., USS Chemicals Div.
HCC :	Hatco Chemical Corp.	VDM :	Van De Mark Chemical Co., Inc.
HOD :	Hodag Chemical Corp.	VEL :	Vesicol Chemical Corp.
HPC :	Hercules, Inc.	VIK :	Viking Chemical Co.
KF :	Kay-Fries, Inc., Chemical Div., Dynamit Nobel	VND :	Van Dyk Div. of Mallinckrodt, Inc.
	of America, Inc.	VST :	Vista Polymers, Inc.
KLM :	Kalama Chemical, Inc.	WM :	Inolex Chemical Div.
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.

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.

Total U.S. production of surface-active agents in 1984 amounted to 5,519 million pounds, or 8.9 percent more than the 5,068 million pounds reported for 1983. Sales of bulk surface-active agents in 1984 amounted to 3,443 million pounds, valued at \$1,874 million, compared with sales in 1983 of 3,030 million pounds, valued at \$1,464 million. In terms of quantity, sales in 1984 were 13.3 percent more than in 1983.

Production of anionic surface-active agents in 1984 amounted to 3,492 million pounds, or 63.3 percent of the total surfactant output reported for 1984. Sales of anionics in 1984 amounted to 1,750 million pounds, valued at \$540 million.

Production of cationic surface-active agents in 1984 amounted to 456 million pounds, 20.9 percent more than the 377 million pounds reported in 1983. Production of nonionic surface-active agents amounted to 1,543 million pounds in 1984, 4.5 percent more than the 1,476 million pounds reported in 1983. Sales of cationic surface-active agents in 1984 increased by 11.1 percent in terms of quantity, and increased by 27.8 percent in terms of value when compared with sales as reported in 1983. Sales of nonionics in 1984 increased by 18.9 percent in terms of quantity, and increased by 50.0 percent in terms of value when compared with sales as reported in 1983.

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 phosphation or sulfation.

XII -- SURFACE ACTIVE AGENTS

175

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1984

[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 ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	5,519,181	3,433,210	1,874,347	\$0.55
AMPHOTERIC				
Total-----	27,881	24,706	27,722	1.12
ANIONIC				
Total-----	3,492,296	1,749,689	539,764	.31
Carboxylic acids (and salts thereof), total-----	823,609	137,791	72,942	.53
Amine salts of fatty, rosin, and tall oil acids-----	2,867	1,590	1,799	1.13
Carboxylic acids having amide, ester, or ether linkages-----	2,707	2,035	2,969	1.46
Castor oil acids, potassium salt-----	38	37	22	.59
Coconut oil acids, potassium salt-----	...	746	391	.52
Coconut oil acids, sodium salt-----	103,110	...	...	...
Oleic acid, sodium salt-----	645	...	...	...
Palm oil acids, sodium salt-----	160	...	...	...
Stearic acid, potassium salt-----	521	388	213	.55
Tallow acids, sodium salt-----	341,811	...	...	...
All other carboxylic acids (and salts thereof)-----	371,750	132,995	67,548	.51
Phosphoric and polyphosphoric acid esters (and salts thereof), total-----	44,606	32,289	28,799	.89
Alcohols and phenols, alkoxylated and phosphated, total-----	31,492	27,257	21,435	.79
Decyl alcohol, ethoxylated and phosphated-----	1,060	1,223	831	.68
Mixed linear alcohols, ethoxylated and phosphated-----	4,933	4,294	4,002	.93
Nonylphenol, ethoxylated and phosphated-----	15,339	13,433	7,955	.61
Phenol alcohol, ethoxylated and phosphated-----	1,514	1,237	1,265	1.02
Tridecyl alcohol, ethoxylated and phosphated-----	760	...	...	...
All other-----	7,886	7,070	7,382	1.04
All other phosphoric and polyphosphoric acid esters (and salts thereof), total-----	13,114	5,032	7,364	1.46
2-Ethylhexyl phosphate, sodium salt-----	231	...	...	...
Mixed alkyl phosphate-----	3,316	1,445	2,175	1.51
All other-----	9,567	3,587	5,189	1.45
Sulfonic acids (and salts thereof), total-----	1,872,218	1,335,152	274,792	.21
Alkylbenzenesulfonates, total-----	582,416	172,247	86,784	.50
Dodecylbenzenesulfonic acid-----	209,278	98,432	45,724	.46
Dodecylbenzenesulfonic acid, ammonium salt-----	112	...	...	...
Dodecylbenzenesulfonic acid, calcium salt-----	8,136	5,127	5,006	.98
Dodecylbenzenesulfonic acid, isopropylamine salt-----	3,706	3,682	2,943	.80
Dodecylbenzenesulfonic acid, sodium salt-----	205,289	54,665	27,282	.50
Dodecylbenzenesulfonic acid, triethanolamine salt-----	7,703	7,391	4,163	.56
Tridecylbenzenesulfonic acid, sodium salt-----	122,108	...	...	...
All other-----	26,084	2,950	1,666	.56

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	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	113,587	97,327	24,967	\$0.26
Cumenesulfonic acid, sodium salt	8,115	8,384	3,490	.42
Xylenesulfonic acid, ammonium salt	13,268	13,432	3,666	.27
Xylenesulfonic acid, sodium salt	70,651	63,386	13,470	.21
All other	21,553	12,125	4,341	.36
Ligninsulfonates and naphthalenesulfonates, total	1,060,057	994,456	94,849	.10
Diisopropylnaphthalenesulfonic acid, sodium salt	1,428	1,253	2,057	1.64
Ligninsulfonic acid, ammonium salt	7,244	6,999	657	.09
Ligninsulfonic acid, calcium salt	618,388	566,546	27,533	.05
Ligninsulfonic acid, chromium salt	81,947	79,514	13,596	.17
Ligninsulfonic acid, sodium salt	286,755	276,634	22,489	.08
All other	64,295	63,510	28,517	.45
Sulfosuccinamic acid derivatives	2,299	1,778	1,946	1.09
Taurine derivatives	2,068	1,512	2,997	1.98
Sulfonic acids having ester or ether linkages, total	76,270	32,776	41,349	1.26
Sulfosuccinic acid esters, total	21,848	18,777	20,990	1.12
Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt	16,001	13,523	16,846	1.25
All other	5,847	5,254	4,144	.79
All other	54,422	13,999	20,359	1.45
All other sulfonic acids (and salts thereof)	35,521	35,056	21,900	.62
Sulfuric acid esters (and salts thereof), total	709,005	229,886	154,860	.67
Acids, amides, and esters, sulfated	12,367	7,436	3,489	.47
Alcohols, sulfated, total	323,633	108,236	75,230	.70
Decyl sulfate, sodium salt	1,553	911	1,000	1.10
Dodecyl sulfate, ammonium salt	32,708	25,608	13,802	.54
Dodecyl sulfate, diethanolamine salt	1,881	1,771	1,141	.64
Dodecyl sulfate, magnesium salt	327	...	...	...
Dodecyl sulfate, sodium salt	43,483	40,136	27,093	.68
Dodecyl sulfate, triethanolamine salt	14,116	10,840	7,883	.73
2-Ethylhexyl sulfate sodium salt	1,499	1,526	1,909	1.25
Mixed linear alcohols, sulfated, ammonium salt	34,190	7,160	4,179	.58
Octyl sulfate, sodium salt	257	228	321	1.40
All other	193,619	20,056	17,902	.59
Ethers, sulfated, total	344,565	88,432	59,540	.67
Alkylphenols, ethoxylated and sulfated	7,870	6,330	6,903	1.09
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	...	6,728	3,000	.45
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	21,654	19,502	14,679	.75
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	94,523	25,544	18,424	.72
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	210,118	29,675	15,700	.53
All other	10,400	653	834	1.28
Natural fats and oils, sulfated, total	28,440	25,782	16,601	.64
Castor oil, sulfated, sodium salt	2,754	2,461	2,163	.88
Neatsfoot oil, sulfated, sodium salt	821	...	...	...
Soybean oil, sulfated, sodium salt	261	250	125	.50
Tall oil, sulfated, sodium salt	831	...	...	...
Tallow sulfated, sodium salt	1,018	801	327	.41
All other	22,784	22,270	13,986	.63
Other anionic surface-active agents	42,858	14,571	8,371	.57

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
CATIONIC				
Total-----	456,071	322,099	348,878	\$1.08
Amine oxides and oxygen-containing amines (except those having amide linkages), total-----	93,123	40,512	36,425	.90
Acyclic, total-----	83,774	32,995	28,657	.87
N,N-Bis(2-hydroxyethyl)octadecylamine-----	164	...	...	...
N,N-Dimethyldodecylamine oxide-----	...	1,490	1,024	.69
(Coconut oil alkyl)amine, ethoxylated-----	2,309	...	...	...
(9-Octadecenyl)amine, ethoxylated-----	1,278	1,053	1,000	.95
(Tallow alkyl)amine, ethoxylated-----	7,934	6,497	3,747	.58
N,N,N',N'-Tetrakis (2-hydroxyethyl) ethylene-diamine-----	...	66	94	1.43
All other-----	72,089	23,889	22,792	.94
Cyclic (including imidazoline and oxazoline derivatives), total-----	9,349	7,517	7,768	1.03
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline-----	...	1,191	1,462	1.23
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline-----	114	92	141	1.53
1-(2-Hydroxyethyl)-2-nor(tallow oil alkyl)-2-imidazoline-----	719	435	1,349	3.10
All other-----	8,516	5,799	4,816	.83
Amines and amine oxides having amide linkages, total-----	31,226	19,614	17,469	.89
Stearic acid-ethylenediamine condensate, mono-ethoxylated-----	143	140	116	.83
Tallow acid polyalkylenepolyamine condensate-----	12,795	...	...	...
All other-----	18,288	19,474	17,353	.89
Amines, not containing oxygen (and salts thereof), total-----	134,982	80,815	88,357	1.09
Amine salts-----	1,109	1,757	1,727	.98
Diamines and polyamines-----	26,575	20,146	32,733	1.62
Imidazoline derivatives-----	8,243	8,230	6,568	.80
N-(9-Octadecenyl)trimethylenediamine-----	1,082	969	1,106	1.14
N-Tallow alkyl)dipropylenetriamine-----	8,038	...	...	...
All other-----	9,212	10,947	25,059	2.29
Monoamines, total-----	107,298	58,912	53,987	.92
N,N-Dimethyloctadecylamine-----	1,790	1,753	2,098	1.20
(Hydrogenated tallow alkyl)amine-----	7,506	4,416	3,278	.74
9-Octadecenylamine-----	6,643	5,026	4,188	.88
Octadecylamine-----	2,434	1,522	1,799	1.18
(Soybean oil alkyl)amine-----	2,187	1,734	1,346	.78
(Tallow alkyl)amine-----	26,437	15,160	9,834	.65
All other-----	60,301	29,301	31,444	1.07
Quaternary ammonium salts, containing oxygen-----	37,902	34,114	31,817	.93
Quaternary ammonium salts, not containing oxygen				
Total-----	156,000	144,079	145,671	1.01
Acyclic, total-----	126,121	116,895	112,232	.96
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	69,685	61,974	55,218	.89
Didecyltrimethyl ammonium chloride-----	374	284	494	1.74
N,N,N',N'-Pentamethyl-N-(tallow alkyl)tri-methylene-bis[ammonium chloride]-----	1,381	1,484	1,080	.73
Trimethyl(soybean oil alkyl) ammonium chloride-----	558	490	599	1.22
All other-----	54,123	52,663	54,841	1.04

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	per pound
CATIONIC--Continued				
Quaternary ammonium salts, not containing oxygen--				
Continued				
Benzenoid, total -----	29,885	27,184	33,439	\$1.23
Benzyl (coconut oil alkyl)dimethylammonium				
chloride-----	369	336	437	1.30
Benzyltrimethyl (mixed alkyl)ammonium chloride----	15,539	14,527	19,286	1.33
Benzyltrimethylammonium chloride-----	3,389	2,816	2,230	.79
All other-----	10,588	9,505	11,486	1.21
Other cationic surface-active agents-----	2,832	2,965	29,049	9.80
NONIONIC				
Total-----	1,542,933	1,336,716	957,983	.71
Carboxylic acid amides, total-----	63,192	50,988	43,185	.85
Diethanolamine codensates (amine/acid ratio=2/1),				
total-----	14,395	12,358	9,948	.81
Coconut oil acids-----	6,621	5,867	4,956	.84
Coconut oil and tallow acids-----	1,928	1,904	1,482	.78
Lauric and myristic acids-----	1,063	528	569	1.08
Oleic acid-----	821	637	445	.70
Steric acid-----	72	...	...	...
Tall oil acids-----	1,445	1,309	914	.70
Tallow acids-----	175	189	158	.83
All other-----	2,270	1,924	1,424	.74
Diethanolamine condensates (other amine/acid				
ratios), total-----	33,590	28,170	24,076	.85
Coconut oil acids (amine/acid ratio=1/1)-----	25,076	20,804	17,292	.83
Lauric acid (amine/acid ratio=1/1)-----	4,008	3,074	3,076	1.00
Lauric and myristic acids (amine/acid ratio=1/1)---	1,892	1,900	1,816	.96
Linoleic acid (amine/acid ratio=1/1)-----	451	419	407	.97
Soybean oil acids (amine/acid ratio=1/1)-----	1,079	1,061	699	.66
Stearic acid (amine/acid ratio=1/1)-----	182	109	92	.84
All other-----	902	803	694	.86
Other carboxylic acid amides, total-----	15,207	10,461	9,161	.88
Coconut oil acid-ethanolamine condensate (amine/				
acid ratio=1/1)-----	5,369	3,509	2,836	.81
Coconut oil acid-ethanolamine condensate (amine/				
acid ratio=2/1)-----	539	...	...	...
Oleic acid ethanolamine condensate, ethoxylated---	114	98	101	1.03
All other-----	4,716	3,411	2,735	.80
Carboxylic acid esters, total-----	264,212	214,449	171,781	.80
Anhydrosorbitol esters, total-----	33,184	31,293	22,730	.73
Anhydrosorbitol monolaurate-----	4,648	4,414	3,288	.74
Anhydrosorbitol mono-oleate-----	7,515	6,282	4,998	.80
Anhydrosorbitol monostearate-----	16,746	16,782	11,169	.67
Anhydrosorbitol trioleate-----	2,524	1,946	1,478	.76
All other-----	1,751	1,869	1,797	.96
Diethylene glycol esters, total-----	1,534	1,012	908	.89
Diethylene glycol monolaurate-----	420	416	287	.69
Diethylene glycol monostearate-----	205	186	203	1.09
All other-----	909	410	418	1.02
Ethoxylated anhydrosorbitol esters, total-----	28,402	26,443	21,135	.80
Ethoxylated anhydrosorbitol monolaurate-----	6,354	6,379	5,347	.84
Ethoxylated anhydrosorbitol mono-oleate-----	6,976	6,573	5,198	.79
Ethoxylated anhydrosorbitol monostearate-----	10,901	9,396	7,287	.78
Ethoxylated anhydrosorbitol trioleate-----	1,986	1,872	1,604	.86
Ethoxylated anhydrosorbitol tristearate-----	1,128	1,192	855	.72
All other-----	1,057	1,031	844	.81

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
NONIONIC--Continued				
Carboxylic acid esters--Continued				
Ethylene glycol distearate-----	3,741	3,445	2,200	\$0.64
Ethylene glycol monostearate-----	2,617	2,328	1,891	.79
Glycerol esters, total-----	60,113	54,273	43,713	.81
Complex glycerol esters-----	11,042	9,356	7,555	.81
Glycerol esters of chemically defined acids, total-----	19,003	15,942	13,128	.82
Glycerol mono-oleate-----	5,983	4,481	3,746	.84
Glycerol monoricinoleate-----	46	41	58	1.42
Glycerol monostearate-----	12,079	11,079	8,938	.81
All other-----	895	341	386	1.13
Glycerol esters of mixed acids-----	30,068	28,975	23,030	.79
Natural fats and oils, ethoxylated, total-----	28,623	22,116	17,683	.80
Castor oil, ethoxylated-----	11,042	7,765	6,322	.81
Hydrogenated castor oil, ethoxylated-----	4,775	3,830	3,983	1.04
Lanolin, ethoxylated-----	1,944	1,259	1,081	.86
All other-----	10,862	9,262	6,297	.68
Polyethylene glycol esters, total-----	59,117	39,163	30,951	.79
Polyethylene glycol diester of tall oil acids-----	3,468	...	...	...
Polyethylene glycol dilaurate-----	1,174	1,066	1,084	1.02
Polyethylene glycol dioleate-----	2,864	1,471	1,073	.73
Polyethylene glycol monoester of tall oil acids-----	707	...	...	...
Polyethylene glycol monolaurate-----	5,087	4,414	3,754	.85
Polyethylene glycol mono-oleate-----	3,658	2,673	1,987	.74
Polyethylene glycol monostearate-----	6,406	5,678	4,544	.80
Polyethylene glycol sesquiester of coconut oil acids-----	766	...	...	...
Polyethylene glycol sesquiester of tall oil acid-----	2,728	2,385	1,695	.71
All other-----	32,259	21,466	16,814	.78
Polyglycerol esters, total-----	2,384	2,309	3,663	1.59
Polyglycerol mono-oleate-----	607	773	773	1.27
All other-----	1,777	1,702	2,890	.70
1,2-Propanediol monostearate-----	1,643	1,476	2,054	1.39
All other carboxylic acid esters-----	42,854	30,547	24,853	.81
Ethers, total-----	1,183,466	1,059,086	725,377	.68
Benzenoid ethers, total ⁴ -----	397,732	347,460	392,744	1.13
Dinonylphenol, ethoxylated-----	4,222	3,558	2,872	.81
Dodecylphenol, ethoxylated-----	13,340	12,929	7,572	.59
(Mixed alkyl) phenol-formaldehyde, alkoxylated-----	2,395	884	670	.76
Nonylphenol, ethoxylated-----	297,216	265,827	330,396	1.24
Nonylphenol, ethoxylated and propoxylated-----	344	474	557	1.17
n-Octylphenol, ethoxylated-----	1,835	1,637	985	.60
Phenol, ethoxylated-----	1,983	716	622	.93
All other-----	76,427	61,435	49,030	.80
Nonbenzenoid ethers, total-----	696,980	650,207	282,653	.43
Chemically-defined linear alcohols, ethoxylated, total-----	23,043	18,106	16,012	.88
Decyl alcohol, ethoxylated-----	7,840	5,638	3,130	.56
Dodecyl alcohol, ethoxylated-----	3,577	2,972	2,482	.84
9-Octadecenyl alcohol, ethoxylated-----	1,041	583	617	1.06
Octadecyl alcohol, ethoxylated-----	1,419	...	...	...
Oleyl alcohol, ethoxylated-----	2,551	2,359	3,069	1.30
All other-----	6,615	6,554	6,714	1.02
Mixed linear alcohols, alkoxylated, total-----	673,937	632,101	266,641	.42
Mixed linear alcohols, ethoxylated-----	626,189	590,069	243,318	.41
Mixed linear alcohols, ethoxylated and propoxylated-----	21,394	20,589	13,540	.66
All other-----	26,354	21,443	9,783	.46

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
NONIONIC--Continued				
Ethers--Continued				
Other ethers and thioethers, total-----	88,754 :	61,419 :	49,980 :	\$0.81
Poly(mixed ethylene, propylene) glycol-----	14,039 :	... :	... :	...
Tridecyl alcohol, ethoxylated-----	13,419 :	9,003 :	5,405 :	.60
All other-----	61,296 :	52,416 :	44,575 :	.85
Other nonionic surface-active agents-----	32,063 :	12,193 :	17,640 :	1.45

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

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

³Calculated from unrounded figures.

⁴The 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).

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

[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	
Acyclic amphoteric surface-active agents, all other-----	DUP, ENJ, S(E), X.
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)tallowammonium ethanoate-----	MIR.
3-[Caprylamidoethylene-(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-(coconut oil amido)propyl-	:
dimethylammonium hydroxide, inner salt-----	CYL, HLI, JOR, MIR, ONX, SCP, SHX, WM.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-	:
imidazolinium hydroxide, sodium derivative, sodium	:
salt-----	BRD, MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-heptyl-2-	:
imidazolinium hydroxide, sodium derivative, sodium	:
salt-----	MIR.
Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-	:
imidazolinium hydroxide, sodium derivative, sodium	:
salt-----	BRD, MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-	:
imidazolinium hydroxide, sodium derivative, sodium	:
salt-----	MIR, SHX.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-	:
imidazoliniumhydroxide, sodium derivative, sodium salt--	MIR.
Cocoamidoamphoglycinate-----	MOA

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)
AMPHOTERIC--CONTINUED	
Cocoamidopropyl betaine-----	CRD.
Cocoamidopropyl betaine-----	MOA.
3-(3-(Cocoamidopropyl)dimethylammonio-2-hydroxypropane sulfonate-----	MIR.
(3-Cocoamidopropyl)(2-hydroxy-3-sulfopropyl)dimethyl, hydroxide, inner salt-----	SBC.
(3-Cocoamidopropyl)-(2-hydroxy-3-sulfopropyl)-dimethyl ammonium hydroxide, inner salt-----	SHX.
3-Cocoamidopropyl-2-hydroxy-3-sulfopropyl dimethyl ammonium hydroxide, inner salt-----	SCP.
Cocoamphocarboxyglycinate-----	MOA.
Cocoamphocarboxypropionate-----	MOA.
Cocoamphopropionate-----	MOA.
N-(Coconut oil alkyl)- β -alanine, partial sodium salt-----	SCP.
N-(Coconut oil alkyl)- β -alanine, sodium salt-----	DUP.
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.
Dimethyltallowammonium ethanoate-----	MIR.
N-Dodecyl-3-iminodipropionic acid-----	MOA.
N-Dodecyl-3-iminodipropionic acid, disodium salt-----	AAC, MIR, MOA, SCP.
N-Dodecyl-3-imino-dipropionic acid, monosodium salt-----	MIR.
N-Dodecyl-3-iminodipropionic acid, sodium and cocoamphocarboxy-glycinate salt-----	AAC.
N-Dodecyl-3-iminopropionic acid, monosodium salt-----	SCP.
N-(Dodecyl and tetradecyl)- β -alanine-----	SCP.
Heptadecylmethylbenzimidazolesulfonic acid, sodium salt-----	BRD.
1-(2-Hydroxyethyl)-2-heptyl-3-carboxyethyl-imidazoline, sodium salt-----	SCP.
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-capryl-2-imidazolinium hydroxide-----	MIR.
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-nor-coconut oil fatty acids-2-imidazolinium hydroxide-----	MIR.
1-Hydroxyethyl-1-(2-hydroxy-3-sodiumsulfonatopropyl)-2-oleyl-2-imidazolinium hydroxide-----	MIR.

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)
AMPHOTERIC—CONTINUED	
1-(2-Hydroxyethyl)-1-(sodium carboxymethyleneoxyethylene)-2-nor-coconut oil fatty acids-2-imidazolinium hydroxide-----	MIR.
Isostearic amphopropionate-----	MOA.
Laurylamidopropyl betaine-----	MOA.
Laurylamphoglycinate-----	MOA.
Mixed acyclic primary amines, ethoxylated and sulfated, sodium salt-----	RH.
(Mixed alkyl)sulfobetaine-----	ACC, BRD, JOR, MOA, X.
Oleic acid-ethylenediamine condensate, propoxylated and sulfated, sodium salt-----	JOR, MOA.
Oleyl betaine-----	SCP.
Polypeptide ammonium salt-----	STP.
Polypeptide, sodium salt-----	STP.
1-(Sodium carboxyethylene)-1-(sodium carboxymethyleneoxyethylene)-2-nor-(tall oil fatty acids)-2-imidazolinium hydroxide-----	MIR.
1-(Sodium carboxymethyl)-1-(sodium carboxymethyleneoxyethylene)-2-nor-(coconut oil fatty acids)-2-imidazolinium lauryl sulfate-----	MIR.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt-----	MIR, MOA, SCP.
Tridecyloxypoly(ethyleneoxy)propionic acid, potassium salt-----	MRV.
ANIONIC	
CARBOXYLIC ACIDS (AND SALTS THEREOF):	
AMINE SALTS OF FATTY, ROSIN, AND TALL OIL ACIDS:	
Coconut oil acids, diethanolamine salt-----	SHX, VAL.
Coconut oil acids, ethanolamine salt-----	SBP.
Coconut oil acids, triethanolamine salt-----	DA.
Isostearic acid, triethanolamine salt-----	PCI.
Octanoic acid, triethanolamine salt-----	X.
Oleic acid, diethylamine salt-----	WTC.
Oleic acid, morpholine salt-----	X.
Oleic acid, triethanolamine salt-----	CPC, X.
Rosin acids, triethanolamine salt-----	CPC.
Stearic acid,N,N,N',N'-tetrakis(2-hydroxyethyl)- ethylenediamine salt-----	ICI.
Stearic acid, triethanolamine salt-----	AAC, CPC, GLY, PCI, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED
OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1983--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)-----	SHX.
Tallow acids, ethanolamine salt-----	SBP.
Tallow acids, triethanolamine salt-----	SBP.
Triethylamine salt-----	STC.
Amine salts of fatty, rosin, and tall oil acids, all other-----	S(E), 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, sodium salt-----	HMP, SFS.
Dodecyloxypoly(ethyleneoxy)acetic acid, sodium salt-----	MIR.
N-Lauroylsarcosine, sodium salt-----	HMP.
Mixed(secondary linear alcohol)polyethylene propionic acid, sodium salt-----	CHP.
N-Oleoylsarcosine, sodium salt-----	GAF.
Carboxylic acids with amide, ester or ether linkage, other-----	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, sodium salt-----	X.
*Castor oil acids, potassium salt-----	CAS, DA, SEA.
Castor oil acids, sodium salt-----	CAS, DEX.
*Coconut oil acids, potassium salt-----	AGP, CON, ESS, HEW, HIP, HNT, LAS, LUR, NMC, PG, PNK, SOP.
*Coconut oil acids, sodium salt-----	BSW, CON, CP, HEW, LAS, LEV, NMC, NPR, PG, SOP, X.
Corn oil acids, potassium salt-----	HNT, NMC.
2-Ethylhexanoic acid, potassium salt-----	UPF.
Heptanoic acid, potassium salt-----	X.
Isostearic acid, isopropoxy titanium salt-----	KPI.
Lauric acid, sodium salt-----	HEW.
Mixed vegetable fatty acids, potassium salt-----	EFH, GRL, QCP.
Mixed vegetable fatty acids, sodium salt-----	NMC, QCP.
Mixed vegetable fatty acids, triethanolamine salt-----	EFH.

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)
ANIONIC--CONTINUED	
CARBOXYLIC ACIDS (AND SALTS THEREOF)--CONTINUED	
POTASSIUM AND SODIUM SALTS OF FATTY, ROSIN, AND	
TALL OIL ACIDS--CONTINUED	
Naphthenic acid, potassium salt-----	WBG.
Oleic acid, ammonium salt-----	CCC.
Oleic acid, epoxidized, ammonium salt-----	SCP.
Oleic acid, potassium salt-----	BSW, HAL, HNT, PG, WBG, X.
*Oleic acid, sodium salt-----	BSW, DA, LAS, USR, WBG, WTC.
Olive oil acids, sodium salt-----	HNT.
Palm kernel oil acids, potassium salt-----	PG.
Palm kernel oil acids, sodium salt-----	NMC, PG.
*Palm oil acids, sodium salt-----	BSW, HEW, LAS.
Rosin acids, potassium salt-----	ARZ, X.
Rosin acids, sodium salt-----	ARZ, SLM(E), X.
Soybean oil acids, potassium salt-----	PNX.
Soybean oil acids, sodium salt-----	LUR.
Stearic acid, ammonium salt-----	BSW.
*Stearic acid, potassium salt-----	BSW, CCC, CON, DA, HEW, WTC.
Stearic acid, sodium salt-----	CCC, CON, DA, NOC, SYP, WTC.
Tall oil acids, potassium salt-----	CON, DA, DAN, DYS, ESS, HIP, HNT, PNX, SOP.
Tall oil acids, sodium salt-----	CON, GDC, NMC, WVA, X.
Tallow acids, potassium salt-----	AGP, DYS, PG, PNX.
*Tallow acids, sodium salt-----	BSW, CON, CP, HEW, LAS, LEV, NMC, NPR, PG, PRX(E), X.
Potassium and sodium salts of fatty, rosin, and	
tall oil acids, all other-----	DA, USR.
OTHER CARBOXYLIC ACIDS:	
Carboxylic acids, all other-----	STC.
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, RPC, TCH.
Decyl alcohol, potassium salt-----	RPC.
Dinonylphenol, ethoxylated and phosphated-----	CPC, GAF, WAY.
Dodecyl alcohol, ethoxylated and phosphated-----	GAF, JOR, MET(E).
Dodecylphenol, ethoxylated and phosphated-----	DEX, GAF.
2-Ethylhexanol and ethoxylated nonylphenol,	
polyphosphated-----	CCC.

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)
ANIONIC--CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ALCOHOLS AND PHENOLS, ALKOXYLATED AND PHOSPHATED--CONTINUED:	
2-Ethylhexanol and ethoxylated nonylphenol, polyphosphated, sodium salt-----	CCC.
2-Ethylhexanol, ethoxylated and phosphated-----	DA, STC, WAY.
2-Ethylhexanol, ethoxylated, phosphated, potassium salt-----	CHP.
2-Ethylhexanol, phosphated-----	MCB.
Hexylalcohol, ethoxylated and phosphated-----	GAF.
Hexylalcohol, phosphated, potassium salt,----- solubilized-----	MCB.
Lauryl alcohol, ethoxylated and phosphated-----	GAF.
Mixed linear alcohol, alkoxyalted and phosphated, potassium salt-----	PCI.
Mixed linear alcohols, ethoxylated, butoxylated and phosphated-----	SCP.
*Mixed linear alcohols, ethoxylated and phosphated-----	CHP, CPC, CRT, CYL, FER, GAF, HIP, HRT, JOR, MCB, MOA, MRV, RPC, 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-----	ARL, CRT, CTL, CYL, DA, DEX, EFH, ESS, FTX, GAF, GDC, HRT, MCB, MCP, MET(E), MOA, MZC, SCP, SHX, SOP, STC, TCC, VPC, WAY, WTC, WVA, X.
Nonylphenol, ethoxylated and phosphated, barium salt-----	WTC.
9-Octadecenyl alcohol, ethoxylated and phosphated-----	GAF, JOR, STC.
9-Octadecyl alcohol, ethoxylated and phosphated-----	GAF.
Octylphenol, ethoxylated and phosphated-----	RH, WTC.
Octylphenol, ethoxylated and phosphated, magnesium salt-----	ONX.
Phenol, ethoxylated and phosphated-----	DEX, GAF, MIL, MOA, MZC, TCH, WTC.
Phenol, ethoxylated and phosphated, potassium salt-----	MCB.
Polyhydric alcohol, ethoxylated and phosphated-----	GAF, JOR, RH.
Tridecyl alcohol, ethoxylated and phosphated, polyalkylene polyamine salt-----	X.
*Tridecyl alcohol, ethoxylated and phosphated-----	DAN, DEX, GAF, HIP, MIL, WTC, X.

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)
ANIONIC--CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ALCOHOLS AND PHENOLS, ALKOXYLATED AND PHOSPHATED--CONTINUED:	
Tridecyl alcohol, ethoxylated and phosphated, potassium salt-----	DEX.
Alcohols and phenols, alkoxyalted and phosphated or polyphosphated, all other-----	GAF.
ALCOHOLS, PHOSPHATED OR POLYPHOSPHATED:	
Butyl methyl pyrophosphate isopropoxy titanium salt octyl phosphite adduct-----	KPI.
Butyl octyl pyrophosphate oxyacetate titanium salt octyl phosphite adduct-----	KPI.
Butyl phosphate, potassium salt-----	DUP.
Decyl and octyl phosphate-----	MZC.
2-Ethylhexyl phosphate-----	CHP, GAF, MCP.
*2-Ethylhexyl phosphate, sodium salt-----	CHP, DAN, WTC.
2-Ethylhexyl polyphosphate-----	SFS.
2-Ethylhexyl polyphosphate, sodium salt-----	DEX, SFS.
Hexyl phosphate-----	ICI.
Hexyl phosphate, potassium salt-----	ICI, STC.
Methyl butyl phosphate ethylenedioxy titanium salt/n,n-dimethylaminoethylmethacrylate salt-----	KPI.
Methylbutyl pyrophosphate, ethylenedioxy titanium salt-----	KPI.
Mixed alkyl phosphate, sodium salt-----	X.
*Mixed alkyl phosphate-----	DUP, SCP, SFS, STC, WTC, X.
Mixed alkyl phosphate, alkylamine salt-----	X.
Mixed alkyl phosphate, diethanolamine salt-----	DUP, SCP.
Mixed alkyl phosphate, potassium salt-----	STC, X.
Mixed alkyl phosphate, triethanolamine salt-----	X.
Octyl phosphate-----	SCP, WTC.
Octyl phosphate, alkylamine salt-----	SCP, X.
Octyl phosphate, ethylenedioxy titanium salt-----	KPI.
Octyl phosphate, isopropoxy titanium salt-----	KPI.
Octyl phosphate oxoethylenedioxy titanium salt-----	KPI.
Octyl phosphate, potassium salt-----	DEX.
Octyl polyphosphate-----	DEX.
Octyl polyphosphate, potassium salt-----	CHP.
Octyl pyrophosphate, ethylenedioxy titanium salt-----	KPI.

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)
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, oxoethylenedioxy titanium salt	KPI.
Octyl pyrophosphate oxoethylenedioxy titanium salt/N,N-dimethylaminobutanol salt	KPI.
Tridecyl alcohol/nonyl phenol ethoxylate, coester phosphate	MET(E).
Phosphated and polyphosphated alcohols, all other	DA, HRT, WTC.
OTHER PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS:	
Blend of fatty and phosphate esters	MIL.
Glycerol, ethoxylated and phosphated	X.
Glycerol monoester of mixed fatty acids, phosphated	WTC.
Hydroxyamine, phosphate ester and salts	SCP.
Polyoxyalkylate(fatty alcohol), phosphate ester	BAS.
Stearyl amine polyphosphoric acid, ethoxylated	GDC.
Phosphoric and polyphosphoric acid esters, all other	X, X.
SULFONIC ACIDS (AND SALTS THEREOF):	
ALKYLBENZENESULFONATES:	
DODECYLBENZENESULFONATES:	
Dodecylbenzenesulfonic acid, monoethanolamine salt	FTX, RPC.
*Dodecylbenzenesulfonic acid	CTL, HLI, JLP, LEV, MON, ONX, PIL, PLX, PRX(E), STP, TCI, TEN, VST, WTC, WVA, X.
Dodecylbenzenesulfonic acid, (Mixed alkyl)amine salt	ECC, HIP, MOA, X.
*Dodecylbenzenesulfonic acid, ammonium salt	CCC, ONX, X.
*Dodecylbenzenesulfonic acid, calcium salt	ICI, RH, STC, STP, TMH, WTC, X.
Dodecylbenzenesulfonic acid, diethanolamine salt	VPC, WTC.
Dodecylbenzenesulfonic acid, isopropanolamine salt	PIL.
*Dodecylbenzenesulfonic acid, isopropylamine salt	CIN, CTL, ICI, STP, WTC.
Dodecylbenzenesulfonic acid, isopropoxy titanium salt	KPI.
Dodecylbenzenesulfonic acid, potassium salt	GDC, PRI(E).
*Dodecylbenzenesulfonic acid, sodium salt	AAC, BLA, CP, CTL, DUP, ECC, HLI, JLP, LEV, NMC, ONX, PG, PIL, PLX, PNK, RPC, SOP, STP, TCH, TEN, VST, WTC, WVA.
*Dodecylbenzenesulfonic acid, triethanolamine salt	AAC, BRD, CCC, CPC, CTL, ESS, FTX, HLI, ONX, PIL, PNK, STP, WTC.
Dodecylbenzene sulfonates, all other	MRV, WTC.

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)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
ALKYLBENZENESULFONATES--CONTINUED	
OTHER ALKYLBENZENESULFONATES:	
Benzenesulfonic acid, mixed linear (C ₉₋₁₄)-----	LEV.
Decylbenzenesulfonic acid, sodium salt-----	CRT.
Tridecylbenzenesulfonic acid-----	PLX.
*Tridecylbenzenesulfonic acid, sodium salt-----	BLA, CMT, CP, LAS, NPR, PG, STP.
Alkylbenzenesulfonates, all other-----	WTC.
BENZENE-, CUMENE-, TOLUENE-, AND XYLENESULFONATES:	
Benzenesulfonic acid, 3,3'-(1-methylethylidene)- bis(6-hydroxydisodium salt), polymer with formaldehyde and 4,4'-sulfonylbis(phenol)-----	DA.
Cumenesulfonic acid, ammonium salt-----	DA, NES.
*Cumenesulfonic acid, sodium salt-----	NES, STP, WTC.
Toluenesulfonic acid, potassium salt-----	NES.
Toluenesulfonic acid, sodium salt-----	NES, ONX, PG, VST, WTC.
*Xylenesulfonic acid, ammonium salt-----	NES, STP, WTC.
*Xylenesulfonic acid, sodium salt-----	ICI, NES, PIL, SDC, STP, WTC.
LIGNINSULFONATES:	
*Ligninsulfonic acid, ammonium salt-----	MAR, PSP, RAY, SPA.
*Ligninsulfonic acid, calcium salt-----	FPC, LKY, MAR, PSP.
*Ligninsulfonic acid, chromium salt-----	MAR, PSP, RAY.
Ligninsulfonic acid, iron salt-----	MAR, PSP.
Ligninsulfonic acid, manganese salt-----	MAR.
Ligninsulfonic acid, mixed chromium and iron salts-----	PSP.
Ligninsulfonic acid, potassium salt-----	PSP.
*Ligninsulfonic acid, sodium salt-----	MAR, PSP, RAY, WVA.
Ligninsulfonic acid, zinc salt-----	MAR, PSP.
NAPHTHALENESULFONATES:	
Butylnaphthalenesulfonic acid, sodium salt-----	DA, ECC, UDI.
Butyl-o-phenylphenol sulfonic acid, sodium salt-----	RBC.
Di(C ₅ -C ₆ alkyl)naphthalenesulfonic acid-----	X.
Dibutylnaphthalenesulfonic acid-----	UDI.
*Diisopropylnaphthalenesulfonic acid, sodium salt-----	DA, DUP, UDI.
Isopropylnaphthalenesulfonic acid-----	UDI.
Methylnaphthalenesulfonic acid, sodium salt-----	CPC, DA, UDI.
Methylnonylnaphthalenesulfonic acid, sodium salt-----	UDI.
Naphthalenesulfonic acid, ammonium salt-----	DA.
4,4'-Sulfonyldiphenolnaphthalenesulfonic acid-----	PCI.
Naphthalenesulfonates, all other-----	HAL, ICI, PCI.

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)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
SULFONIC ACIDS HAVING AMIDE LINKAGES:	
SULFOSUCCINAMIC ACID DERIVATIVES:	
Cocoamidoisopropylsulfosuccinamic acid, disodium salt-----	BRD.
N-(Coconut oil alkyl)sulfosuccinamic acid, disodium salt-----	SCP.
N-(1,2-Dicarboxyethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt-----	ACY, MOA.
Lauric alkanolamidesulfosuccinate, sodium salt-----	TCH.
N-Octadecylsulfosuccinamic acid, disodium salt-----	ACY, WTC.
Oleamido sulfosuccinamic acid, disodium salt-----	SBC.
N-(Oleoyloxyisopropyl)sulfosuccinamic acid-----	WTC.
TAURINE DERIVATIVES:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt-----	FTX, GAF.
N-Methyl-N-oleoyltaurine, sodium salt-----	CPC, GAF, HRT, STC.
N-Methyl-N-palmitoyltaurine, sodium salt-----	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt-----	CCC, FTX, GAF, WVA.
ALL OTHER SULFONIC ACIDS HAVING AMIDE LINKAGES:	
Sulfonic acids having amide linkages, all other-----	STC.
SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
SULFOSUCCINIC ACID ESTERS:	
Sulfosuccinic acid, monoricinolamide ethyl disodium salt-----	TCH.
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, FTX, HDG, MCP, MOA, RH, RPC, SCO, SCP, STC, WTC.
Sulfosuccinic acid, dihexyl ester, sodium salt-----	ACY, MOA.
Sulfosuccinic acid, diisodecyl ester, sodium salt----	ACY.
Sulfosuccinic acid, diisooctyl ester, sodium salt----	DA, SOS.
Sulfosuccinic acid, dioctyl ester, sodium salt-----	MOA.
Sulfosuccinic acid, dipentyl ester, sodium salt-----	ACY.
Sulfosuccinic acid, dis(diisobutyl)ester, amidodisodium salt-----	MOA.
Sulfosuccinic acid, ditridecyl ester, sodium salt----	ACY, MOA.
Sulfosuccinic acid, (coconut oil alkyl)-iminoisopropanol half-ester, sodium salt-----	MOA.
Sulfosuccinic acid, mixed linear alcohols, ethoxylate ester, sodium salt-----	AAC.

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)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES--	
CONTINUED	
SULFOSUCCINIC ACID ESTERS--CONTINUED	
Sulfosuccinic acid, monolauramido ester, disodium salt	MOA.
Sulfosuccinic acid, monolauryl(polyethoxy)ester, disodium salt	TCH.
Sulfosuccinic acid, monooleamidopolyethyleneglycol ester, disodium salt	SCP.
Sulfosuccinic acid esters, all other	WTC.
ALL OTHER SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
Coconut oil acids, 2-sulfoethyl ester, sodium salt	FTX, GAF, JOR, LEV.
Dipolyetherdisulfonic acid, diethanolamine salt	VPC.
Dodecyldiphenyloxidedisulfonic acid	X.
Dodecyldiphenyloxidedisulfonic acid, disodium salt	CTL, DOW, X.
Dodecyl sulfoacetate, sodium salt	STP.
Glycerol monostearate sulfoacetate, sodium salt	WTC.
Iso-octylphenol, ethoxylated and sulfonated, sodium salt	GAF, RH.
n-Octylphenol, ethoxylated and sulfonated, 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.
Mixed alkanesulfonic acid	X.
(Mixed alkane)sulfonic acid	X.
(Mixed alkane)sulfonic acid, sodium salt	AAC, CCL, DUP, ONX, WTC, WVA, X, X.
n-Octanesulfonic acid, sodium salt	ONX.
Oleyloxyethylamide oxypropanol sulfonic acid	S(E).
Petroleumsulfonic acid, water soluble (Acid layer), sodium salt	PIL, WTC.
Styrene maleic anhydride copolymers, sulfonated sodium salt	X.
Tall oil, sulfated, potassium salt	X.
Triglycerides, sulfonated	AZS.
Sulfonic acids, all other	CLU, HAL, SLM(E), STP, WTC.

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)
ANIONIC--CONTINUED	
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, MRV, NSC.
Butyl and propyl oleate, sulfated, sodium salt----	CRT.
Glycerol trioleate, sulfated, sodium salt-----	SCP.
Isopropyl oleate, sulfated, sodium salt-----	DEX.
Methyl oleate, sulfated, sodium salt-----	DA, ICI.
Oleic acid, sulfated-----	ACT.
Oleic acid, sulfated, disodium salt-----	TEN.
Oleic acid, sulfated, sodium salt-----	ACY.
Propyl oleate, sulfated, sodium salt-----	CHP, MRV.
Esters of sulfated oleic acid, all other-----	DA.
OTHER SULFATED ESTERS:	
Glycerol monoester of coconut oil acids, sulfated, sodium salt-----	CP.
Mixed fatty acids, sulfated, sodium salt-----	SCO.
9-Octadecenyl acetate, sulfated, sodium salt-----	DUP.
Tall oil acids, sulfated, sodium salt-----	ICI.
OTHER SULFURIC ACID ESTERS:	
Isobutyl phthalate-----	SHX.
ALCOHOLS, SULFATED:	
Decyl and octyl sulfate, sodium salt-----	TCH.
Decyl sulfate, ammonium salt-----	HLI.
*Decyl sulfate, sodium salt-----	AAC, CRT, HLI, ONX, SCP.
DODECYLSULFATE SALTS:	
*Dodecyl sulfate, ammonium salt-----	AAC, BRD, CTL, CYL, HLI, JRG, LEV, ONX, STP, TCH, TNI, WTC, WVA.
*Dodecyl sulfate, diethanolamine salt-----	BRD, CYL, DUP, JRG, ONX, STP.
Dodecyl sulfate, N,N-diethylcyclohexylamine salt----	DUP.
Dodecyl sulfate, isopropanolamine salt-----	BRD, JRG.
*Dodecyl sulfate, magnesium salt-----	AAC, BRD, CYL, HLI, ONX, WTC.
Dodecyl sulfate, potassium salt-----	PG.
*Dodecyl sulfate, sodium salt-----	AAC, BRD, DUP, HLI, ONX, STP, WTC, WVA.
*Dodecyl sulfate, triethanolamine salt-----	AAC, BRD, CYL, HLI, ONX, SHX, STP, TCH, TNI, WTC, WVA.
3,9-Diethyl-6-tridecyl sulfate, sodium salt-----	NCC.
*2-Ethylhexyl sulfate, sodium salt-----	AAC, BRD, NCC, PCI, SCP, TCH, WTC.

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)
ANIONIC--CONTINUED	
ALCOHOLS, SULFATED--CONTINUED	
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt-----	NCC.
Hexadecyl sulfate, sodium salt-----	AAC, CTL.
Hexyl sulfate, potassium salt-----	DEX.
Lauryl sulfate, sodium salt-----	AZS, MOA.
Linear alcohols, sulfated, all other-----	WTC.
*Mixed linear alcohols, sulfated, ammonium salt-----	CP, NTL, ONX, PG, S(E), SCP, WTC, X.
Mixed linear alcohols, sulfated, diethanolamine salt-----	SCP.
Mixed linear alcohols, sulfated, magnesium salt-----	SCP.
Mixed linear alcohols, sulfated, mixed diethanolamine/triethanolamine salt-----	SCP.
Mixed linear alcohols sulfated, mixed sodium/cocodiethanolamine salts-----	AAC.
Mixed linear alcohols, sulfated, sodium salt-----	AAC, DA, DUP, PG, SCP, WTC.
Mixed linear alcohols, sulfated, triethanolamine salt-----	CTL, ONX, PG, SCP, WTC.
Naphthalene-formaldehyde condensate, sulfated, sodium salt-----	UDI.
*Octyl sulfate, sodium salt-----	AAC, APX, DUP.
Oleyl sulfate, sodium salt-----	DUP.
Polyglycidol sulfate-----	GAF.
Tridecyl sulfate, sodium salt-----	AAC.
ETHERS, SULFATED:	
ALKYLPHENOLS, ETHOXYLATED AND SULFATED:	
(Mixed alkyl)phenol, ethoxylated and sulfated, sodium salt-----	X.
1-Naphthol, ethoxylated and sulfated, free acid-----	TCH.
Nonylphenol, ethoxylated and phosphated, partial sodium salt-----	GAF.
Nonylphenol, ethoxylated and sulfated, ammonium salt-----	GAF, STP.
Nonyl phenol, ethoxylated and sulfated, monoethanol- amine salt-----	PCI.
Nonylphenol, ethoxylated and sulfated, sodium salt-----	GAF, WTC.
Octylphenoxy polyethoxy ethyl sulfate-----	RH.
Sulfated cyclic ethers, all other-----	WVA.
Decyl alcohol, propoxylated and sulfated, sodium salt-----	APX.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt-----	AAC, HLI, MOA, ONX, STP.

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)
ANIONIC--CONTINUED	
ETHERS, SULFATED--CONTINUED	
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt----	AAC, CTL, CYL, HLI, ONX, SCP, STP, TCH.
Hexyl alcohol, propoxylated and sulfated, sodium salt----	APX.
Isobutanol, ethoxylated and sulfated, ammonium salt----	X.
Mixed linear alcohol, ethoxylated and sulfated, mixed sodium and cocoamphocarboxy glycinate salts----	AAC.
*Mixed linear alcohols, ethoxylated and sulfated, ammonium salt-----	PG, SCP, SHC, STP, 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, DUP, GAF, ONX, PG, PIL, SCP, SHC, SHX, STP, TCH, TCI, VST, WTC, WVA.
Tridecyl alcohol, ethoxylated and sulfated, ammonium salt-----	ARC.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt-----	AAC.
NATURAL FATS AND OILS, SULFATED:	
*Castor oil, sulfated, sodium salt-----	ACT, ACY, APX, ARL, CRT, DA, DEX, HIP, ICI, LUR, MRV, SCO, SCP, SLM(E), WHW.
Coconut oil, sulfated, sodium salt-----	ACY, CIN, MRD.
Cod oil, sulfated, sodium salt-----	ACT, SEA, WHW.
Grease, other than wool, sulfated, sodium salt-----	WHW.
Herring oil, sulfated-----	SLM(E).
Herring oil, sulfated, sodium salt-----	SEA, SLM(E), WHW.
Lard, sulfated, sodium salt-----	CRT, MRD, WHW.
Mixed fish oils, sulfated, ammonium salt-----	CIN.
Mixed fish oils, sulfated, bisulfite salt-----	CIN.
Mixed fish oils, sulfated, sodium salt-----	CIN, MRD, SLM(E).
Mixed vegetable oils, sulfated, sodium salt-----	CIN, CPC.
Mustard seed oil, sulfated, sodium salt-----	DA.
*Neatsfoot oil, sulfated, sodium salt-----	CIN, SEA, SLM(E).
Peanut oil, sulfated, sodium salt-----	ACY.
Pecan oil, sulfated, sodium salt-----	CRT.
Pine oil, sulfated-----	SCM.
Ricebean oil, sulfated, sodium salt-----	DA.
*Soybean oil, sulfated, sodium salt-----	ACT, SEA, WHW.
*Tall oil, sulfated, sodium salt-----	ACT, APX, CIN, SOS, WHW.
*Tallow, sulfated, sodium salt-----	ACY, CCC, DA, ECC, LUR, MRD, NSC, SLM(E), SOS, WHW.
Sulfuric acid esters, all other-----	BFP, DA, SLM(E).

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)
ANIONIC--CONTINUED	
OTHER ANIONIC SURFACE-ACTIVE AGENTS:	
Alkylalcohol ethoxylated and carbonated, sodium salt----	S(E).
Blend of hydrocarbons and esters-----	MIL.
Ethoxylated acetic acid, sodium salt-----	S(E).
Half-phthalic acid ester of tallow alkanolamide/ monoglyceride-----	EFH.
Lignin, sodium salt-----	WVA.
Maleated esterified tall oil-----	ENP.
Maleated linseed oil-----	ENP.
Mixed linear alcohols, ethoxylated and carbonated, sodium salt-----	S(E).
Tridecyl alcohol, ethoxylated and carbonated, sodium sodium salt-----	S(E).
Anionic surface-active agents, all other-----	DAN, DUP, MIR, SLM(E).
CATIONIC	
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES):	
ACYCLIC:	
N,N-Bis(2-Hydroxyethyl)(coconut oil alkyl)amine . oxide-----	ARC.
*N,N-Bis(2-Hydroxyethyl)octadecylamine-----	ARC, MET(E), SHX.
N,N-Bis(2-Hydroxyethyl)(tallow alkyl)amine-----	ARC, MZC, SHX.
N,N-Bis(2-Hydroxyethyl)(tallow alkyl)amine acetate-----	MZC.
(Coconut oil alkyl)amine, ethoxylated-----	ARC, ENJ, MZC, SHX, SVC, TCH, X.
(Coconut oil alkyl)amine, ethoxylated, oleate-----	BRD.
Cocoyl amidopropyl dimethylamine oxide-----	ARC, SCP.
Diethylenetriamine, ethoxylated and propoxylated-----	BAK.
Diethylenetriamine, propoxylated-----	BAK.
N,N-Dimethyldodecylamine oxide-----	BRD.
*N,N-Dimethyldodecylamine oxide-----	BRD, HLI, JOR, PG, SBC, SHX, X.
N,N-Dimethylhexadecylamine oxide-----	ARC, BRD, JOR, ONX.
N,N-Dimethyl(hydrogenated tallow alkyl)amine oxide-----	ARC.
N,N-Dimethyl(mixed alkyl)amine oxide-----	PG, S(E).
N,N-Dimethyl oleyl amine oxide-----	SCP.
Ethylenediamine, alkoxyated-----	X.
Hexyloxypropyl amine-----	DUP.
(Hydrogenated tallow alkyl)amine, ethoxylated-----	ENJ, SHX.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)- ethylenediamine-----	ONX, WTC, X.

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)
CATIONIC--CONTINUED	
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES)--CONTINUED	
ACYCLIC--CONTINUED	
3-(3-Isodecyloxy)propylaminopropyl amine-----	SHX.
Methoxypropylamine-----	AZS.
3-(Mixed alkoxy)propylamine, ethoxylated oxides-----	SHX.
3-(3-Mixed alkoxy)propylaminopropyl amine-----	SHX.
(Mixed alkyl)amine, ethoxylated-----	ICI, RH, SHX.
(Mixed alkyl)oxypropylamine-----	AZS.
Mixed tert-alkyl primary amines, ethoxylated-----	BAK.
Myristamine oxide-----	SBC.
*(9-Octadecenyl)amine, ethoxylated-----	ARC, GAF, MET(E), TCH, X.
Octadecylamine, ethoxylated-----	ARC, MET(E), TCH.
3-Octyloxy and 3-decyloxy-propylamine-----	ARC.
Oleylamine, ethoxylated-----	MCB.
Polyalkylene polyamine, ethoxylated-----	X.
Polyether amine, ethoxylated-----	RH.
Polyethylenepolyamine, alkoxylated-----	BAS.
(Soybean oil alkyl)amine, ethoxylated-----	ARC, ENJ, MCB, SHX, SVC.
*(Tallow alkyl)amine, ethoxylated-----	ACR, BAS, DUP, ENJ, GAF, MCB, MRV, S(E), SHX, STC, TCH, WTC, WVA, X.
(Tallow alkyl)amine, propoxylated-----	ARC.
N-(Tallow alkyl)trimethylenediamine, ethoxylated-----	ARC, ENJ.
N-(Tallow alkyl)trimethylenediamine, propoxylated-----	ARC.
Tallow ethyl alkylamine, ethoxylated, sulfate-----	RPC.
Tetraethylene pentamine, ethoxylated-----	TX.
*N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine-----	ARC, MZC, X.
N,N,N',N'-Tetrakis(2-hydroxypropyl)-ethylenediamine, : propoxylated and ethoxylated-----	BAS.
3-(3-Tridecyloxy)propylaminopropyl amine-----	SHX.
Triethanolamine, ethoxylated-----	MIL, TCH.
Triethanolamine salicylate-----	RSA.
Triethanolamine trioleate-----	EFH.
Amine oxides and oxygen-containing amines (Except those with amide linkages), acyclic, all other-----	BAS, DA, ENJ, SDH, X.

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)
CATIONIC--CONTINUED	
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES)--CONTINUED	
CYCLIC:	
Aniline, ethoxylated-----	MIL.
2-Butenedioic acid-(5)-diamine - 1-(2-aminoethyl)-	
2-(tall oil alkyl)-2-imidazoline condensate-----	BAK.
2,5-Dimethoxyaniline, ethoxylated-----	MIL.
2-Heptadecyl-1,4-hydroxymethyl-4-ethyl-2-oxazoline----	BRD.
N-Hexadecylmorpholine-----	BRD.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine-----	BRD, MIR.
*1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline-----	BRD, MIR, MOA, MZC, SCP, SHX.
*1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2- imidazoline-----	AAC, MOA, TCH, WTC.
1-(2-Hydroxyethyl)-2-nor (tallow alkyl)-2- imidazoline-----	MZC.
1-(2-Hydroxyethyl)-2-nor(soya 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-Naphthenic acid amidoethyl)-2-naphthenyl-2- imidazoline-----	ARC.
Rosin amine, ethoxylated-----	BAK, HPC, WTC.
m-Toluidine, ethoxylated-----	MIL.
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, ENJ, GAF, WTC, WVA.
Coconut acids, dimethylpropylamine condensate, carboxylated-----	AAC.
Coconut oil acids-N,N-dimethyltrimethylenediamine condensate-----	FTX, SCP.
Mixed fatty acids-polyalkylenepolyamine condensate----	TCH.
Naphthenic 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, 1984--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	
Naphthenic acids-tall oil fatty acids-polyalkylene polyamine condensate-----	X.
2-Nor tall oil alkyl-1-tall oil amidoethyl imidazoline-----	SHX.
Oleic acid-diethylenetriamine condensate-----	DA, LUR.
Oleic acid-N,N-dimethyltrimethylenediamine condensate-----	CCW.
Pelargonic acid-tetraethylenepentamine condensate-----	ICI, STC.
Stearic acid-diethylenetriamine condensate-----	DA, JOR, S(E).
Stearic acid-diethylenetriamine condensate, ethyl sulfate-----	GDC.
Stearic acid-ethylenediamine condensate-----	CLD, SOS.
Stearic acid-ethylenediamine condensate, monoethoxylated ethyl sulfate-----	GDC.
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-diethylenetriamine condensate-----	MET(E), SCP, STC, WVA.
Tall oil acids-N,N-dimethylpropylenediamine condensate-----	FER.
*Tall oil acids-polyalkylenepolyamine condensate-----	QCP, SHX, 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:	
*Stearic acid-ethylenediamine condensate, monoethoxylated-----	DEX, GDC, ICI, SLC.
OTHER AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
Cocoamidopropyl dimethyl amine oxide-----	SBC.
N,N'-(Di-tall oil acid)amidoethylamine-----	BAK.
3-Lauramido-N,N-dimethylpropylamine oxide-----	JOR, ONX, SNW.
Stearamidoethyldiethylamine-----	S(E).
Stearamidoethylethanolamine acetate-----	S(E).
Stearic acid, diethanolamine condensate, methyl sulfate-----	DUP.
Tallow-amido-propyl dimethylamine oxide-----	ONX.

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)
CATIONIC--CONTINUED	
AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF):	
AMINE SALTS:	
N-(2-((2-Aminoethyl)amino)ethyl)octadecanamide	
acetate or octadecanamide, N,N'-(imino-2,1-	
ethanediy)bis, monoacetate-----	DA.
(Coconut oil alkyl)amine acetate-----	ARC.
N,N-Dimethyl-N-alkylamine phosphate-----	X.
(Hydrogenated tallow alkyl)amine acetate-----	ARC, WTC.
(Mixed alkyl)amine phosphate-----	X.
Octadecylamine acetate-----	ARC, STC.
(Tallow alkyl)amine acetate-----	ARC, X.
N-(Tallow alkyl)trimethylenediamine acetate-----	ARC.
N-(Tallow alkyl)trimethylenediamine oleate-----	ARC, JTO.
DIAMINES AND POLYAMINES:	
N-(Coconut oil alkyl)trimethylenediamine-----	JTO, SHX.
N-(Coconut oil alkyl)trimethylenediamine, adipic	
acid salt-----	X.
N-(Dimeracidalkyl)trimethylenediamine-----	ENO.
Dimethylaminopropylamine-----	AZS.
N-(Docosyl and eicosyl)trimethylenediamine-----	ENO.
N-Dodecyl-diethylenetriamine-----	ARC.
N-(Ethylhexyl)trimethylenediamine-----	ARC.
IMIDAZOLINE DERIVATIVES:	
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-	
imidazoline-----	SCP, WTC.
2-Heptadecyl-2-imidazoline-----	CGY, SCO.
Stearamidoethyl-2-heptadecyl imidazoline-----	ICI.
N-(Mixed alkyl)polyethylenepolyamine-----	CCW, WTC.
*N-(9-Octadecenyl)trimethylenediamine-----	ARC, JTO, SHX.
2-Propyl-3-tallow-1,3-tetrahydropyrimidine-----	ARC.
N-(Soybean oil alkyl)trimethylenediamine-----	ENO.
3-(Tall oil amino)propyl amine-----	SHX.
*N-(Tallow alkyl)dipropylenetriamine-----	ARC, ENJ, SHX.
N-(Tallow alkyl)trimethylenediamine-----	ARC, JTO.
N-(Tallow alkyl)-N,N',N'-trimethyl-1,3-propane	
diamine-----	ARC.
3-Tetradecylaminopropyl amine-----	SHX.
N,N',N'-Trimethyl-N-alkyl-1,3-propane diamine-----	ARC.
Diamines and polyamines, all other-----	X, X.

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)
CATIONIC--CONTINUED	
AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF)--	
CONTINUED	
PRIMARY MONOAMINES:	
Alkyl dimethyl amine oxide-----	STC.
Arachidylbehenylalkyl amine-----	ENO.
(Coconut oil alkyl)amine-----	ARC, JTO, MCB, SHX.
Dimeracidalkyl amine-----	ENO.
Dodecylamine-----	ARC, SHX.
Hexadecylamine-----	ARC, ENO.
*(Hydrogenated tallow alkyl)amine-----	ARC, ENJ, ENO, JTO, SHX.
(Mixed alkyl)amine-----	SHX.
*9-Octadecenylamine-----	ARC, ENO, JTO, SHX.
*Octadecylamine-----	ARC, ENO, SHX.
*(Soybean oil alkyl)amine-----	ARC, ENO, JTO.
(Tall oil alkyl)amine-----	ARC.
*(Tallow alkyl)amine-----	ARC, ENJ, ENO, JTO, SHX.
SECONDARY AND TERTIARY MONOAMINES:	
Bis(coconut oil alkyl)amine-----	ARC.
Bis(hydrogenated tallow alkyl)amine-----	ARC.
Bis(tallow alkyl)amine-----	ARC.
N,N-Dimethyl(behenyl alkyl)amine-----	ENO.
N,N-Dimethyl(coconut oil alkyl)amine-----	AAC, ARC, ENO.
N,N-Dimethyldodecylamine-----	ARC, TNA.
N,N-Dimethylhexadecylamine-----	ARC, ONX, SHX, TNA.
N,N-Dimethyl(hydrogenated tallow alkyl)amine-----	ARC.
N,N-Dimethyl(mixed alkyl)amine-----	BRD, ONX, TNA.
N,N-Dimethyl(9-octadecenyl-alkyl)amine-----	ENO.
N,N-Dimethyl-9-octadecenylamine-----	ARC.
*N,N-Dimethyloctadecylamine-----	ARC, ENO, SHX, TNA.
N,N-Dimethyl(soybean oil alkyl)amine-----	ARC, ENO,
N,N-Dimethyl(tallow alkyl)amine-----	ENO.
N,N-Dimethyltetradecylamine-----	ARC, BRD, TNA.
N-Methylbis(coconut oil alkyl)amine-----	ARC, SHX.
N-Methylbis(hydrogenated tallow alkyl)amine-----	ARC, ENO, SHX.
Methyl diidecylamine-----	TNA.
N-Methyldioctadecylamine-----	ARC.
Triisodecylamine-----	SCP.
Trilaurylamine-----	SCP.
Tri(mixed alkyl)amine-----	SHX, TNA.
Trioctylamine-----	SCP, SHX.
Tri(tridecyl)amine-----	SHX.
Secondary and tertiary monoamines, all other-----	ARC.

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)
CATIONIC—CONTINUED	
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS:	
Alkyldimethylamine diethyl sulfate	DA.
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2-hydroxyethyl)ammonium ethyl sulfate	LUR.
Benzene-methan ammonium-N-(3-aminopropyl)-N,N-dimethyl-N-cocoacyl derivatives-chlorides	BAK.
Benzene-methan ammonium-N,N-dimethyl-N-tetradecyl-chloride	BAK.
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)-ammonium chloride	SCP, X.
Benzyl(coconut oil alkyl,ethoxylated)-dimethylammonium chloride	SCP.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	BAK, X.
Benzyl(rosin amine)ammonium chloride, ethoxylated	BAK.
Benzyl(tallow alkyl)bis(2-hydroxyethyl)ammonium chloride	DUP.
Bis(N-Amidopropyl, N,N-dimethyl, N-benzyl ammonium chloride)	SBC
Bis(N-amidopropyl)-N,N-dimethyl-N-ethylammonium ethyl sulfate, dimer acid	SBC.
Bis(N,N1-ethyl(stearic/arachidic/behenic)amide)-cyanoethyl ethylammonium ethosulfate	PCI.
Bis(2-hydroxyethyl)(coconut oil alkyl) ammonium chloride	ARC.
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)methyl (tallow alkyl)methosulfate	ARC.
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)-methylammonium chloride	ARC, ENJ, GAF, SHX.
Dimethyl dodecyl ethyl ammonium ether sulfate	PCI.
Ethanaminium, 2-hydroxy-N,N-bis(2-hydroxyethyl)-N-methyl-, salt with silicic acid	TCH.
Ethoxylated tallow amine, potassium propionate derivative	SVC.
N-Ethyl-N,N-bis(polyoxyethylene)tallow ammonium ethyl sulfate	SHX.

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)
CATIONIC--CONTINUED	
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS--CONTINUED	
Ethyl dimethyl ricinoleamidopropylammonium ethyl sulfate-----	MOA.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolinium ethyl sulfate-----	ICI, SHX.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate-----	BRD, ICI.
1-Ethyl-2-isoheptadecyl-1-(2-hydroxyethyl)-2-imidazolinium ethyl sulfate-----	SBC.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate-----	ICI.
α-Glyconamidopropyl dimethyl-2-hydroxyethyl ammonium ammonium chloride-----	VND.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium ammonium dihydrogen phosphate-----	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium nitrate-----	ACY.
Hydroxyethyl-2-undecyl-2,3-imidazoline-----	MOA.
Hydroxypropylammonium acetate-----	X.
N-2-Hydroxypropyl-N-methyl-N,N-bis(tallowamido ethyl) ammonium ethyl sulfate-----	SHX.
Isostearamidopropyl dimethylamino glycolate-----	SBC.
(3-Lauramidopropyl)trimethylammonium methyl sulfate-----	ACY.
2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride-----	WTC.
Methyl dioleyl ethoxy ammonium methyl sulfate-----	SHX.
1-Methyl-2-(8-heptadecenyl)-1-(9-octadecenyl)amido ethyl-----	SHX.
1-Methyl-2-nor-tallow-1-2-tallow amidoethyl-imidazoliniummethyl sulfate-----	SHX.
N-Methyl-N-polyoxyethylene-N,N-bis(hydrogenated allow amidoethyl)ammonium-----	SHX.
N-Methyl-N-polyoxyethylene-N,N-bis(tallow amidoethyl)-----	SHX.
1-Methyl-2-(2-stearoyloxyethyl)carbamoylpyridinium chloride-----	WTC.
Methyltallowdiethylenetriamine condensate, polyethoxylated,methyl sulfate-----	SVC.
Methyltallowdiethylenetriamine condensate, polypropoxylated, methyl sulfate-----	SVC.
Mixed fatty acid amide with diethylene triamine/ethyl sulfate-----	EFH.

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)
CATIONIC--CONTINUED	
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS--CONTINUED	
Oxygen-containing quaternary ammonium salts (Except those having amide linkages), all other	ARC, BAK, ENJ, X, X.
Polyethyleneimine methyl ammonium sulfate	STC.
1-Propanaminium, N-ethyl-N,N-dimethyl-3-(1- oxooctadecyl)amino-, ethyl sulfate	SBC.
Stearylamidopropyl dimethyl myristyl acetate ammonium chloride	VND.
Stearyl dimethylammoniummethosulfate quaternary	SVC.
Tallow amine, ethoxylated, quaternary ammonium salt	DUP, VND.
Tetra butyl ammonium hydrogen sulfate	HXL.
Quaternary ammonium salts having amide linkages, all other	BAK, ENJ, SNW, VND.
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN:	
ACYCLIC:	
Bis(coconut oil alkyl)dimethylammonium chloride	ARC, ENJ, ONX, SHX, WTC.
Biscoconut oil alkyl dimethylammonium nitrate	ARC.
*Bis(hydrogenated tallow alkyl)dimethylammonium chloride	ARC, ENO, ONX, SHX, SVC.
Bis(hydrogenated tallow alkyl)- dimethylammoniummethyl sulfate	ARC, ONX, SHX.
Bis(tallow alkyl)dimethyl ammonium chloride	SHX.
Bis(tallow alkyl)dimethylammonium chloride	ARC.
Cocodimethyl ethyl ammonium ethyl sulfate	SHX.
N-(Coconut oil alkyl)aminobutyric acid, sodium salt	ARC, BRD, ONX, SHX.
Dicocodimethyl ammonium methyl sulfate	SHX.
*Didecyldimethylammonium chloride	HNT, JTO, ONX.
Dilauryldimethylammonium chloride	HXL.
Dimethyldi(C12-18)ammonium chloride (mixed straight and branched chains)	SHX.
Dimethyldioctadecylammonium choride	ARC, SHX.
Dimethyldioctadecylammonium methyl sulfate	ARC, SHX.
Dimethylditallow ammonium chloride	SHX.
N,N-Dioctyl-N,N-dimethyl ammonium chloride	BRD, HNT.
Ditallowamidoammonium sulfate	CRD.
Dodecyltrimethylammonium chloride	ARC.
Ethylidimethyl(mixed alkyl)ammonium ethyl sulfate	DEX, JOR.
Ethylhexadecyldimethylammonium bromide	HXL.
Hexadecyltrimethylammonium bromide	HXL.
Hexadecyltrimethylammonium chloride	ARC, BRD, SHX.

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)
CATIONIC--CONTINUED	
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN--	
CONTINUED:	
ACYCLIC--CONTINUED	
(Hydrogenated tallow alkyl)trimethylammonium chloride-----	ARC.
Methyl-1-tallowamidoethyl-2-tallowimidazolium-methyl sulfate-----	CRD.
Methyl tri(C ₉₋₁₀)ammonium chloride-----	SHX.
Methyltrioctylammonium chloride-----	BRD, SCP.
(Mixed alkyl)ammonium chloride-----	MIL.
Mixed linear alcohols, sulfated, ammonium salt-----	STC.
(Mixed linear alkyl)trimethyl ammonium bromide-----	ARC, DUP.
Mixture of N-octyl, N-decyl, N,N-dimethyl ammonium chloride and benzyl, dimethyl, (mixed alkyl) ammonium chloride-----	BRD.
N-Octyl, N-decyl, N,N-dimethyl ammonium chloride-----	BRD, HNT.
*N,N,N',N',N'-Pentamethyl-N-(tallow alkyl)-trimethylene-bisammonium chloride-----	ARC, JTO, SHX.
Stearic acid ethylene diamine methyl ammonium sulfate-----	STC.
Tetrabutylammonium bromide-----	EK, HXL, RSA.
Tetradecyl-4-ethyl pyridinium chloride-----	HXL.
Tetraethylammonium bromide-----	EK, RSA.
Tetraethylammonium chloride-----	EK.
Tetraheptylammonium bromide-----	EK.
Tetra methylammonium bromide-----	RSA.
Tetramethylammonium chloride-----	RSA.
Tetramethylammonium hydroxide-----	RSA.
Tetrapropylammonium bromide-----	EK.
Tetrapropylammonium hydroxide-----	RSA.
Tributylmethylammonium chloride-----	TNA.
Trihydrogenated tallowammonium chloride-----	ENO.
Trimethyldodecylammonium chloride-----	ONX.
Trimethyl(mixed alkyl)ammonium chloride-----	SVC.
Trimethyloctadecylammonium chloride-----	ARC.
*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, WTC, X.

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)
CATIONIC—CONTINUED	
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN—	
CONTINUED:	
BENZENOID:	
*Benzyl(coconut oil alkyl)dimethylammonium chloride—	CCL, CRT, ENO, GDC, HRT, ONX, SCP, TCC.
Benzyl-di(hydrogenated tallow alkyl)-	
methyammonium chloride—	ARC.
*Benzyl dimethyl(mixed alkyl)ammonium chloride—	AAC, BRD, CRD, FTX, HNT, JOR, ONX, PCI, RH,
	SCP, SDH, SHX, X.
Benzyl dimethyloctadecylammonium chloride—	HXL, JOR, ONX, SCP, SHX, TNI.
Benzyl dimethyl(tallow alkyl)ammonium chloride—	ENO, HLI.
Benzyl dimethyltetradecylammonium chloride—	BRD, HXL.
Benzyl dodecyl dimethylammonium chloride—	HXL, ONX.
Benzyl hexadecyl dimethylammonium chloride—	BKM, ONX.
Benzyl(hydrogenated tallow alkyl)dimethylammonium	
chloride—	ARC, ENO.
Benzyl-methyl-bis(hydrogenated tallow)ammonium	
chloride—	ENO.
1-Benzylpyridinium chloride—	BRD, PCI.
Benzyltriethylammonium chloride—	RSA.
*Benzyltrimethylammonium chloride—	CRT, HIP, PCI, RSA, SHX, TCC.
Benzyl-tris(2-hydroxyethyl)ammonium chloride—	TCC.
2,4-Dichlorobenzyl dimethyl(mixed alkyl)ammonium	
chloride—	X.
(3,4-Dichlorobenzyl)dodecyl dimethylammonium	
chloride—	ONX.
2-Dodecylisoquinolinium bromide—	ONX.
(Dodecylmethylbenzyl)trimethylammonium chloride—	RH.
1-Dodecylpyridinium chloride—	CCL, DAN.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium	
chloride—	HNT.
Methyl-bis(coconut oil alkyl)benzyl ammonium	
chloride—	ARC.
(Mixed alkyl)dibenzyltrimethyl-1,3-propane	
diammonium chloride—	GDC.
α -Naphthyl-dodecyl-dimethyl ammonium chloride—	ONX.
1-Phenethyl-2-picolinium bromide—	HXL.
Phenethyl pyridinium bromide—	HXL.
Quaternary ammonium salts not containing oxygen,	
cyclic, all other—	BAK, ICI, X.
OTHER CATIONIC SURFACE-ACTIVE AGENTS:	
Cationic surface-active agents, all other—	DUP, MIR, RPC, SCP, WTC.

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)
NONIONIC	
CARBOXYLIC ACID AMIDES:	
DIETHANOLAMINE CONDENSATES (AMINE/ACID RATIO = 2/1):	
Capric acid (Ratio = 2/1)-----	SCP, TCH.
Castor oil acids (Ratio = 2/1)-----	CLI, NSC.
*Coconut oil acids (Ratio = 2/1)-----	ARD, ARL, CCC, CCL, CLI, CON, CTL, CYL, DA, ECC, EFH, FTX, GDC, HLI, HNT, HRT, HTN, JOR, LUR, MCP, MOA, MRV, MZC, ONX, PNK, RPC, SBC, SCP, SHX, SOP, STP, TCH, VAL, WTC.
*Coconut oil and tallow acids (Ratio = 2/1)-----	BRD, CRT, CTL, ESS, MOA, SBC, UNN, WTC.
Lard oil acids-----	FER.
Lard oil and tall oil acids-----	FER.
Lauric acid (Ratio = 2/1)-----	CLI, CRD, MOA, MZC.
*Lauric and myristic acids (Ratio = 2/1)-----	CRD, MOA, MZC, PG, SBC, STP.
Linoleic acid (Ratio = 2/1)-----	KNP, MOA.
Mixed carboxylic acids-----	HLI.
*Oleic acid (Ratio = 2/1)-----	CLI, EMR, MZC, SBC, STP.
Palmitic and stearic acids (Ratio = 2/1)-----	RPC.
Pelargonic acid (Ratio = 2/1)-----	TCH.
Soybean oil acids (Ratio=2/1)-----	MZC.
*Stearic acid (Ratio = 2/1)-----	CLI, EFH, VAL.
*Tall oil acids (Ratio = 2/1)-----	ECC, MOA, MZC, SBC, STC, WTC, WVA.
*Tallow acids (Ratio = 2/1)-----	CLI, EFH, ICI, JOR, MOA.
Diethanolamine condensates (Amine/acid = 2/1), all other-----	SOS.
DIETHANOLAMINE CONDENSATES (OTHER AMINE/ACID RATIOS):	
Capric acid (Ratio = 1/1)-----	MOA.
*Coconut oil acids (Ratio = 1/1)-----	AAC, ARD, BRD, CLI, CTL, DA, FTX, HLI, HNT, HRT, HTN, JOR, JRG, MOA, MZC, ONX, PEL, PIL, SBC, SCP, SHX, STP, SVC, TCC, WTC, X.
*Lauric acid (Ratio = 1/1)-----	CLI, CYL, MOA, ONX, SBC, TCH, TNI.
*Lauric and myristic acid (Ratio = 1/1)-----	BRD, CLI, CPC, CYL, HTN, MOA, SBC, WTC.
*Linoleic acid (Ratio = 1/1)-----	CLI, MOA, SBC, VND.
Myristic acid (Ratio = 1/1)-----	MOA.
Oleic acid (Ratio = 1/1)-----	DA, HLI.
Palmitic and stearic acids (Ratio = 1/1)-----	MOA, TMH.
*Soybean oil acids (Ratio = 1/1)-----	MOA, MZC, SBC.
*Stearic acid (Ratio = 1/1)-----	BRD, CHP, ECC, HIP, MRV.
Tall oil acids-----	CHP, WTC.
Tallow acids-----	MOA, VPC.
ALL OTHER CARBOXYLIC ACID AMIDES:	
Alkanolamine condensates, all other-----	CPC, DA, TCH, VND, WTC.

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)
NONIONIC--CONTINUED	
CARBOXYLIC ACID AMIDES--CONTINUED:	
ALL OTHER CARBOXYLIC ACID AMIDES--CONTINUED:	
Carboxylic acid - alkanolamine condensates, all	
other-----	DA, ROB, WTC.
Castor oil acids-polyalkylene polyamine maleic	
anhydride condensate-----	X.
Cocoaminoamide-----	DA.
Coconut oil acids-----	STP.
*Coconut oil acids (Ratio = 1/1)-----	JOR, MOA, ONX, PG, SCP, SOS, VND, WTC.
*Coconut oil acids (Ratio = 2/1)-----	HLI, STC, STP.
Coconut oil acids-----	DA.
Coconut oil acids-dimethylaminopropylamine	
condensate (Ratio = 1/1)-----	JRG.
Coconut oil acids-ethanolamine condensate,	
ethoxylated-----	STP.
Diethanolamine condensate, all other-----	DA.
Dioleic acid (Ratio = 1/2)-----	MZC.
Ethanolamine condensates, (Ratio = 1/1), all other-----	VND.
Fatty acid alkenolamide-----	MCB.
Hydrogenated (tallow acids) aminoethylethanolamine	
condensate (Ratio=1/2)-----	DAN.
Hydrogenated tallow acids, (Ratio = 2/1)-----	ARC.
Hydrogenated tallow acids, aminoethylethanolamide,	
acetate salt-----	PCI.
Isopropanolamine condensates, all other-----	WTC.
Isostearic acid, aminoethylethanolamide, acetate	
salt-----	PCI.
Lauric acid-----	CLI, HTN, MOA.
Lauric acid - ethanolamine condensate, ethoxylated-----	MZC.
Lauric and myristic acids (Ratio = 1/1)-----	MOA.
Mixed mono-and diethandlamines-----	SCP.
Myristic acid-----	CRN.
Oleic acid (Ratio = 1/1)-----	SBC.
Oleic acid (Ratio = 1/2)-----	EFH.
Oleic acid aminoethylethanolamine-condensate	
(Ratio = 1/1) ethyl sulfate-----	RPC.
*Oleic acid-ethanolamine condensate, ethoxylated-----	ARC, ONX, SHX.
Stearic acid (Ratio = 1/1)-----	MOA, VND, WTC.
Stearic acid (Ratio = 1/2)-----	HAL, WTC.
Stearic acid (Ratio = 2/1)-----	CLI, ECC.
Stearic acid aminoethanolamine (Ratio = 1.0/1.65)-----	CHP.

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)
NONIONIC--CONTINUED	
CARBOXYLIC ACID AMIDES--CONTINUED:	
ALL OTHER CARBOXYLIC ACID AMIDES--CONTINUED:	
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 acids (Ratio = 1/2)-----	EFH.
Tall oil fatty acids (Ratio = 2.7/1)-----	EFH.
Tall oil fatty acids-triethanolamine condensate-----	X.
Tallow alkyl amide, ethoxylated-----	MCB.
Carboxylic acid amides, all other-----	BAK, BKM, WTC.
CARBOXYLIC ACID ESTERS:	
ANHYDROSORBITOL ESTERS:	
Anhydrosorbitol dioleate-----	HDG, ICI.
Anhydrosorbitol monoester of tall oil acids-----	MZC, WTC.
*Anhydrosorbitol monolaurate-----	BRD, GLY, ICI, MZC, TCH.
*Anhydrosorbitol mono-oleate-----	BAS, BRD, GLY, HDG, ICI, MZC, SVC, TCH.
Anhydrosorbitol monopalmitate-----	GLY, ICI, TCH.
*Anhydrosorbitol monostearate-----	BRD, GLY, HDG, ICI, MZC, TCH.
Anhydrosorbitol sesquiester of tall oil acids-----	TCH.
Anhydrosorbitol sesquioleate-----	GLY, TCH.
Anhydrosorbitol sesquisteate-----	TCH.
Anhydrosorbitol tetrastearate-----	GLY.
Anhydrosorbitol triester of tall oil acids-----	GLY.
*Anhydrosorbitol trioleate-----	BRD, ICI, MZC, TCH.
Anhydrosorbitol tristearate-----	GLY.
DIETHYLENE GLYCOL ESTERS:	
Diethylene glycol distearate-----	GLY, WTC.
Diethylene glycol monoester of coconut oil acids-----	DA.
Diethylene glycol monoester of tall oil acids-----	BKM.
*Diethylene glycol monolaurate-----	ECC, GLY, HDG, MZC.
*Diethylene glycol monostearate-----	CLI, ECC, HDG, STP, VND, WTC.
Diethylene glycol sesquiester of tall oil acids-----	ECC.
Diethylene glycol sesquilaurate-----	GLY.
Diethylene glycol sesquisteate-----	WTC.
Diethylene glycol esters, all other-----	DA.

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)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
ETHOXYLATED ANHYDROSORBITOL ESTERS:	
*Ethoxylated anhydrosorbitol monolaurate-----	BAS, BRD, GLY, ICI, MZC, TCH.
*Ethoxylated anhydrosorbitol mono-oleate-----	BAS, BRD, EMR, GLY, HDG, ICI, MZC, SVC, TCH.
Ethoxylated anhydrosorbitol monopalmitate-----	HDG, ICI, MZC.
*Ethoxylated anhydrosorbitol monostearate-----	GLY, HDG, ICI, MZC, TCH.
Ethoxylated anhydrosorbitol monotallate-----	BRD.
Ethoxylated anhydrosorbitol triester of tall oil acids-----	HDG, ICI, WVA.
*Ethoxylated anhydrosorbitol trioleate-----	GLY, HDG, ICI, TCH.
*Ethoxylated anhydrosorbitol tristearate-----	GLY, ICI, MZC.
Glycerol dimerate-----	PCI.
ETHOXYLATED SORBITOL ESTERS:	
Ethoxylated sorbitol beeswax ester-----	ICI.
Ethoxylated sorbitol hexaester of tall oil acids-----	TCH.
Ethoxylated sorbitol hexaoleate-----	GLY, ICI, MZC, TCH.
Ethoxylated sorbitol lanolin ester-----	ICI.
Ethoxylated sorbitol mono-oleate-----	ICI.
Ethoxylated sorbitol oleate, acetylated-----	ICI.
Ethoxylated sorbitol pentalaurate-----	MZC.
Ethoxylated sorbitol tetraester of lauric and oleic acids-----	ICI.
Ethoxylated sorbitol tetraester of tall oil acids-----	WTC.
Ethoxylated sorbitol tetraoleate-----	ICI.
Ethoxylated sorbitol tetrastearate-----	ICI.
Ethoxylated sorbitol esters, all other-----	BAK, BAS, SVC.
ETHYLENE GLYCOL ESTERS:	
Ethylene glycol distearate-----	EMR, ICI, MZC, STP, TCH, WM, WTC.
Ethylene glycol mono-oleate-----	CGY.
Ethylene glycol monostearate-----	CLI, CYL, GLY, HDG, KNP, MZC, STP, TCH, VND, WM.
Ethylene glycol esters, all other-----	WTC.
GLYCEROL ESTERS:	
COMPLEX GLYCEROL ESTERS:	
Glycerol diacetyltartrate monostearate-----	EKT.
lycerol ester ethoxylates-----	GLY.
Glycerol mono- and diesters of mixed fatty acids-----	ICI.
Glycerol monoester of mixed fatty acids, acetylated-----	EKT.
Glycerol monoester of mixed fatty acids, succinylated-----	EKT.

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)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
GLYCEROL ESTERS--CONTINUED:	
COMPLEX GLYCEROL ESTERS--CONTINUED:	
Glycerol mono-oleate, acetylated-----	WTC.
Glycerol mono-oleate, ethoxylated-----	SCP.
Glycerol monoester of hydrogenated tallow fatty acids-----	PCI.
GLYCEROL ESTERS OF CHEMICALLY DEFINED ACIDS:	
Glycerol dilaurate-----	VND.
Glycerol dimerate-----	PCI.
Glycerol dioleate-----	STP.
Glycerol distearate-----	PCI.
Glycerol monocaprylate-----	GLY, STP.
Glycerol monolaurate-----	GLY.
*Glycerol mono-oleate-----	EFH, EMR, GLY, HAL, HDG, MZC, STP, TCH.
*Glycerol monoricinoleate-----	CAS, GLY, HDG, MZC.
*Glycerol monostearate-----	CCC, CHL, CLD, CPC, CYL, DA, EMR, GLY, HAL, HDG, LUR, MCB, MZC, SOS, STP, TCH, VND, WM, WTC, X.
Glycerol trioleate-----	SVC.
GLYCEROL ESTERS OF MIXED ACIDS:	
Glycerol diester of lard acids-----	GLY.
Glycerol mixed ester of soybean oil-trimethylolpropane-----	ENP.
Glycerol mono-, di-, and triesters of hydrogenated tallow acids-----	WPG.
Glycerol monoester of C ₈ -C ₁₀ acids-----	SVC.
Glycerol monoester of coconut oil acids and trioleic acid, mixed-----	SVC.
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 hydrogenated tallow acids-----	TCH.
Glycerol monoester of lard acids-----	EKT.
Glycerol monoester of mixed fatty acids-----	PCI, SVC.

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)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
GLYCEROL ESTERS--CONTINUED:	
GLYCEROL ESTERS OF MIXED ACIDS--CONTINUED:	
Glycerol monoester of palm oil acids-----	EKT.
Glycerol monoester of safflower oil acids-----	EKT.
Glycerol monoester of tall oil acids-----	FER.
Glycerol monoester of tallow acids-----	EKT, SOS.
Glycerol sesquiester of hydrogenated tallow acids-----	WTC.
Glycerol sesquiester of tall oil acids-----	SLM(E).
Glycerol triester of coconut oil acids, and triglycerides-----	SVC.
Glycerol triester of mixed fatty acids-----	SVC.
Glycerol esters of mixed acids, all other-----	BFP, DA.
NATURAL FATS AND OILS, ETHOXYLATED:	
Carnauba wax, ethoxylated-----	SHX.
*Castor oil, ethoxylated-----	BAS, CAS, DA, GAF, GLY, HTN, ICI, MCB, MIL, S(E), STC, TCH, TMH, WVA, X.
Coconut oil, ethoxylated-----	SVC.
*Hydrogenated castor oil, ethoxylated-----	CAS, DA, ICI, MCB, MIL, S(E), STC, TCH.
*Lanolin, ethoxylated-----	CRD, CRN, STC, TCH.
Mixed tall oil and rosin acids, ethoxylated-----	STC.
Oleic acid, ethoxylated and propoxylated-----	MIL.
Soybean oil, ethoxylated-----	DA.
Stearic acid, ethoxylated-----	GAF.
Stearic acid propoxylated-----	ARC.
Tall oil acids, ethoxylated-----	STC.
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:	
Mixture of polyethylene glycol monooleate and ethoxylated glycerine-----	SVC.
*Polyethylene glycol dilaurate-----	GLY, HAL, HDG, MZC, STP, TCH, WM.
*Polyethylene glycol dioleate-----	CLD, DA, EFH, GLY, HAL, MIL, STP, TCH.
Polyethylene glycol distearate-----	CHP, GLY, MZC, STP, TCH.
Polyethylene glycol hydroxyacetate-----	CCA.
Polyethylene glycol monocaprylate-----	ECC.

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)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
POLYETHYLENE GLYCOL ESTERS--CONTINUED:	
POLYETHYLENE GLYCOL ESTERS OF CHEMICALLY-DEFINED ACIDS--CONTINUED:	
*Polyethylene glycol monolaurate-----	BAS, CCA, CGY, ECC, GLY, HAL, ICI, MZC, STP, TCH, WM.
*Polyethylene glycol mono-oleate-----	ARC, BAS, CCA, CLD, CRT, DA, ECC, EFH, GAF, GDC, GLY, HAL, HDG, MRT, MRV, MZC, SHX, STP, SVC, TCH, WTC.
Polyethylene glycol mono-oleate, ethoxylated-----	ICI.
Polyethylene glycol monopalmitate-----	GLY, ICI.
Polyethylene glycol monopelargonate-----	STC, TCH.
*Polyethylene glycol monostearate-----	ARC, BAS, CCC, CPC, CRT, DA, DEX, EFH, GAF, GDC, GLY, HDG, HRT, ICI, MZC, SLC, SOS, STP, SVC, TCH, VND, WTC.
Polyethylene glycol sesquinoate-----	TCH, WTC.
Polyethylene glycol terephthalate-----	PCI.
Polyethylene glycol esters of chemically-defined acids, all other-----	BAS, WTC.
POLYETHYLENE GLYCOL ESTERS OF MIXED ACIDS:	
Polyethylene glycol diester of coconut oil and oleic acids-----	EFH.
Polyethylene glycol diester of mixed liner acid/oleic acid-----	PCI.
*Polyethylene glycol diester of tall oil acids-----	BRD, CCC, EFH, MZC, WVA, X.
Polyethylene glycol monoester of coconut oil acids-----	ICI.
Polyethylene glycol monoester of soybean oil acids-----	GLY.
*Polyethylene glycol monoester of tall oil acids-----	BKM, CCC, EFH, FER, MZC.
Polyethylene glycol (mixed ester) of tall oil acids-----	DA.
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, MET(E), SLM(E), WTC, WVA.
Polyethylene glycol sesquiester of tallow acids-----	RPC, SHX, TCH, WTC.
Polyethylene glycol esters of mixed acids, all other:	ARC, EFH, SOS, WVA.
POLYGLYCEROL ESTERS:	
Decaglycerol oleate-----	GLY.
Decaglycerol tetraoleate-----	SVC.
Hexaglycerol distearate-----	SVC.
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, 1984--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED:	
POLYGLYCEROL ESTERS--CONTINUED:	
Polyglycerol decaoleate-----	GLY, TCH.
Polyglycerol distearate-----	GLY.
*Polyglycerol mono-oleate-----	HDG, MZC, WTC.
Polyglycerol monostearate-----	HDG, MZC.
Triglycerol distearate-----	EMR.
Polyglycerol esters, all other-----	WTC.
PROPANEDIOL ESTERS:	
1,2-Propanediol monolaurate-----	SBC.
1,2-Propanediol mono-oleate-----	EFH.
*1,2-Propanediol monostearate-----	EKT, GLY, 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 condensed with oil fatty acid-----	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.
Methylglucoside dioleate-----	CRN.
Methylglucoside laurate-----	HDG.
Methylglucoside sesquistearate-----	CRN.
Mixed di- and triethylene glycol monoester of tall oil acids-----	MCB, WVA.
Pentaerythritol stearate-----	ARC, SCP, VAL.
Pentaerythritol, tall oil acid ester, alkoxyated-----	X.
Polycarboxylic acid, alkylate-----	X.
Polycarboxylic acid, alkylphenoxyalkoxylate-----	X.
Polypropylene glycol diester of tall oil acids-----	MET(E).
Polypropylene glycol dioleate-----	CLD.
Polypropylene glycol mono-oleate-----	CLD.

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)
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----	PG.
Tripentaerythritol esters of tall oil acids-----	X.
Carboxylic acid esters, all other-----	BAK, CHP, CRN, DA, EMR, ROB, SYL.
ETHERS:	
BENZENOID ETHERS:	
Alkylphenol-formaldehyde condensates, alkoxylated,	
all other-----	WTC, X.
t-Amylphenol, ethoxylated-----	X.
*Dinonylphenol, ethoxylated-----	BAS, CPC, DA, GAF, HTN, MZC, RH, S(E), TCH.
*Dodecylphenol, ethoxylated-----	BAS, DA, GAF, MCB, MON, SOC, TMH.
Epichlorohydrin bisphenol A, ethoxylated-----	X.
Furfuryl alcohol, ethoxylated-----	SVC.
Iso-octylphenol, ethoxylated-----	AAC, GAF, MCB, MZC, RH, STC, TMH.
(Mixed alkyl)phenol, alkoxylated-----	X.
(Mixed alkyl)phenol epichlorohydrin-formaldehyde,	
alkoxylated-----	X.
(Mixed alkyl)phenol, ethoxylated-----	DA, MCB, MIL, NTL.
(Mixed alkyl)phenol, ethoxylated, butyl ether-----	RH.
(Mixed alkyl)phenol formaldehyde, methoxylated-----	STC.
*(Mixed alkyl)phenol-formaldehyde, alkoxylated-----	DA, STC, WTC, X.
(Mixed alkyl)phenoxypropyl(ethyleneoxy)ethyl chloride---	GAF.
Mixed phenylstyrene, phenol, ethoxylated-----	STC.
β -Naphthol, ethoxylated-----	X.
*Nonylphenol, ethoxylated-----	ARC, BAK, BAS, CPC, DA, GAF, HDG, HTN, ICI, MCB,
	MET(E), MIL, MOA, MON, MZC, OMC, RH, S(E), SHX,
	SOS, STC, STP, TCH, TMH, TX, UCC, WTC, WVA, X,
	X.
*Nonylphenol, ethoxylated and propoxylated-----	GAF, RH, S(E), X.
Nonylphenol-formaldehyde, alkoxylated-----	WTC, X.
*n-Octylphenol, ethoxylated-----	AAC, BAS, DA, TCH.
n-Octylphenol ethoxylated propoxylated-----	RH.
tert-Octylphenol-formaldehyde, ethoxylated-----	SDW.
*Phenol, ethoxylated-----	BAS, GAF, ICI, MIL, STC, TCH.
p-Phenylphenol, alkoxylated-----	MCB.
Phenylstyrene, ethoxylated-----	STC.
Soya sterols, ethoxylated-----	SCP.
Phenols, ethoxylated, all other-----	BAS, SVC.

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)
NONIONIC—CONTINUED	
ETHERS—CONTINUED:	
NONBENZENOID ETHERS:	
CHEMICALLY-DEFINED LINEAR ALCOHOLS, ALKOXYLATED:	
Butanol, ethoxylated	DA, GAF, MCB.
*Decyl alcohol, ethoxylated	AAC, BAS, CPC, GAF, ICI, MCB, S(E), STC, TCH.
Decyloxy poly(ethyleneoxy)ethyl chloride	GAF.
*Dodecyl alcohol, ethoxylated	AAC, HDG, ICI, MIL, WTC, X.
Eicosyl alcohol, ethoxylated	SHX.
Hexadecyl alcohol, ethoxylated	ICI, MZC.
N-Hexyl alcohol, ethoxylated	GAF.
Isoamyl alcohol, ethoxylated	GAF.
*9-Octadecenyl alcohol, ethoxylated	AAC, DA, GAF, ICI.
*Octadecyl alcohol, ethoxylated	CRN, DA, GAF, ICI, STC.
*Oleyl alcohol, ethoxylated	CPC, CRD, GLY, HTN, MZC, S(E), SHX, STC.
Stearyl alcohol, propoxylated and ethoxylated	TCH.
Chemically defined linear alcohols, alkoxyated, all other	BAS, WTC.
Coconut oil alcohol, ethoxylated	GAF, GLY, MZC, STC, TX.
Decyl and octyl alcohols, ethoxylated	GAF, TX.
Developmental alcohol, ethoxylated	SHC.
Glycerol, ethoxylated	SVC.
Lanolin alcohol, propoxylated	CRN.
Mixed linear alcohols, alkoxyated	X.
*Mixed linear alcohols, ethoxylated	AAC, BAS, DA, DUP, GAF, ICI, MCB, MET(E), MIL, RH, S(E), SHC, SHX, STC, TCH, 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(E), STP, SVP, TCH, UCC, WTC, WVA, X, X.
Mixed linear alkylpoly(ethyleneoxy)ethyl chloride	GAF.
Tallow alcohol, ethoxylated	AAC, STC, TX.
Mixed linear alcohols, alkoxyated, all other	CRD.
OTHER ETHERS AND THIOETHERS:	
Bis(alkyl-aryl)alcohols, ethoxylated	DA.
Bis-cumylphenyl-oxoethylene titanate	KPI.
Butanediol, ethoxylated	GAF.
Butyl carbitol, ethoxylated and propoxylated	WVA.
1,3-Butylene glycol, ethoxylated	STC.
Butynediol, ethoxylated	GAF.
tert-Dodecyl mercaptan, ethoxylated	AAC, GAF, MET(E).

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)
NONIONIC--CONTINUED	
ETHERS--CONTINUED:	
OTHER ETHERS AND THIOETHERS--CONTINUED:	
Glycerin, alkoxyated maleate-----	X.
Isodecyl alcohol, ethoxylated-----	MET(E).
Isodecyl alcohol, ethoxylated and propoxylated-----	MCB.
Lignin, ethoxylated-----	WVA.
Mixed alcohols, ethoxylated-----	CRN, MCB, MIL, RH, X.
Polyethylene, ethoxylated-----	RH.
Polyethylene glycol, propoxylated-----	MIL.
*Poly(mixed ethylene, propylene)glycol-----	S(E), UCC, X, X.
Polypropylene glycol, ethoxylated-----	BAS, DA, MCB, MZC, WTC, X.
Propoxylated corn starch-----	VAL.
Rosin alcohol, ethoxylated-----	MZC.
Sorbitol, ethoxylated-----	TCH.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated-----	TCH.
Thiodiglycol, ethoxylated-----	MCB.
*Tridecyl alcohol, ethoxylated-----	AAC, CPC, DA, DUP, GAF, HTN, ICI, MCB, MIL, MZC, OMC, S(E), STC, TCH, WTC, X.
Tridecyl alcohol, propoxylated and ethoxylated-----	DA, MCB, TX.
Trimethylheptanol, ethoxylated-----	TCH.
Trimethylnonyl alcohol, ethoxylated-----	TCH, UCC.
Trimethylolpropane, alkoxyated-----	BAS, MCB.
Ethers and thioethers, all other-----	AAC, RH, WTC, X.
OTHER NONIONIC SURFACE-ACTIVE AGENTS:	
Cumyl phenolate isopropoxy titanium salt-----	KPI.
(Mixed alkyl)phenol alkylenediaminealkanolamine formaldehyde-----	X.
Mixed fatty acid-ethoxylated nonyl phenol ester-----	RPC.
Octyl phosphate, ethoxylated-----	DUP.
Tetra-(2,2-diallyloxymethylene)-1-butoxy titanium bis-(ditridecyl) phosphite-----	KPI, WTC.
Tetra-isopropoxy titanium (bis dioctyl) phosphite-----	KPI.
Tetra-octyloxy titanium (bistridecyl) phosphite-----	KPI.
Tri(castor oil alkyl)phosphate-----	GLY.
Nonionic surface-active agents, all other-----	CRN, DUP, MIL, PG, TCH, X, X.

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 are listed below in the order of their identification codes as used in table 2]

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

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1984--CONTINUED

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
RH :	Rohm & Haas Co.	SYP :	Plastic Specialties & Technology, Inc.,
ROB :	Robeco Chemicals, Inc.		Synthetic Product Co. Div.
RPC :	Millmaster Onyx Group. Lyndall Chemical		
	Co. Div.	TCC :	Sybron Chemical, Inc.
RSA :	R.S.A. Corp.	TQH :	Emery Industries, Inc., Tylon Div.
		TCI :	Morton-Thiokol, Inc., Texize Div.
S :	Sandoz, Inc., Colors & Chemicals Div.	TEN :	Tennessee Chemical Co.
SBC :	Scher Chemicals, Inc.	TMH :	Thompson Hayward Chemical Co.
SBP :	Sugar Beet Products Co.	TNA :	Ethyl Corp.
SCM :	SCM Corp., Organic Chemicals Div.	TNI :	Gillette Co., Chemical Div.
SCO :	Scholler, Inc.	TX :	Texaco, Inc., Texaco Chemical Co.
SCP :	Henkel Corp.		
SDC :	Sandoz Chemicals Corp.	UCC :	Union Carbide Corp.
SDH :	Sterling Drug, Inc.:	UDI :	Petrochemicals/Desoto, Inc.
	Hilton Davis Chemical Co.	UNN :	United Chemical Corp. of Norwood
SDW :	Sterling Organics Div.	UPF :	Jim Walter Resources, Inc., CIC Div.
SEA :	Seaboard Chemicals, Inc.	USR :	Uniroyal, Inc., Chemical Group
SFS :	Stauffer Chemical Co., Specialty &		
	Intermediates Div.	VAL :	United Merchants & Manufacturers, Inc.,
SHC :	Shell Oil Co., Shell Chemical Co. Div.		Valchem Div.
SHX :	Sherex Chemical Co., Inc.	VND :	Van Dyk, Div. of Mallinckrodt, Inc.
SLC :	Soluol Chemical Co., Inc.	VPC :	Mobay Chemical Corp., Dye & Pigment Div.
SLM :	Salem Oil & Grease Co.	VST :	Vista Polymers, Inc.
SNW :	Sun Chemical Corp., Chemicals Div.		
SOC :	Chevron Corp., Chevron Chemical Co.	WAY :	Philip A. Hunt Chemical Corp., Organic
SOP :	Southern Chemical Products Co.		Chemical Div.
SOS :	SSC Industries, Inc.	WBC :	White & Bagley Co.
SPA :	Scott Paper Co.	WCC :	White Chemical Corp.
STC :	American Hoechst Corp., Sou-Tex Works	WHW :	Whittemore-Wright Co., Inc.
STP :	Stepan Chemical Corp.	WM :	Inolex Chemicals Co.
SVC :	Capital City Product Co., Armstrong Chemical	WPC :	West Point-Pepperell, Inc., Grifftex Chemical
	Plant		Co. Sub.
SYL :	Sylvahcem Corp.	WTC :	Witco Chemical Corp.
		WVA :	Westvaco Corp., Chemicals Div.

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

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 1984 amounted to 1,189 million pounds--17.6 percent greater than the 1,017 million pounds reported for 1983 (table 1).¹ Sales in 1984 were 1,108 million pounds, an increase of 8.9 percent, as compared with 1,017 million pounds reported in 1983; the value of sales was \$4,730 million in 1984, compared with \$4,054 million in 1983--an increase of 16.7 percent.

The output of cyclic pesticides and related products amounted to 843 million pounds in 1984--18.5 percent greater than the 711 million pounds produced in 1983. Sales in 1984 were 809 million pounds, valued at \$3,557 million, compared with 728 million pounds, valued at \$3,048 million, in 1983.

Production of acyclic pesticides and related products in 1984 amounted to 347 million pounds, compared with 306 million pounds reported for 1983. Sales in 1984 were 299 million pounds, compared with 289 million pounds reported for 1983; the value of sales were \$1,174 million in 1984, compared with \$1,006 million in 1983.

¹See also table 2, which list these products and identifies the manufacturers by codes. These codes are given in table 3.

TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1984

[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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,189,169	1,107,906	4,730,311	\$4.27
CYCLIC				
Total-----	842,703	809,033	3,556,700	4.40
Fungicides, total-----	100,447	89,829	248,857	2.77
Naphthenic acid, copper salt-----	2,999	1,949	1,890	.97
All other cyclic fungicides ² -----	97,448	87,880	246,967	2.81
Herbicides and plant growth regulators, total-----	590,163	576,364	2,525,362	4.38
3',4'-Dichloropropionanilide (Propanil)-----	15,788	16,469	39,509	2.40
All other cyclic herbicides ³ -----	574,375	559,895	2,485,853	4.44
Insecticides and rodenticides, total-----	152,093	142,840	782,481	5.47
Organophosphorus insecticides ⁴ -----	78,168	67,934	300,874	4.43
All other cyclic insecticides and rodenticides ⁵ -----	73,925	74,906	481,607	6.43
ACYCLIC				
Total-----	346,466	298,873	1,173,611	3.93
Fungicides, total-----	22,664	21,964	42,703	1.94
Methylenebis(thiocyanate)-----	383	...	...	...
All other acyclic fungicides ⁶ -----	22,281	21,964	42,703	1.94
Herbicides and plant growth regulators ⁷ -----	126,269	107,829	605,868	5.62
Insecticides, rodenticides, soil conditioners, and fumigants, total-----	197,533	169,080	525,040	3.11
Organophosphorus insecticides ⁸ -----	57,093	47,787	240,823	5.04
All other acyclic insecticides, rodenticides, soil conditioners, and fumigants ⁹ -----	140,440	121,293	284,217	2.34

¹ Calculated from unrounded figures.

² Includes benomyl, captafol, captan, chlorothalonil, dinocap, DMTT, folpet, PCP, PMA, and others.

³ 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, NPA, picloram, triazines, trifluralin, uracils, plant growth regulators, and others.

⁴ Includes diazinon, dioxathion, methyl parathion, and other phosphorothioates and phosphorodithioates.

⁵ Includes carbaryl, carbofuran, chlorinated insecticides (chlordan, chlorobenzilate, heptachlor, and others), insect attractants, DEET and other insect repellents, small amounts of rodenticides, and others.

⁶ Includes dithiocarbamates.

⁷ Includes butylate, dalapon, EPTC, methanearsonic acid salts, thiocarbamates, and organophosphorus herbicides, and others.

⁸ Includes acephate, disulfoton, ethion, malathion, phorate, and other organophosphorus insecticides.

⁹ Includes aldicarb, chloropicrin, 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, 1984

[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.
α-(2-Chlorophenyl)-α-(4-chlorophenyl)-5- pyrimidinemethanol-----	LIL.
α-(2-Chlorophenyl)-α-(4-fluorophenyl)-5- pyrimidinemethanol-----	LIL.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine-----	CHG.
1,4-Dichloro-2,5-dimethoxybenzene (Chloroneb)-----	CHF.
Di[phenylmercuric]docecenyl succinate-----	TRO.
Hexahydro-1,3,5-triethyl-s-triazine-----	VNC.
Hexahydro-1,3,5-tri(2-hydroxyethyl)-s-triazine-----	X.
2-Mercaptobenzothiazole, sodium salt-----	NOD.
2-Mercaptobenzothiazole, zinc salt-----	VNC.
Mercury fungicides, cyclic, all other-----	NOD.
Methyl-1-(butylcarbamoyl)-2-benzimidazolecarbamate (Benomyl)-----	DUP, USR.
2,2'-Methylenebis(4-chlorophenol) (dichlorophene)-----	GIV.
2-(1-Methyl-n-heptyl)-4,6-dinitrophenyl crotonate----- (Dinocap)-----	RH.
*Naphthenic acid, copper salt-----	CCA, MCI, NOD, TRO.
2-n-Octyl-4-isothiazolin-3-one-----	FER, RH.
Pentachlorophenol (PCP)-----	FRO, RCI.
Phenylmercuric acetate (FMA)-----	COS, TRO.
Phenylmercuric ammonium acetate-----	COS, TRO.
Phenylmercuric oleate-----	COS, TRO.
8-Quinolinol, citrate salt-----	SOL.
8-Quinolinol, copper salt-----	NOD, SOL.
8-Quinolinol, magnesium salt-----	FMT.
8-Quinolinol, sulfate salt-----	SOL.
cis-N-[(1,1,2,2-Tetrachloroethyl)thio]-1-cyclohexene- 1,2-dicarboximide (Captafol)-----	SOC.
2,4,5,6-Tetrachloroisophthalonitrile-----	SDS.
Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (DMTT)-----	MRK, USR, VCC.
2-(Thiocyanomethylthio)benzothiazole-----	BKM.
N-[(Trichloromethyl)thio]-4-cyclohexene-1, 2-dicarboximide (Captan)-----	SFA, SFC, VNC.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*FUNGICIDES--CONTINUED:	
N-(Trichloromethylthio)phthalimide (Folpet)-----	SFA.
1,3,5-Tri(2-isopropanol)-s-triazine-----	EFH.
Cyclic fungicides, all other-----	LIL, NOD.
*HERBICIDES AND PLANT GROWTH REGULATORS:	
3-Amino-2,5-dichlorobenzoic acid, ammonium salt	
(2,5-Dichloro-3-aminobenzoic acid, ammonium salt)-----	GAF, UCC.
4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4- triazin-5-(4H)-one-----	CHG, DUP.
4-Amino-3,5,6-trichloropicolinic acid (Picloram)-----	DOW.
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-----	CGY.
3-tert-Butyl-5-chloro-6-methyluracil-----	DUP.
N-Butyl-N-ethyl- α,α,α -trifluoro-2,6-dinitro-p- toluidine (Benefin)-----	LIL.
Butyl 2-[4-[5-(trifluoromethyl)-2-pyridinyl]oxy]- phenoxy]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 (Acctochlor)-----	MON.
2-Chloro-1-(3-ethoxy-4-nitrophenoxy)-4- (trifluoromethyl)benzene (Oxyfluorfen)-----	RH.
2-Chloro-4-(ethylamino)-6-(isopropylamino)-s- triazine (Atrazine)-----	CGY, FRI, SHC.
N-(2-Chloroethyl)- α,α,α -trifluoro-2,6-dinitro-N- propyl-p-toluidine (Fluchloralin)-----	BAS.
2-Chloro-N-isopropylacetanilide (Propachlor)-----	MON.
2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)- aminocarbonyl]benzenesulfonamide-----	DUP.
2-(4-Chloro-2-methylphenoxy)propionic acid, dimethylamine salt-----	RIV.
5-[2-Chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoic acid, sodium salt-----	RDA.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED:	
Cyano-3-phenoxybenzyl-cis, trans-3-(2,2-dichlorovinyl)-	:
2,2-dimethylcyclopropane carboxylate	: NES, X.
3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5- triazine-2,4-(1H,3H)-dione	: DUP.
3,5-Dibromo-4-hydroxybenzoxynitrile (Bromoxynil)	: RDA.
3,6-Dichloro-2-anisic acid (Dicamba)	: VEL.
2,6-Dichlorobenzonitrile	: USR.
2-(2,4-Dichlorophenoxy)propionic acid, isooctyl ester	: RIV.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)	: DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)	: DUP.
*3',4'-Dichloropropionanilide (Propanil)	: CYT, RH, VTC.
S-(0,0-Diisopropyl phosphorodithioate) ester of N- (α -mercaptoethyl)benzenesulfonamide (Bensulide)	: SFA.
1,1'-Dimethyl-4,4'-bipyridinium dichloride	: X.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamid)	: CWN.
N-(1,1-Dimethyl-2-propynyl)-3,5-dichlorobenzamide (Pronamide)	: RH.
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)	: SDS.
N-[2,4-dimethyl-5-[[trifluoromethyl]sulfonyl]amino]- phenyl]acetamide, diethanolamine salt	: MMM.
Dinitrobutylphenol (DNBP)	: USR, VTC.
Dinitrobutylphenol, ammonium salt	: VTC.
Dinitrobutylphenol, triethanolamine salt	: VTC.
2,6-Dinitro-N,N-dipropyl cumidine	: LIL.
3,5-Dinitro-N,N-dipropylsulfanilamide	: X.
2-(Ethylamino)-4-(isopropylamino)-6-(methylthio)-s- triazine (Ametryne)	: CGY.
5-Ethyl cyclohexylethylthiocarbamate	: SFA.
S-Ethyl-hexahydro-1H-azepine-1-carbothioate (Molinate)	: SFA.
N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine	: ACY.
3-Isopropyl-1H-2,1,3-benzothiadiazin-4(3H)-one 2,2- dioxide	: BAS.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)	: 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.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED:	
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)-----	ADC, DUP.
Methyl 5-(2',4'-dichlorophenoxy)-2-nitrobenzoate-----	RDA.
Methyl 2-[[[(4,6-dimethyl-2-pyrimidinyl)amino]- carbonyl]amino]sulfonyl]benzoate-----	DUP.
N-1-Naphthylphthalamic acid (NPA)-----	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)-----	DOW, VTC.
2,4-Dichlorophenoxyacetic acid, butoxyethanol ester--	DOW.
2,4-Dichlorophenoxyacetic acid, n-butyl ester-----	VTC.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester-----	DOW.
2,4-Dichlorophenoxyacetic acid, dimethylamine salt--	DOW, PBI, RIV, VTC.
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salts-----	DOW.
2,4-Dichlorophenoxyacetic acid, iso-octyl ester-----	DOW, RIV, VTC.
2,4-Dichlorophenoxyacetic acid, isopropyl ester-----	AMV.
2,4-Dichlorophenoxyacetic acid, lithium salt-----	GTH.
2,4-Dichlorophenoxyacetic acid, sodium salt-----	RIV.
2,4-Dichlorophenoxyacetic acid, esters and salts, all other-----	VEL.
2,4,5-TRICHLOROPHENOXYACETIC ACID, ESTERS AND SALTS:	
2,4,5-Trichlorophenoxyacetic acid, butoxyethanol ester-----	DOW.
PLANT GROWTH REGULATORS:	
2-Chloro-6-(trichloromethyl)pyridine-----	DOW.
n-Decanol-----	USR.
1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide) (MH)-----	DRX, FMT, USR.
1,1-Dimethylpiperidinium chloride-----	BAS.
N-[2,4-dimethyl-5-[[trifluoromethyl]sulfonyl]- amino]phenyl]acetamide, diethanolamine salt-----	MMM.
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.

TABLE 2.—PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC—CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS—CONTINUED:	
α,α,α-Trifluoro-2,6-dinitro-N-ethyl-N-[2-methyl-2-propenyl]-p-toluidine	LIL.
α,α,α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin)	LIL.
Cyclic herbicides, all other	CGY, X.
INSECT ATTRACTANTS AND REPELLENTS:	
tert-Butyl 4(or 5)-chloro-2-methylcyclohexanecarboxylate (Trimedlure)	X.
N,N-Diethyltoluamide (DEET)	MRF, TMA, VGC.
p-(Trifluoromethyl)benzaldehyde	X.
Insect attractants, all other	X.
INSECTICIDES:	
Bacillus thuringiensis	ABB, ZOC.
(5-Benzyl-3-furyl)methyl-2,2-dimethyl-3-(2-methylpropenyl)cyclopropane carboxylate (Resmethrin)	PEN.
2,3,4,5-δ ² -Butenyltetrahydrofurfural	PLC.
2-(p-tert-Butylphenoxy)cyclohexyl-2-propynyl sulfite	ACY, USR.
Cyano(3-phenoxyphenyl)methyl-4-chloro-α-(1-methylethyl)benzeneacetate	SFA.
Cyclic insecticides, all other	PEN.
Cypermethrin	FMN, SHC.
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	FSN.
Di-n-propylisocinchomeronate	MGK.
Distinnaxane, hexakis(2-methyl-2-phenylpropyl)	SHC.
Isopropyl-11-methoxy-3,7,11-trimethyldodeca-2,4-dienoate	X.
1-Naphthyl-N-methylcarbamate (Carbaryl)	UCC.
3-(Phenoxyphenyl)methyl-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethyl cyclopropanecarboxylate	FMN, X.
Tetrahydro-5,5-dimethyl-2(1H)-pyrimidinone[3-[4-(trifluoromethyl)phenyl]-1-[2-[4-(trifluoromethyl)phenyl]ethenyl]-2-propenylidene]hydrozone	ACY.
Tricyclohexyltin hydroxide	X, X.
2,3,5-Trimethylphenol	X.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
INSECTICIDES--CONTINUED	
CHLORINATED INSECTICIDES:	
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)	FSN.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor)	CHF.
*ORGANOPHOSPHORUS INSECTICIDES:	
S-[[[p-Chlorophenyl]thio]methyl] 0,0-diethyl phosphorodithioate (Carbophenothion)	SFA.
O-(2,4-Dichlorophenyl) 0-ethyl S-propyl- phosphorodithioate	CHG.
2-(Diethoxyphosphinylimino)-4-methyl-1,3-dithiolane	ACY.
o-(2-(Diethylamino)-6-methyl (4-pyrimidinyl) o,o- dimethyl phosphorothioate	X.
0,0-Diethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl)- phosphorothioate (Diazinon)	CGY, VEL.
0,0-Diethyl O-[4-(methylsulfinyl)phenyl]- phosphorothioate	CHG.
0,0-Diethyl O-(p-nitrophenyl)phosphorothioate (Parathion)	MON.
0,0-Diethyl O-3,5,6-trichloro-2-pyridyl- phosphorothioate	DOW.
Dimethyl-3-hydroxyglutaconate dimethyl phosphate (Bomyl)	AMV.
0,0-Dimethyl O-[4-(methylthio)-m-tolyl]- phosphorothioate (Fenthion)	CHG.
0,0-Dimethyl O-(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-diethyl- phosphorodithioate (Dioxathion)	FSN.
0-Ethyl O-[4-(methylthio)phenyl] S-propyl- phosphorodithioate	CHG.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
INSECTICIDES--CONTINUED	
*ORGANOPHOSPHORUS INSECTICIDES--CONTINUED	
0-Ethyl-S-phenylethylphosphonodithioate-----	SFA.
Organophosphorus insecticides, cyclic, all other-----	SHC.
RODENTICIDES:	
3-(α -Acetonylbenzyl)-4-hydroxycoumarin (Warfarin)-----	MOT.
3-[3-(4'-Bromo[1,1'-biphenyl]-4-yl)-1,2,3,4-tetra- hydro-1-naphthalenyl]-4-hydroxy-2H-1- benzopyran-2-one-----	X.
2-Diphenylacetyl-1,3-indandione and sodium salt-----	MOT.
2-Isovaleryl-1,3-indandione-----	MOT.
2-Pivaloyl-1,3-indandione (Pindone)-----	MOT.
CYCLIC PESTICIDES, ALL OTHER:	
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.
ACYCLIC	
*FUNGICIDES:	
Bis-1,4-bromoacetox-2-butene-----	VIN.
Chloromethoxypropylmercuric acetate-----	TRO.
1,2-Dibromo-2,4-dicyanobutane-----	MRK.
Disodium cyanodithioimidocarbonate-----	BKM.
n-Dodecylguanidine acetate (Dodine)-----	ACY.
Dodecylguanidine hydrochloride-----	MRK.
*Methylenebis(thiocyanate)-----	MRK, SFS, VIN.
Poly[oxyethylene(dimethylimino)ethylene- (dimethylimino)ethylene dichloride]-----	BKM.
Poly(n,n,n',n'-tetramethylethylenediamine) with (chloromethyl)oxirane-----	BKM.
DITHIOCARBAMIC ACID FUNGICIDES:	
Dimethyldithiocarbamic acid, potassium salt-----	ALC, BKM.
Ethylene bis(dithiocarbamic acid), diammonium salt-----	RBC.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)-----	ALC, VCC.
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb)-----	RH.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
DITHIOCARBAMIC ACID FUNGICIDES--CONTINUED	
Ethylene bis(dithiocarbamic acid), manganese salt with zinc ions	RH.
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)	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,N-diallylacetamide (CDAA)	MON.
S-(2,3-Dichloroallyl) diisopropylthiocarbamate (Diallate)	MON.
2,2-Dichloropropionic acid, sodium salt (Dalapon)	DOW.
N-5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl-N, N'-dimethylurea (Tebuthiuron)	MRT.
Ethyl carbamoylphosphonate, ammonium salt	DUP.
S-Ethyl diisobutylthiocarbamate (Butylate)	PPG, SFA.
S-Ethyl dipropylthiocarbamate (EPTC)	PPG, SFA.
Ethyl xanthogen disulfide	RBC.
Methanearsonic acid, disodium salt (DSMA)	VIN.
Methanearsonic acid, monosodium salt (MSMA)	SDS, VTC.
Methylthiosulfonic acid, S-(2-hydroxypropyl) ester	BKM.
N-(Phosphonomethyl)glycine, isopropylamine salt	MON.
S-Propyl butylethylthiocarbamate (Pebulate)	SFA.
S-Propyl dipropylthiocarbamate (Vernolate)	SFA.
Thiocyanic acid, methylene ester	BKM.
S,S,S-Tributyl phosphorotrithioate	CHG.
Tributyl phosphorotrithioite (Merphos)	RDA.
S-(1,2,3-Trichloroallyl)diisopropylthiocarbamate (Triallate)	MON.
PLANT GROWTH REGULATORS:	
2-(Chloroethyl)phosphonic acid	UCC.
N-(Phosphonomethyl)glycine, sodium sesqui salt	MON.
Succinic acid, 2,2-dimethylhydrazide	USR.
INSECTICIDES:	
2-(2-Butoxyethoxy)ethyl thiocyanate	RH.
Methyl N',N'-dimethyl-N-(methylcarbamoyl)oxy-1- thiooxamidate	DUP.
S-Methyl-N-(methylcarbamoyl)oxythioacetimidate (Methomyl)	DUP, SHC.

TABLE 2.—PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC—CONTINUED	
INSECTICIDES—CONTINUED:	
2-Methyl-2-(methylthio)propionaldehyde O-	
(methylcarbamoyl)oxime (Aldicarb)-----	UCC.
*ORGANOPHOSPHORUS INSECTICIDES:	
S-1,2-Bis(ethoxycarbonyl)ethyl 0,0-dimethyl	
phosphorodithioate (Malathion)-----	ACY.
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate-----	AMV, SHC.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate	
(Naled)-----	AMV, SHC.
0,0-Diethyl S-[2-(ethylthio)ethyl]phosphorodithioate	
(Disulfoton)-----	CHG.
0,0-Diethyl O-[2-(ethylthio)ethyl]phosphorothioate	
(Demeton O)-----	CHG.
0,0-Diethyl S-[(ethylthio)methyl]phosphorodithioate	
(Phorate)-----	ACY.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide--	SHC.
0,S-Dimethylacetylphosphoramidothioate (Acephate)-----	SOC.
0,0-Dimethyl-0-2,2-dichlorovinyl phosphate (DDVP)-----	AMV, SHC.
S-[[[(1,1-Dimethylethyl)thio]methyl] 0,0-diethyl-	
phosphorodithioate (Turfos)-----	ACY.
Dimethyl phosphate of 3-hydroxy-N-methyl-cis-	
crotonamide-----	SHC.
0,S-Dimethyl phosphoramidothioate-----	CHG.
0,0-Dimethyl phosphorochloridothioate-----	CHG.
0,0,0',0'-Tetraethyl S,S'-methylene-	
bisphosphorodithioate (Ethion)-----	FMN.
RODENTICIDES:	
Fluoroacetamide-----	RBC.
2-Hydroxyethyl n-octyl sulfide-----	PLC.
Sodium fluoroacetate-----	RBC, TUL.
SOIL CONDITIONERS:	
Polyacrylonitrile, hydrolyzed, sodium salt-----	ACY.
SOIL FUMIGANTS:	
1,2-Dibromo-3-chloropropane (DBCP)-----	AMV.
1,3-Dichloropropene-----	DOW.
1,3-Dichloropropene, 1,2-dichloropropane-----	SHC.
0-Ethyl S,S-dipropyl phosphorodithioate-----	RDA.
Methyl bromide (Bromomethane)-----	GTL, TNA.
N-Methyldithiocarbamic acid, sodium salt (Metham)-----	BKM, SFA.
Methyl isothiocyanate-----	MRT.
Trichloronitromethane (Chloropicrin)-----	LCP, NLO.

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

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
ACYCLIC PESTICIDES, ALL OTHER:	
Bromoacetic acid-----	VIN.
Diamino acetate-----	X.
2-[(Hydroxymethyl)amino]-2-methylpropanol-----	TRO.
2-[(Hydroxymethyl)ethanol]-----	TRO.
3-Iodo-2-propynyl butylcarbamate-----	TRO.
Pesticides and related products, acyclic, all other----	USR.

TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 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	MOT :	Motomco, Ltd.
ACY :	American Cyanamid Co.	MRF :	Morflex Corp.
ADC :	Anderson Development Co.	MRK :	Merck & Co., Inc.
ALC :	Alco Chemical Corp.	MRT :	Morton-Thiokol, Inc., Morton Chemical Co. Div.
ALP :	Alpha Laboratories, Inc.	NES :	Ruettgers-Nease Chemical Co.
AMC :	Amvac Chemical Corp.	NLO :	Niklor Chemical Co., Inc.
BAS :	BASF Wyandotte Corp.	NOD :	Nuodex, Inc.
BKM :	Buckman Laboratories, Inc.	PAS :	Pennwalt Corp.
CCA :	Interstab Chemicals, Inc.	PBI :	PBI-Gordon Corp.
CGY :	Ciba-Geigy Corp., Agricultural Div.	PEN :	GPC International, Inc., Penick Div.
CHF :	Kincaid Enterprises, Inc.	PLC :	Phillips Petroleum Co.
CHG :	Mobay Chemical Corp., Agricultural Chemicals Div.	PPG :	PPG Industries, 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.
DOW :	Dow Chemical Co.	RH :	Rohm & Haas Co.
DRX :	Drexel Chemical Co.	RIV :	Riverdale Chemical Co.
DUP :	E. I. duPont de Nemours & Co., Inc.	SDS :	S.D.S. Biotech Corp.
EFH :	E. F. Houghton & Co.	STA :	Stauffer Chemical Co.:
FER :	Ferro Corp., Ferro Chemical Div.	SFA :	Agricultural Div.
FMN :	FMC Corp., Agricultural Chemical Group	SFC :	Calhio Chemicals, Inc.
FMT :	Fairmount Chemical Co., Inc.	SFS :	Specialty & Intermediates Div.
FRI :	Farmland Industries, Inc.	SHC :	Shell Oil Co., Shell Chemical Co. Div.
FRO :	Vulcan Materials Co., Chemicals Div.	SOC :	Chevron Corp., Chevron Chemical Co.
FSN :	Nor-Am Chemical Co.	SOL :	Southland Corp., Fine Chemicals Div.
GAF :	GAF Corp., Chemical Group	TNA :	Ethyl Corp.
GN :	Givaudan Corp.	TRO :	Troy Chemical Corp.
GNW :	Greenwood Chemical Co.	TUL :	Tull Chemical Co., Inc.
GTH :	Guth Corp.	UCC :	Union Carbide Corp.
GTL :	Great Lakes Chemical Corp.	USR :	Uniroyal, Inc., Chemical Group
LCP :	LCP Chemicals-Maine	VGC :	Vinings Chemical Co.
LIL :	Eli Lilly & Co.	VEL :	Velsicol Chemical Corp.
MCI :	Mooney Chemical, Inc.	VGC :	Virginia Chemicals, Inc.
MGK :	McLaughlin Gormley King Co.	VIN :	Vineland Chemical Co., Inc.
MMM :	Minnesota Mining & Manufacturing Co.	VNC :	Vanderbilt Chemical Corp.
MON :	Monsanto Co.	VTC :	Vertac Chemical Corp.
		ZOC :	Zoecon Corp.

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

SECTION XIV -- MISCELLANEOUS END-USE CHEMICALS
AND CHEMICAL PRODUCTS

233

STATISTICAL HIGHLIGHTS

David G. Michels
202-523-0493

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 1984, the production of miscellaneous end-use chemicals exceeded 23.7 billion pounds, an increase of 12 percent from the more than 21 billion pounds of production reported for 1983. Sales in 1984 totaled 14.9 billion pounds, valued at \$3.8 billion. The sales quantity increased 18 percent from that of 1983 with the value of sales increasing by 15 percent. Polymers for fibers and urea collectively accounted for 82 percent of the 1984 production of these miscellaneous end-use chemicals. Urea accounted for 74 percent of the 1984 sales quantity of these chemicals.

In 1984, the production of lubricating oil and grease additives totaled 1.1 billion pounds, a decrease of 28 percent, compared with 1983. Total sales quantity for 1984 was 1.2 billion pounds, 4.2 percent more than the 1983 sales quantity of 1.2 billion pounds, while the value of sales increased by 8.4 percent to \$882 million.

Production of fuel additives for 1984 totaled 1.9 billion pounds, an increase of 33 percent from the previous year. Total sales quantity for 1984 was 1.2 billion pounds, up 26 percent from the 1983 sales quantity of 975 million pounds, with the sales value decreasing 4.8 percent to \$504 million.

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION AND SALES, 1984

[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	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	23,730,943	14,931,451	3,833,667	\$0.26
Amino acids and their salts-----	119,220	106,459	141,774	1.33
Chelating agents, nitriloxides and salts, total-----	317,607	221,133	104,959	.47
(Ethylenedinitrilo)tetraacetic acid (EDTA)-----	11,684	9,132	8,912	.98
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate-----	3,811	4,082	2,823	.69
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt-----	15,530	5,991	3,233	.54
Nitrilo-tris-methylene triphosphonic acid-----	2,664	...	...	...
Polyamine polymethane phosphonic acid-----	3,034	...	...	...
All other-----	280,884	201,928	89,991	.45
Chemical indicators-----	7	...	...	...
Chemical reagents and fine chemicals-----	238	214	25,919	121.00
Enzymes, total-----	(²)	(²)	85,605	(²)
Bacterial amylase-----	(²)	(²)	15,470	(²)
Glucosylase-----	(²)	(²)	32,085	(²)
Pectinase-----	(²)	(²)	1,837	(²)
Proteases, total-----	(²)	(²)	25,545	(²)
Rennin-----	(²)	(²)	12,773	(²)
All other proteases-----	(²)	(²)	12,772	(²)
All other enzymes-----	(²)	(²)	10,668	(²)
Flotation reagents-----	27,034	25,829	11,172	.43
Fuel additives, total ³ -----	1,914,069	1,225,819	504,101	.41
Gasoline additives, total-----	1,765,355	...	...	...
Methyl-t-butyl ether-----	1,375,506	929,837	147,345	.16
Tetraethyl lead-----	...	127,971	166,914	1.30
Tetra(methyl-ethyl) lead, (TEL-TML, reacted)-----	106,554	78,367	102,222	1.30
All other gasoline additives-----	283,295	...	...	...
N,N'-Disalicylidene-1,2-propane diamine-----	...	636	2,080	3.27
Fuel additives, all other-----	148,714	89,008	85,540	.96
Lubricating oil and grease additives, total-----	1,080,725	1,222,424	882,186	.71
Oil soluble petroleum sulfonates, total-----	438,355	...	...	...
Oil soluble petroleum sulfonate, barium salt-----	...	1,936	2,184	1.13
Oil soluble petroleum sulfonate, calcium salt-----	220,995	282,871	165,979	.59
Oil soluble petroleum sulfonate, sodium salt-----	...	130,576	58,711	.45
All other oil soluble petroleum sulfonates-----	217,360	...	...	...
Phenol salts-----	...	117,628	76,365	.65
Phosphorodithioates (Dithiophosphates)-----	...	95,850	91,523	.95
Sulfurized sperm oil substitutes-----	12,150	11,775	6,185	.53
All other lubricating oil and grease additives-----	630,220	581,788	481,239	.83
Paint driers, naphthenic acid salts: ⁴ ⁵-----	...	...	...	...
Calcium naphthenate-----	462	481	477	.99
Cobalt naphthenate-----	3,308	2,677	7,302	2.73
Manganese naphthenate-----	583	616	562	.91

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Photographic chemicals, total-----	...	4,367	17,122	\$3.92
p-Diethylaminobenzendiazonium chloride-----	102	99	501	5.05
All other photographic chemicals-----	...	4,268	16,621	3.89
Poly- α -olefins-----	...	49,984	49,077	.98
Polymers for fibers, total-----	6,264,029	565,799	598,318	1.06
Nylon 6 and 6/6-----	2,031,964	...	...	...
Polyacrylonitrile and acrylonitrile copolymers-----	642,743	...	...	...
Polyethylene terephthalate-----	2,292,237	176,430	138,622	.79
All other polymers for fibers-----	1,297,085	389,369	459,696	1.18
Polymers, water soluble, total-----	443,745	323,116	442,050	1.37
Cellulose ether and esters-----	234,756	178,284	255,241	1.43
Polyacrylic acid salts, total-----	52,470	44,071	27,191	.62
Sodium polyacrylate-----	20,067	14,927	8,325	.56
All other polyacrylic acid salts-----	32,403	29,144	18,866	.65
All other water soluble polymers-----	156,519	100,761	159,618	1.58
Tanning materials, synthetic-----	26,944	24,050	15,730	.65
Textile chemicals, other than surface-active agents, total-----	34,573	26,699	15,169	.57
Dimethylolhydroxyethylene urea-----	20,982	20,248	8,626	.43
Melamine formaldehyde methanol polymers-----	547	...	...	...
Urea polymers with formaldehyde and methanol-----	802	908	407	.45
All other tetxile chemicals, other than surface- active agents-----	12,242	5,543	6,136	1.11
Urea in compounds or mixtures, total-----	...	11,117,472	894,237	.08
In feed compounds-----	270,423	218,525	18,770	.09
In liquid fertilizer-----	3,360,405	2,792,763	248,056	.09
In plastics-----	646,088	...	...	...
In solid fertilizer-----	8,954,942	7,597,827	587,213	.08
Urea in compounds or mixtures, all other-----	...	508,357	40,198	.08
All other miscellaneous end-use chemicals and chem- ical products ⁶ -----	266,439	14,312	37,907	2.65

¹ Calculated from unrounded figures.² Not available.³ Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given with the section on "Plasticizers."⁴ Quantities are given on the basis of solid naphthenate.⁵ Statistics exclude production and sales of copper naphthenate. Statistics for copper naphthenate are given in the section on "Pesticides and Related Products."⁶ 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 EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984

[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:	
METHIONINE AND ITS SALTS:	
Methionine (animal feed grade)-----	DGC.
Methionine, hydroxy analogue, calcium salt-----	EKT, MON.
Amino acids and salts, acyclic, all other-----	IMC, RSA, WAY.
Aspartic acid-----	ESX, PFZ.
N,N-Dimethylglycine-----	MCK.
N,N-Dimethylglycine hydrochloride-----	MCK.
Glutamic acid hydrochloride-----	LEM.
Glycine (Aminoacetic acid), non-medical-----	CHT, HMP.
Phenyl alanine-----	CLP.
Potassium glutamate-----	LEM.
Protein hydrosylates-----	BRS.
Sarcosine-----	HMP.
Amino acids and salts, cyclic, all other-----	AJI, DIX, HCC, REG.
BIOLOGICAL STAINS:	
Biological stains-----	ALD, EK, MMC.
*CHELATING AGENTS, NITRILACIDS AND SALTS:	
N-alkylaminobismethylene phosphonic acid salts-----	DUP, WAY, X.
Aminotrimethyl phosphonic acid-----	SCP.
(Diethylenetrinitrilo)pentaacetic acid-----	ACR, CGY, HMP, WAY.
(Diethylenetrinitrilo)pentaacetic acid, monosodium hydrogenferric salt-----	CGY.
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt-----	CGY, DOW, RPC.
(Diethylenetrinitrilo)pentaacetic acid, sodium salt-----	WAY.
N,N-Dihydroxyethylglycine, sodium salt-----	HMP.
N,N-Di-(2-hydroxy-5-sulfonic acid benzyl)glycine, iron salt-----	HMP.
(Dimethylamino)methylenebisphosphoric acid, trisodium salt-----	BKM.
Ethanoldiglycine, disodium salt-----	HMP.
Ethylenebis(-amino-2-hydroxyphenol) acetic acid, hydrogenferric salt-----	CGY.
(Ethylene-bis-nitrilo)dimethylene phosphonic acid, potassium salt-----	WAY.
Ethylenediaminetetra(methylene phosphonic acid)-----	X.
*(Ethylenedinitrilo)tetraacetic acid-----	
(Ethylenediaminetetraacetic acid) (EDTA)-----	CGY, DOW, HMP.

TABLE 2.—MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CHELATING AGENTS, NITRILACIDS AND SALTS—CONTINUED	
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt	CGY, DAN, DOW.
(Ethylenedinitrilo)tetraacetic acid, diammonium salt	CGY, DOW.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium salt	CGY, HMP.
*(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, magnesium salt	HMP.
(Ethylenedinitrilo)tetraacetic acid, manganese salt	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, monoammonium ferric salt	HMP.
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt	CGY, DOW.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	CGY, HMP, X.
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, trisodium salt	CGY.
Glucosheptonic acid, β -isomer, sodium salt	BLZ.
Glucosheptonic acid, sodium salt	BLZ, PFN, RPC.
Hexamethylenediaminetetra(methylenephosphonic acid)	X.
Hexamethylenediaminetetra(methylenephosphonic acid), potassium salt	WAY.
Hydroxyethane-1-diphosphonic acid	HMP, SCP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, iron salt	CGY, DOW, HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, magnesium salt	HMP.
*(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	CGY, DAN, DOW, HMP, RPC.
Hydroxyethylidene diphosphonic acid, potassium salt	WAY, X.
Hydroxyethylidene diphosphonic acid, sodium salt	X.
Nitriloacetic acid, zinc salt	HMP.
Nitrilotriacetic acid	HMP.
Nitrilotriacetic acid, trisodium salt	DOW, HMP, MON.
*Nitrilo-tris-methylene triphosphonic acid	BKM, WAY, WCC, X.
Nitrilo-tris-methylene triphosphonic acid, potassium salt	X.
Nitrilo-tris-methylene triphosphonic acid, sodium salt	BAK, WAY, X.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CHELATING AGENTS, NITRILACIDS AND SALTS--CONTINUED	
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	X.
*Polyamine polymethane phosphonic acid	SCP, X, X.
Polyamine polymethane phosphonic acid, magnesium salt	RPC.
Chelating agents, nitriloacids and salts, all other	X.
*CHEMICAL INDICATORS:	
*Chemical indicators	EK, GFS, MMC.
*CHEMICAL REAGENTS AND FINE CHEMICALS:	
*Chemical reagents and fine chemicals	ACC(E), ALB, COC, CWN, EK, ESA, GFS, HMY, PAH, PFN, PIC, PLB, RBC, REG, RSA, SOI, UPJ, X, X, X, X.
*ENZYMES:	
HYDROLYTIC ENZYMES:	
AMYLASES:	
*Bacterial amylase	ADM, GBF, GNR, MLS, NBI, PMP.
Fungal amylases	PFZ.
*Glucoamylase	ADM, CRN, GBF, MLS, NBI, PMP.
Amylases, all other	GBF.
*PROTEASES:	
Pancreatin	SPR.
Papain	GBF, PFZ.
Pepsin	CHH, SPR.
Protease (bacterial)	MLS, PMP.
Rennin	CHH, MLS, PFZ.
*Proteases, all other	GBF, GNR, PIC.
OTHER HYDROLYTIC ENZYMES:	
Cholesterol esterase	BCK.
Glucose isomerase	ADM, MLS.
Hydrolytic enzyme mixtures	JFR.
Lipase	GBF.
*Pectinase	GBF, GNR, MLS.
Other hydrolytic enzymes	GNR, MLS, X.
NON-HYDROLYTIC ENZYMES:	
Cholesterol oxidase	BCK, UPJ.
Glucose oxidase	BCK, MLS.
Glucose-6-phosphate dehydrogenase	BCK.
Glycerol kinase	BCK.
Uricase	BCK.
*FLOTATION REAGENTS:	
PHOSPHORODITHIOATES, USED AS FLOTATION REAGENTS:	
Dicresylphosphorodithioic acid	ACY, ESX.
Dicresylphosphorodithioic acid, ammonium salt	ACY.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*FLOTATION REAGENTS--CONTINUED	
PHOSPHORODITHIOATES, USED AS FLOTATION	
REAGENTS--CONTINUED	
Dicresylphosphorodithioic acid, sodium salt-----	KCU.
Phosphorodithioates used as flotation reagents, all	
other-----	ELC, ESX.
Rosin amines-----	HPC.
Thiocarbanilide (Diphenylthiourea)-----	ACY.
XANTHATES AND SULFIDES, USED AS FLOTATION REAGENTS:	
Potassium amylxanthate-----	ACY.
Potassium hexylxanthate-----	ESX.
Sodium n-butylxanthate-----	ESX, USR.
Sodium sec-butylxanthate-----	ESX.
Sodium ethylxanthate-----	ESX.
Sodium isobutylxanthate-----	ESX.
Xanthates and sulfides-----	PLC, RBC.
Floation reagents, all other-----	DOW, PLC.
*FUEL ADDITIVES:	
Adipic acid-diethylenetriamine-epichlorohydrin	
polymer-----	X.
DIESEL FUEL ADDITIVES:	
Hexyl nitrate-----	DUP, TNA.
Diesel fuel additives, cyclic, all other-----	TNA.
N,N-Dimethyl-1,3-propanediamine polymer with	
epichlorohydrin, sulfate-----	X.
*N,N'-Disalicylidene-1,2-propanediamine-----	DUP, FER, SM.
Ethoxylated hydantoin glycol dicocoate-----	GLY.
Formaldehyde polymer with ethylenediamine and nonyl	
phenol derivatives-----	X.
*GASOLINE ADDITIVES:	
N,N'-Di-sec-butyl-p-phenylenediamine-----	DUP.
N,N'-Diisopropyl-p-phenylenediamine-----	DUP.
*Methyl-t-butyl ether-----	ATR, ENJ, PTT, TPC, TUS.
Methylcyclopentadienylmanganese tricarbonyl-----	TNA.
*Tetraethyl lead-----	DUP, TNA, X.
*Tetra(methyl-ethyl)lead, (Tel-tml,reacted)-----	DUP, TNA, X.
Tetramethyl lead-----	DUP, TNA, X.
Gasoline additives, all other-----	SOC.
Imidazoline from tall oil fatty acids and	
diethylenetriamine-----	X.
4,4'-Methylenebis(2,6-di-tert-butylphenol)-----	GTL, TNA.
Methylene-bis(dimethyl)hydantoin and derivatives-----	GLY.
Mixed aryl diimides-----	SM.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*FUEL ADDITIVES--CONTINUED	
Phenyl acid phosphate-----	HDG.
Poly(dimethylimino(2-hydroxytrimethylene)chloride)-----	X.
Polyethylenepolyamine polymer with 1,4-dihydroxy-2-butene-----	X.
Rust preventing additives-----	ALX.
Sulfurized fatty acid amides, esters, or ester-amides-----	CXI.
Tetrahydropyrimidine from tall oil fatty acids and propylenediamine-----	X.
Fuel additives, acyclic, all other-----	CXI, DUP, SM, TNA.
Fuel additives, cyclic, all other-----	PAH, TNA.
*LUBRICATING OIL AND GREASE ADDITIVES:	
CHLOROSULFURIZED AND SULFURIZED COMPOUNDS:	
Butadiene styrene copolymer-----	SOC, TNA.
di-t-Amyl acid phosphate-----	SM.
Hydrocarbon carboxylic acid derivatives-----	SM, X, X.
Hydrocarbon phosphorous acid, barium salt-----	X.
Hydrocarbon phosphoryl derivatives-----	X.
Methylene-bridged polyalkyl phenols-----	TNA.
*OIL-SOLUBLE PETROLEUM SULFONATES:	
Oil-soluble petroleum sulfonate, ammonium salt-----	NTL.
*Oil-soluble petroleum sulfonate, barium salt-----	PAR, TNA, X.
*Oil-soluble petroleum sulfonate, calcium salt-----	PAR, PLC, SOC, TNA, 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, SHC, SOC, WTC.
Oxidized hydrocarbon mixture-----	ALX.
*PHENOL SALTS:	
Alkyl phenols-----	X.
Dodecylphenol, ethylenediamine, formaldehyde polymer, calcium salt-----	TX.
Dodecylphenol, sulfurized, calcium carbonate overbased salt-----	TX.
Dodecylphenol, sulfurized, calcium salt-----	SOC, TX.
Nonylphenol, 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 dialkyldithiophosphate-----	ELC, SOC, TNA, TX.
Zinc dialkylphenol dithiophosphate-----	SOC.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
PHOSPHORODITHIOATES (DITHIOPHOSPHATES)--CONTINUED	
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:	
Alkenyl succinimide	SOC, TNA, VTC.
N,N-di(C ₁₅ -C ₂₀)-sec-Alkylasparagine	TX.
Dodecenyl-oleyl succinimide	SM.
Dodecenyl-acetic succinimide	SM.
All other specify	TNA.
SULFUR COMPOUNDS:	
Aliphatic hydrocarbon sulfides	ELC, FER, SOC, TNA, X.
Chlorosulfurized cresylic acids	CCW.
Chlorosulfurized lard oil	FER.
Chlorosulfurized sperm oil	CCW, ELC.
Diisobutylene polysulfide	TNA, TX.
Di-tertiary nonylpolysulfide	PAS.
Sulfurized lard oil	CCW, FER, WBG.
*Sulfurized sperm oil substitutes	CCW, ELC, FER, WTC.
Triisobutylene polysulfide	TX.
Sulfur compounds, all other	WTC, X.
ALL OTHER LUBRICATING OIL AND GREASE ADDITIVES:	
Alkene thiophosphonate	TX.
Alkyl succinic anhydride	SM.
Alkyl terephthalamate	SOC.
Bornyl phenylamine	SOC.
Diisopropyl hydrogen phosphite	SM.
Dimer acid esters and polyesters	EMR.
Dodecenyl succinic acid, benzotriazole salt	SM.
Dodecylphenyl- α -naphthylamine	SM.
Dodecylphenyl- α -naphthylamine, dioctyl diphenylamine co-polymer	SM.
Fatty acid polyamine condensate	SOC.
Lubricating oil and grease additives, acyclic, all other	CRT, CKI, DUP, MON, SM, TNA, VTC, X.
Mixed polyesters	HCC.
Pentaerythritol esters	HCC.
N-phenylbis[n,8-hydroxyethyl]tetrapropenyl succinate	TX.
1,3,4-Thiadiazole, 2,5-bis(dialkylthio) derivatives	ELC.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*LUBRICATING OIL AND GREASE ADDITIVES--CONTINUED	
ALL OTHER LUBRICATING OIL AND GREASE ADDITIVES--	
CONTINUED	
Tributyl phosphite-----	SM.
Trimethylol propane ester-----	HCC, QCP, SFS, TNA.
Very high molecular weight (>1000) hydrocarbons-----	X.
Lubricating oil and grease additives, cyclic, all	
other-----	CGY, ENJ, SM, WTC, X.
PAINT DRIERS, NAPHTHENIC ACID SALTS:	
Cadmium naphthenate-----	CCA.
*Calcium naphthenate-----	CCA, MCI, NOD, TRO.
Chromium naphthenate-----	MCI.
*Cobalt naphthenate-----	CCA, MCI, NOD, SHP, TRO, WTC.
Copper naphthenate-----	NOD.
Iron naphthenate-----	CCA, HMP, MCI, NOD.
Lead naphthenate-----	CCA, MCI, NOD, SHP, TRO, WTC.
Lithium naphthenate-----	CCA.
*Manganese naphthenate-----	CCA, MCI, NOD, SHP, SM.
Naphthenate driers, mixed salts-----	MCI.
Rare earths naphthenate-----	CCA, NOD.
Strontium naphthenate-----	CCA.
Zinc naphthenate-----	CCA, MCI, NOD, SHP, TRO.
Paint dryers, naphthenic acid salts, all other-----	SHP.
*PHOTOGRAPHIC CHEMICALS:	
N-(2-Acetamidophenethyl)-1-hydroxy-2-naphthamide-----	TX.
N-2-(4-Amino-N-ethyl-m-toluidino)ethyl methane-	
sulfonamide-----	TX, WAY.
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	
(p-Diazo-2-chloro-N,N-diethylaniline zinc chloride)---	ESA.
Chlorohydroquinone-----	ESA.
4-Diazo-2,5-diethoxymorpholinobenzene-----	ALL, ESA.
4-Diazo-3,5-diethoxythiocresol salts-----	ESA.
2,5-Diethoxy-4-morpholinobenzenediazonium chloride-----	ALL, ESA.
2,5-Diethoxy-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, FMT.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*PHOTOGRAPHIC CHEMICALS--CONTINUED	
2,5-Dimethylbenzothiazole-----	FMT.
p-Diphenylaminediazonium sulfate-----	FMT.
p-(N-Ethylbenzimidazo)benzenediazonium chloride	
(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.
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-triazaindolizine-----	FMT.
4,4-Methylidene-bis-1(p-sulfophenyl)3-methyl-	
pyrazolone-----	FMT.
4-((3-Methyl-5-oxo-1-(4-sulfophenyl)-2-pyrazolin-4-	
ylidene)methylene)-3-methyl-1-(4-sulfophenyl)-2-	
pyrazolin-5-one-----	DUP.
2-Methylthiazoline-----	FMT.
p-Morpholinyl-2,5-dibutoxybenzene diazonium chloride----	ALL
6-Nitrobenzimidazole-----	FMT.
5-Nitrobenzimidazole nitrate-----	EK.
1-Phenyl-3-pyrazolidone-----	CWN, EK.
Poly(acrylic acid, ethyl ester)-----	DUP.
Poly(acrylic acid, methyl ester/ethylene/1,1-	
dichlorosuccinic acid, methylene-)-----	DUP.
Poly(acrylic acid, methyl ester/ethylene/1,1-	
dichlorosuccinic acid, methylene-) with ethyl	
acrylate-----	DUP.
Poly(vinyl-0-sulfobenzal)-----	DUP.
4-N-(1-Pyrrolidyl)-m-toluenediazonium chloride-----	ALL, ESA.
Photographic chemicals, all other-----	DUP, EK, ESA, FMT.
POLYALPHAOLEFINS:	
*Poly- α -olefins-----	CO, SM, TNA.
Poly- α -olefins, sulfurized-----	SM.

TABLE 2.—MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
POLYMERS FOR FIBERS:	
Cellulose acetate-----	CEL, EKT, MIL.
Cerex/nylon polymer-----	MON.
Copolyurethane urea-----	DUP.
Linear saturated polyester-----	EKT.
*Nylon 6 and 6/6 (Polymer for fiber only)-----	ACS, DUP, MON, SKP.
*Polyacrylonitrile and acrylonitrile copolymers-----	ACY, DUP, MON, SFS.
*Polyethylene terephthalate-----	CEL, DUP, EKT FRF, GYR.
Poly-m-phenylene isophthalamide-----	DUP.
Poly-p-phenylene terephthalamide-----	DUP.
Polymers for fibers, all other-----	HST.
*POLYMERS, WATER SOLUBLE:	
*CELLULOSE ETHERS AND ESTERS:	
Cationic cellulosic ether-----	UCC.
Hydroxyethylcellulose-----	UCC, X.
Methylcellulose-----	DOW.
Sodium carboxymethylcellulose (100%)-----	BUK, CBC, LCS, MAK, X, X.
Cellulose ethers and esters, all other-----	X.
Acrylamide-2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer-----	ACY, MRK, X.
Acrylamide-acrylic acid copolymer-----	CHP, CIN, DA, X.
Acrylamide-acrylic acid copolymer, sodium salt-----	BKM, SNW, X.
Acrylamide copolymer with N,N,N-trimethyl-2-(2-methyl- 1-oxo-2-propenyloxy)ethaniminium methyl sulfate-----	BKM, CIN.
Acrylamide N-dimethylaminomethylacrylamide copolymer-----	CPS.
Acrylamide-trimethylaminoethyl methacrylate chloride-----	CIN.
Acrylamide vinyl amino copolymer-----	X.
Adipic acid-crosslinked polycrylamide-----	S(E).
*POLYACRYLIC ACID SALTS:	
Ammonium polyacrylate-----	BAK, X.
Polyacrylate methacrylate copolymers-----	ALC, BFG, CRN, X, X.
Sodium ammonium polyacrylate and copolymers-----	DA, X, X.
*Sodium polyacrylate-----	ALC, BAK, BFG, BKM, CHP, DA, RH, SYT, X.
Polyacrylic acid salts, all other-----	ACY.
Dimethylamine epichlorohydrin ethylenediamine copolymer-----	CPS, X.
Dimethyl diallyl ammonium chloride polymers-----	SHX, X.
Ethyl acrylate methacrylic acid copolymer-----	ALC.
Humic acids, sodium salts-----	X.
Hydroxypropyl guar gum-----	RPC.
Polyacrylamide-----	DA, DOW, SNW, X.
Polyacrylamide dimethylammonium ethyl methacrylate-----	SNW.
Polyacrylate poly(hydroxypropylacrylate) copolymers-----	X.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1984--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*POLYMERS, WATER SOLUBLE--CONTINUED	
Polyacrylic acid	X.
Polyacrylonitrile, hydrolyzed	BKM, DIX.
Polyacrylonitrile, starch hydrolyzed polymer	GPC.
Polyamines	BAK, X.
Polydextrose	PFZ.
Poly(diallyldimethylammonium) chloride	BAK, CPS, MRK, X.
Polyethylene glycol, mono(nonylphenol) sulfate, ammonium salt	BAK.
Polyacrylamide copolymers, all others	BKM, HPC.
Polymaleic anhydride	X.
Polymethacrylic acid, sodium salt	ALC, CPS.
Poly(1,1'-(methylimino)bis(3-chloro-2-propanol))- tetramethylethylenediamine	BKM.
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	BKM, DA, EFH, HPC, STC, X, X, X.
RARE SUGARS:	
1-Arabinose	PFN.
D-Galactose	PFN.
D-Maltose	PFN.
SILICONE GREASES:	
Silicone greases	DCC, 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:	
N,N-bis-(2-Hydroxyethyl)octadecanamide	CCC.
N,N-Dibenzylhydroxylamine	CCC.
Dicyanodiamide formaldehyde ammonium chloride polymer	CCC, RPC.
Diethylenetriamine, triethylphosphate, urea polymer, stearate	CCC.
*Dimethyldihydroxyethylene 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, SYT.

TABLE 2.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984--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	:
Melamine formaldehyde triethanolamine mixed fatty	:
alcohols polymer-----	RPC.
Melamine stearyl alcohol polymer-----	SYT.
Product from the reaction of stearyl nitrile,	:
candellila 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, RPC, SYT.
Urea, polymer with tetrakis(hydroxymethyl)phosphonium	:
sulfate-----	CHP.
Textile chemicals, other than surface active agents,	:
all other-----	ACR, CCC, CRT, DAN, EKT, ENJ, RPC, X.
UREA, BY END-USE MARKETS:	:
Urea, primary solution (Report on 100% urea-content	:
basis)-----	APD, ARM, BNP, BOR, CAC, CFA, CFI, CHN,
	CNC, FRI, GCC, HKY, MSC, OMC, PLC, SMP,
	SOC, SOH, TER, TRI, TVA, UOC, WLC, WYC, X.
*UREA IN COMPOUNDS OR MIXTURES (100% BASIS): *	:
*Urea in feed compounds (100% Basis)-----	APD, CAC, SOH, TER, TRI, WYC.
*Urea in liquid fertilizer (100% Basis)-----	ARM, BNP, CFA, CFI, CHN, CNC, FRI,
	HKY, MSC, PLC, SMP, SOC, SOH, TER, TRI,
	TVA, WYC, X.
*Urea in plastics (100% Basis)-----	BOR, OMC, SOH, TRI.
*Urea in solid fertilizer (100% Basis)-----	APD, CAC, CFA, CFI, CNC, FRI, GCC, MSC, OMC,
	SOH, TER, TRI, TVA, UOC, WLC, WYC, X.
Urea in compounds and mixtures (100% Basis), all	:
other-----	BNP, SOH, TER.

TABLE 3.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 are listed below in the order of their identification codes as used in table 2]

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
ACG :	Atomergic Chemetals Corp.	ELC :	Elco Corp. Sub. of Detrex Chemical Industries, Inc.
ACR :	CPC International, Inc., Acme Resin Corp.	EMR :	Emery Industries Div. of National Distillers & Chemical Corp.
ACS :	Allied Corp., Chemical Sector	ENJ :	Exxon Chemical Americas
ACY :	American Cyanamid Co.	ESA :	East Shore Chemical Co.
ADM :	Archer Daniels Midland, ADM Clinton	ESX :	Essex Chemical Corp., Essex Industrial Chemicals, Inc.
AJI :	Ajinomoto USA, Inc.	FER :	Ferro Corp.: Ferro Chemical Div. Keil Chemical Div.
ALB :	Ames Laboratories, Inc.	FMT :	Fairmount Chemical Co., Inc.
ALC :	Alco Chemical Corp.	FRF :	Firestone Tire & Rubber Co., Firestone Fibers & Textiles Co.
ALD :	Aldrich Chemical Co., Inc.	FRI :	Farmland Industries, Inc.
ALL :	Alliance Chemical, Inc.	GAF :	GAF Corp., Chemical Group
ALX :	Alox Corp.	GBF :	Gist-Brocades U.S.A Inc.
APD :	Atlas Powder Co. Sub. of Tyler Corp.	GCC :	W. R. Grace & Co., Agricultural Chemicals Group
ARM :	U.S. Steel Corp., USS Agri-Chemicals Div.	GFS :	G. Frederick Smith Chemical Co.
ATR :	Atlantic Richfield Co., Arco Chemical Co.	GLY :	Glyco, Inc.
BAK :	Baker International - Magna Corp.	GNR :	Genencor, Inc.
BCK :	Beckman Instruments, Inc.	GPC :	Grain Processing Corp.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical Group	GRD :	W. R. Grace & Co., Polymers & Chemical Div.
BKM :	Buckman Laboratories, Inc.	GTL :	Great Lakes Chemical Corp.
BLZ :	Belzak Corp.	GYR :	Goodyear Tire & Rubber Co.
BOR :	Borden, Inc., Borden Chemical Div.	HCC :	Hatco Chemical Corp.
BNP :	Bison Nitrogen Products Co.	HDG :	Hodag Chemical Corp.
BRS :	Bristol-Myers Co.	HKY :	Hawkeye Chemical Co.
BUK :	Buckeye Cellulose Corp.	HMP :	W. R. Grace & Co., Hampshire Chemical Div.
CAC :	Cominco American, Inc.	HMY :	Humphrey Chemical Co.
CBC :	Carbose Corp.	HPC :	Hercules, Inc.
CCA :	Interstab Chemicals, Inc.	HST :	American Hoechst Corp., Hoechst Fiber Industries Div.
CCC :	C.N.C. Chemical Corp.	IMC :	International Minerals & Chemicals Corp., Industrial Chemicals Div.
CCL :	Catawba-Charlab, Inc.	JFR :	George A. Jeffreys & Co., Inc.
CCW :	Morton-Thiokol, Inc., Carstab Div.	KCU :	Kennecott Minerals Co., Utah Copper Div.
CEL :	Celanese Corp., Celanese Fibers Operations	LCS :	Louisiana Chemical Specialties, Inc.
CFA :	Cooperative Farm Chemicals Association	LEM :	Napp Chemicals, Inc.
CFI :	CF Industries, Inc.	MAK :	MAK Chemicals Corp.
CGY :	Ciba-Geigy Corp.	MCI :	Mooney Chemicals, Inc.
CHH :	CHR. Hansen's Laboratory, Inc.	MCK :	MacKenzie Chemical Works, Inc.
CHN :	N-REN Corp., Cherokee Nitrogen Div.	MIL :	Milliken & Co., Milliken Chemical Co.
CHP :	C. H. Patrick & Co., Inc.	MLS :	Miles Laboratories, Inc., Biotechnology Group
CHT :	Chattem, Inc.	MMC :	EM Industries, Inc., EM Sciences Div.
CIN :	Stockhausen, Inc.	MON :	Monsanto Co.
CLP :	Cell Products, Inc.	MOR :	Marathon Morco Co.
CNC :	Columbia Nitrogen Corp.	MRK :	Merck & Co., Inc.
CO :	Conoco Specialty Products, Inc.	MSC :	Mississippi Chemical Corp.
COC :	Columbia Organic Chemicals Co., Inc.	NBI :	Novo Biochemical, Inc.
CPS :	CPS Chemical Co., Inc.	NOD :	Nuodex, Inc.
CRN :	CPC International, Inc., Amerchol Corp.	NTL :	NL Industries, Inc.
CRT :	Chemos Corp.	OMC :	Olin Corp.
CWN :	Upjohn Co., Fine Chemicals Div.		
CXI :	Chemical Exchange Industries, Inc.		
DA :	Diamond Shamrock Corp., Chemical Co.		
DAN :	Dan River, Inc., Chemical Products Div.		
DGC :	Dow Corning Corp.		
DGG :	Degussa Corp.		
DIX :	Dixie Chemical Co., Inc.		
DOW :	Dow Chemical Co.		
DUP :	E. I. duPont de Nemours & Co., Inc.		
EFH :	E. F. Houghton & Co.		
EK :	Eastman Kodak Co.:		
EKT :	Tennessee Eastman Co. Div.		

TABLE 3--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY OF MANUFACTURERS, 1984--CONTINUED

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
PAH :	Parish Chemical Co.	SOH :	Sohio Chemical Co.
PAR :	Pennzoil Co., Penreco Div.	SOI :	Specialty Organics, Inc.
PAS :	Pennwalt Corp.	SPD :	General Electric Co., Silicone Products Dept.
PFN :	Pfanstiehl Laboratories, Inc.	SPR :	Scientific Protein Laboratories
PFZ :	Pfizer, Inc.	STC :	American Hoechst Corp., Sou-Tex Works
PIG :	Pierce Chemical Co.	SWS :	Stauffer Chemical Co., SWS Silicones Div.
PLB :	Pharmacia P-L Biochemicals, Inc.	SYT :	Synthron, Inc.
PLC :	Phillips Petroleum Co.		
PMP :	PMP Fermentation Products, Inc.	TER :	Terra Chemicals International, Inc.
PTT :	Petro-Tex Chemical Corp.	TER :	Terra Nitrogen, Inc.
		TNA :	Ethyl Corp.
QCP :	Quaker Chemical Corp.	TPC :	Texas Petrochemical Corp.
		TRI :	Triad Chemical
RBC :	Fike Chemicals, Inc.	TRO :	Troy Chemical Corp.
REG :	Regis Chemical Co.	TUS :	Texaco Butadiene Co.
RH :	Rohm & Haas Co.	TVA :	Tennessee Valley Authority
RPC :	Millmaster Onyx Group, Inc., Lyndall Chemical Co. Div.	TX :	Texaco, Inc., Texaco Chemical Co.
RSA :	R.S.A. Corp.		
		UCC :	Union Carbide Corp.
S :	Sandoz, Inc., Colors & Chemicals Div.	UOC :	Union Oil Co. of California
SCP :	Henkel Corp.	UPJ :	Upjohn Co.
SFS :	Stauffer Chemical Co., Specialty & Intermediates Div.	USR :	Uniroyal, Inc., Chemical Group
SHC :	Shell Oil Co., Shell Chemical Co. Div.		
SHP :	Shepherd Chemical Co.	VNC :	Vanderbilt Chemical Corp.
SHX :	Sherex Chemical Co., Inc.	VTC :	Vertac Chemical Corp.
SKP :	Shakespeare Co., Monofilaments Div.		
SM :	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.	WAY :	Philip A. Hunt Chemical Corp., Organic Chemical Div.
SMP :	J. R. Simplot Co.	WBG :	White & Bagley Co.
SMW :	Sun Chemical Corp., Chemical Div.	WCC :	White Chemical Corp.
SOC :	Chevron Corp., Chevron Chemical Co.	WLC :	Agrico Chemical Co.
		WTC :	Witco Chemical Corp.
		WYC :	Wycon Chemical Co.

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

STATISTICAL HIGHLIGHTS

Kenneth J. Conant, III and David G. Michels
202-523-0495 202-523-0493

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 1984 amounted to 92.0 billion pounds, a decrease of 1.4 percent, compared with production in 1983. U.S. sales for 1984 totaled 40.4 billion pounds, valued at \$12.0 billion. Compared with 1983, sales quantity increased 3.2 percent, and sales value increased by 6.3 percent. Production of miscellaneous cyclic chemicals composed only 2.8 percent of this section's total production.

The group, among miscellaneous acyclic chemicals, with the greatest volume of production and sales is the halogenated hydrocarbons. Production of halogenated hydrocarbons decreased from 23.7 billion pounds in 1983 to 19.4 billion pounds in 1984, or by 18 percent. Sales of comparable halogenated hydrocarbons rose to 9.0 billion pounds in 1984. Production of chlorinated hydrocarbons, the largest segment of this group, decreased 19.4 percent in 1984 to 18.3 billion pounds, from 22.7 billion pounds in 1983. Sales of chlorinated hydrocarbons amounted to 8.1 billion pounds, valued at \$1.5 billion.

TABLE 1.—MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1984

[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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	92,008,952	40,386,111	12,042,871	\$0.30
CYCLIC				
Total-----	2,552,388	1,244,956	1,090,529	.88
Benzoyl peroxide-----	9,247	8,767	20,474	2.34
tert-Butyl peroxybenzoate-----	3,526	3,484	7,848	2.25
Caprolactam ² -----	1,027,115	287,149	189,711	.66
Cumene hydroperoxide-----	2,016	1,775	1,940	1.09
2,6-Di-tert-butyl-p-cresol (BHT), tech. grade-----	7,074	7,188	8,297	1.15
Dodecenylsuccinic anhydride-----	5,791	5,145	4,394	.85
Hexamethylenetetramine, tech. grade-----	87,594	54,030	18,074	.33
Lactones-----	...	14,175	14,199	1.00
Maleic anhydride ² -----	359,060	313,733	129,567	.41
Pinene and derivatives, total-----	301,836	...	...	...
β-Pinene-----	46,480	14,319	3,758	.26
Pine oil, synthetic-----	42,489	42,132	18,631	.44
All other-----	212,867	...	...	...
Tall oil salts-----	2,333	1,697	2,804	1.65
1,3,5-Trichloro-5-triazine-2,4,6-(1H, 3H, 5H)trione-----	57,684	...	...	...
All other miscellaneous cyclic chemicals-----	689,112	491,362	670,832	1.37
ACYCLIC				
Total-----	89,456,564	39,141,155	10,952,342	.28
NITROGENOUS COMPOUNDS				
Total-----	7,346,336	2,627,061	1,289,435	.49
Amides, total-----	333,339	148,663	115,209	.77
N,N'-Ethylene bis (oleamide)-----	380	366	418	1.14
N,N'-Ethylenebis(stearamide)-----	...	27,365	18,010	.66
All other-----	332,959	120,932	96,781	.80
Amines, total ³ -----	1,597,107	495,867	390,480	.79
Butylamines,-----	35,693	29,708	25,278	.85
Dipropylamine-----	41,048	25,995	17,870	.69
Ethylamines:-----	...	...	...	...
Diethylamine-----	18,500	6,836	5,022	.73
Ethylamine, mono-----	49,218	...	...	...

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
NITROGENOUS COMPOUNDS--Continued				
Amines ² --Continued				
Triethylamine-----	19,359	15,199	12,714	\$0.84
Isopropylamine, mono-----	47,831	49,324	23,786	.48
Methylamines:				
Dimethylamine-----	71,026	56,245	26,391	.47
Methylamine, mono-----	47,973	...	...	...
Trimethylamine-----	30,530	21,241	8,875	.42
All other-----	1,235,929	291,319	270,544	.93
1,3-Diethyl-2-thiourea-----	411	371	784	2.11
Diethylaminoethyl methacrylate-----	1,545	1,567	2,610	1.67
Diethyl aminomethyl methacrylate, methyl chloride, quaternary salt-----	1,775	1,710	2,937	1.72
Ethanolamines, total ² -----	504,090	390,607	119,442	.31
2,2'-Aminodiethanol (Diethanolamine)-----	166,162	132,639	39,955	.30
2-Aminoethanol (Monoethanolamine)-----	198,274	137,720	41,387	.30
2,2',2''-Nitrilotriethanol (Triethanolamine)-----	139,654	120,248	38,100	.32
2,2'-(Methylimino)diethanol (Methyldiethanolamine)-----	...	6,713	7,482	1.11
Nitriles, total-----	...	1,394,808	455,769	.33
Acetonitrile-----	28,646	...	...	...
Acrylonitrile-----	2,219,166	1,194,569	399,202	.33
2-Methylactonitrile (Acetone cyanohydrin)-----	1,092,617	...	...	...
All other-----	...	200,239	56,567	.28
All other nitrogenous compounds-----	1,567,640	186,755	194,722	1.04
ACIDS, ACYL HALIDES AND ANHYDRIDES				
Total-----	11,588,463	2,122,095	790,722	.37
Acetic acid, synthetic, 100% ² -----	2,618,714	810,948	132,980	.16
Acrylic acid ² -----	839,239	145,161	61,363	.42
Fatty acid, hydrogenated-----	93,891	85,135	30,592	.36
Fumaric acid-----	49,510	30,239	16,183	.54
Propionic acid-----	95,867	78,817	17,020	.22
All other acid, acyl halides, and anhydrides-----	7,891,242	971,795	532,584	.55
SALTS OF ORGANIC ACIDS				
Total-----	315,897	303,355	244,957	.81
Acetic acid salts, total-----	23,337	20,933	14,483	.69
Calcium acetate-----	722	748	682	.91
Magnesium acetate-----	...	91	277	3.05

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
SALTS OF ORGANIC ACIDS--Continued				
Acetic acid salts--Continued				
Potassium acetate-----	1,393	1,674	1,442	\$0.86
Sodium acetate-----	14,605	...	...	...
Zinc acetate-----	731	754	826	1.10
All other-----	5,886	17,666	11,256	.64
2-Ethylhexanoic acid (α -Ethylcaproic acid salts, total)-----				
Calcium 2-ethylhexanoate-----	2,019	1,950	2,043	1.05
Cobalt 2-ethylhexanoate-----	5,055	3,655	8,421	2.30
Lead 2-ethylhexanoate-----	1,087	1,088	1,121	1.03
Manganese 2-ethylhexanoate-----	1,071	981	965	.98
Nickel 2-ethylhexanoate-----	984	952	1,567	1.65
Zinc 2-ethylhexanoate-----	1,062	830	892	1.07
Zirconium 2-ethylhexanoate-----	3,284	3,022	5,433	1.80
All other-----	6,272	4,995	8,540	1.71
Oleic acid salts-----	376	...	...	...
Propionic acid salts:				
Calcium propionate-----	18,750	...	...	...
Sodium propionate-----	2,098	...	...	...
Oxalic acid salts:				
Ammonium oxalate-----	133	112	233	2.08
Potassium oxalate-----	87	71	157	2.22
Stearic acid salts, total ⁴ -----	130,185	122,094	89,909	.74
Aluminum stearates-----	3,950	3,761	4,762	1.27
Barium stearate-----	606	...	...	...
Cadmium stearate-----	119	...	...	...
Cobalt stearate-----	553	499	916	1.84
Calcium stearate-----	71,276	72,323	45,386	.63
Magnesium stearate-----	23,812	16,669	12,198	.73
Zinc stearate-----	28,328	26,844	24,101	.90
All other-----	1,541	1,998	2,546	1.27
All other salts of organic acids-----	120,097	142,672	111,193	.78
ALDEHYDES				
Total-----	8,396,425	2,153,350	215,268	.10
Butyraldehyde-----	1,244,782	36,739	6,774	.18
Formaldehyde (37% by weight) ² -----	5,814,501	1,819,857	117,424	.06
Isobutyraldehyde-----	308,578	...	...	...
Propionaldehyde-----	225,320	11,674	2,961	.25
All other aldehydes-----	803,244	285,080	88,109	.31

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
KETONES				
Total-----	2,719,689	2,396,866	551,792	\$0.23
Acetone: ²				
From cumene-----	1,739,293	1,473,035	252,741	.17
From isopropyl alcohol-----	123,195	...	...	...
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	...	41,471	15,295	.37
Methyl ethyl ketone (2-Butanone) ² -----	543,291	557,414	153,933	.28
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	143,328	137,523	54,250	.39
All other ketones-----	170,582	187,423	75,573	.40
ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED				
Total-----	16,017,260	9,003,842	1,525,113	.17
Alcohols, C ₁₁ or lower, unmixed, total-----	14,929,068	...	...	...
Butyl alcohols, total-----	2,946,972	...	...	...
n-Butyl alcohol (n-Propylcarbinol) ² -----	907,570	425,497	100,582	.24
Isobutyl alcohol (Isopropylcarbinol) ² -----	163,150	99,455	20,530	.21
All other-----	1,876,252	...	...	...
Ethyl alcohol, synthetic ^{2 5} -----	1,060,476	1,169,007	288,449	.25
2-Ethyl-1-hexanol ² -----	541,061	363,768	115,965	.32
Isopropyl alcohol ² -----	1,394,417	918,266	203,870	.22
Methanol, synthetic ² -----	8,185,774	3,813,881	229,212	.06
Propyl alcohol (Propanol)-----	149,583	102,977	33,811	.33
All other-----	650,785	...	...	...
Mixtures of alcohols:				
C ₁₁ or lower only-----	282,309	140,166	59,271	.42
C ₁₂ or higher only-----	546,540	251,371	141,666	.56
All other alcohols, monohydric, unsubstituted-----	259,343	1,719,454	331,757	.19
ESTERS OF MONOHYDRIC ALCOHOL				
Total-----	5,294,637	2,867,772	1,169,573	.41
Butyl acetates:				
n-Butyl acetate-----	154,711	124,652	51,798	.42
Isobutyl acetate-----	82,872	59,425	20,911	.35
Butyl acrylate-----	423,976	205,851	100,613	.49
tert-Butyl peroxy-2-ethylhexanoate-----	2,010	2,033	6,623	3.26
tert-Butyl peroxy-pivalate-----	2,144	2,071	7,712	3.72
Dibutyl maleate-----	3,393	3,427	1,930	.56
2-Ethoxyethyl acetate-----	136,683	135,758	62,954	.46
Ethyl acetate (100% basis) ² -----	210,425	172,182	48,125	.28
Ethyl acrylate-----	306,376	174,533	72,439	.42
2-Ethyl-1-hexyl acrylate-----	87,158	67,406	38,760	.58

See footnote at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION
AND SALES, 1984--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	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-----	20,321	19,927	14,632	\$0.73
Myristyl myristate-----	259	252	396	1.57
Tridecyl stearate-----	1,482	1,466	1,218	.83
All other-----	18,580	18,209	13,018	.71
Methyl methacrylate ² -----	916,516	241,535	116,302	.48
Phosphorus acid esters, not elsewhere specified-----	101,071	79,516	88,333	1.11
Propyl acetate-----	62,538	54,801	25,247	.46
Tetraethyl orthosilicate-----	5,828	6,962	7,485	1.08
Vinyl acetate ² -----	2,023,884	1,193,398	276,736	.23
All other esters of monohydric alcohols-----	754,731	324,295	228,973	.71
POLYHYDRIC ALCOHOLS				
Total ⁵ -----	4,816,792	3,960,824	1,090,092	.28
1,4-Butadiol-----	343,702	94,343	65,153	.69
Ethylene glycol ² -----	3,223,826	2,900,033	600,092	.21
Pentaerythritol ² -----	120,587	107,070	55,152	.52
Propylene glycol ² -----	462,090	486,925	171,087	.35
Sorbitol (70% by weight)-----	191,134	139,950	50,116	.36
All other polyhydric alcohols-----	475,453	232,503	148,492	.64
POLYHYDRIC ALCOHOL ESTERS ⁶				
Total-----	207,572	203,510	140,834	.69
POLYHYDRIC ALCOHOL ETHERS				
Total-----	1,847,035	1,339,417	488,306	.36
2-Butoxyethanol ² -----	270,500	243,594	80,448	.33
2-(2-Butoxyethoxy)ethanol (Diethylene glycol mono- butyl ether)-----	66,530	56,153	23,107	.41
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)-----	10,579	4,463	2,202	.49
Diethylene glycol ² -----	535,252	324,588	57,040	.18
Dipropylene glycol-----	48,143	47,590	16,164	.34
2-Ethoxyethanol-----	167,594	71,923	26,815	.37
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol mono- ethyl ether)-----	31,836	23,224	8,382	.36
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-----	24,789	...	...	...
Polyethylene glycol-----	69,974	66,180	35,693	.54
Polypropoxy ethers-----	...	10,215	8,665	.85

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
POLYHYDRIC ALCOHOL ESTERS--Continued				
Polyglycols, ethylene glycol and glycol ether, mixed-----	5,101	8,616	2,710	\$0.31
Polypropylene glycol-----	11,112	9,715	6,181	.64
Tetraethylene glycol-----	21,593	19,291	8,151	.42
Triethylene glycol-----	108,515	102,356	32,394	.32
All other polyhydric alcohol ethers-----	475,517	351,509	180,354	.51
HALOGENATED HYDROCARBONS				
Total-----	19,421,089	9,043,328	2,218,389	.25
Chlorinated hydrocarbons, total-----	18,294,611	8,143,178	1,459,158	.18
Carbon tetrachloride ² -----	713,052	351,236	54,467	.16
Chlorinated paraffins (C ₁₀ -C ₃₀):				
35%-64% chlorine-----	86,018	86,273	31,502	.37
65% or more chlorine-----	20,389	21,761	9,719	.45
Chloroform ² -----	404,581	334,253	86,181	.26
Chloromethane (Methyl chloride)-----	482,449	268,256	51,537	.19
Dichloromethane (Methylene chloride) ² -----	606,731	501,362	117,858	.24
Ethyl chloride (Chloroethane) ² -----	290,232	92,319	16,017	.17
Ethylene dichloride (1,2-Dichloroethane) ² -----	7,329,771	1,060,336	112,585	.11
Tetrachloroethylene (Perchloroethylene) ² -----	573,153	433,638	89,053	.21
1,1,1-Trichloroethane (Methyl chloroform) ² -----	674,540	611,653	184,274	.30
Vinyl chloride, monomer (Chloroethylene) ² -----	6,084,612	4,116,833	621,965	.15
All other-----	1,029,083	265,258	84,000	.32
Fluorinated (including other fluorohalogenated) hydrocarbons, total-----	1,112,612	...	...	...
Chlorodifluoromethane (F-22) ² -----	254,100	177,721	207,239	1.17
Dichlorodifluoromethane (F-12) ² -----	336,640	323,404	216,644	.67
Trichlorofluoromethane (F-11) ² -----	184,924	174,045	88,996	.51
All other-----	336,948	...	...	...
All other halogenated hydrocarbons-----	13,866	224,980	246,352	1.09
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS				
Total-----	10,682,018	2,559,853	1,177,939	.46
Acyclic peroxides:				
2-Butanone peroxide-----	9,514	9,183	15,169	1.65
Carbon disulfide-----	...	266,885	44,990	.17
Expoxides, ethers, and acetals, total-----	8,213,256	1,992,293	611,416	.31
Ethylene oxide ² -----	5,698,740	512,212	131,068	.26
All other-----	2,514,516	1,480,081	480,348	.32

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1984--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS--Continued				
Glycidyle ethers-----	3,810	3,728	7,104	\$1.91
Hydrocarbons, not elsewhere specified-----	14,668	...	...	...
Organo-boron compounds-----	1,067	985	4,083	4.14
Phosgene (Carbonyl chloride)-----	1,221,992	...	...	...
Silicone fluids-----	166,346	90,254	182,193	2.02
All other miscellaneous acyclic chemicals-----	1,051,365	196,525	312,984	1.59
MIXTURES NOT SPECIFICALLY ITEMIZED				
Total-----	803,351	559,882	49,922	.09
Glycol residues-----	8,156	5,398	1,426	.26

¹Calculated from unrounded figures.

²The 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, 1984), results from a combination of incorrect reporting by some companies, end-of-year inventory adjustments, and rounding.

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

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

⁵Statistics for production of specially denatured alcohol, 214,465,472 wine gallons, and completely denatured alcohol, 202,303,863 wine gallons, for calendar year 1984 are compiled from data supplied by the Bureau of Alcohol, Tobacco, and Firearms. Withdrawals of completely denatured alcohol for fuel use was 126,344,405 wine gallons; nearly all specially denatured alcohol is considered to be used for fuel.

⁶Some 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 EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984

[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.
Acetylcyclohexane sulfonyl peroxide-----	WTC, WTL.
Alkylphenol formaldehyde condensate, alkoxylated-----	X.
Alkylphenol formaldehyde copolymer-----	X.
Aluminum dodecyl benzene sulfonate trimer-----	KCH.
1-(2-Aminoethyl)piperazine-----	DOW, TX, UCC.
1-(2-Amino ethyl)piperazine adipamide-----	MET.
1-(3-Aminopropyl)morpholine-----	TX.
Amyl p-dimethylaminobenzoate-----	VND.
Amyl ortho- and para- dimethylaminobenzoates-----	VND.
Benzothiazole-----	RCI, X.
Benzotriazole, substituted-----	CGY, X.
*Benzoyl peroxide-----	AZT, CAD, NOC, PLC, WTC, WTL.
Benzyl alcohol-----	KLM, SFS.
Benzyl chloroformate-----	ESX.
Benzyl cocoalkyl dimethyl ammonium chloride-----	BAK.
Bisp-chlorobenzoylperoxide-----	CAD.
Bis(2,4-dichlorobenzoyl) peroxide-----	CAD, WTL.
Bis(α , α -dimethylbenzyl)peroxide-----	WTL.
2,2-Bis(ferrocenyl)propane-----	ARA.
Bis(hydroxymethyl)oleyl oxazoline-----	ANG.
Bis(1,1,3,3-methyl-butyl-phenyl)ether-----	HEX.
Bis(perfluoroalkyl ethyl)bis(3-chlor-2-hydroxypropyl) pyromellitate-----	SNW.
1,1-Bis3,3,5-trimethyldicyclohexane-----	WTL.
Bis(triphenylsilyl)chromate-----	ARA.
Boron fluoride - phenol complex-----	ACS.
Bromochloro-5,5'-dimethyl hydantoin-----	GLY.
β -Bromo- β -nitrostyrene-----	GIV.
2-Butoxyethyl benzoate-----	X.
Butyl benzoate-----	MRF, TCC.
4-tert-Butylcyclohexyl peroxydicarbonate-----	CAD.
tert-Butyl- α , α -dimethylbenzoyl peroxide-----	WTL.
tert-Butylhydroquinone-----	EKT.
Butyl and isopropyl pthalimides-----	RPC.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
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-----	CRZ.
Camphene-----	SCM, X.
*Caprolactam (2-Oxohexamethylenimine)-----	AFP, BLY, CNP, DBC.
Caprolactam magnesium bromide-----	X.
Cellulose acetate hexahydrophthalate-----	X.
Cellulose acetate phthalate-----	EK, UCC.
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride-----	DOW.
p-(Chloromethyl)phenyl trimethoxysilane-----	SCM.
Chlorothixanthone-----	SW.
Cresolsulfonic acid, formaldehyde condensate-----	STC.
*Cumene hydroperoxide-----	CLK, FRE, USS, WTC.
α-Cumyl peroxyneodecanoate-----	WTL.
Cyanuric acid-----	FMC, MON.
Cyclohexanethiol-----	PAS.
1,4-Cyclohexylenedimethanol-----	EKT.
Cyclo chloroacetate-----	AAC.
Cyclopentenylmagnesium chloride-----	MHI.
Decabromodiphenyl ether (DBDP)-----	TNA.
Decahydronaphthalene (Decalin)-----	DUP.
Dehydroacetic acid or sodium salt-----	GAN.
Dialkyl naphthalene-----	X.
1,4-Diazobicyclo(2,2,2)octane-----	TX, X.
Diazodinitrophenol-----	HPC.
2,5-Di(benzoyl peroxy)-2,5-dimethylhexane-----	AZT, WTL.
Di-t-butyl diperoxyphthalate-----	WTL.
2,5-Di-tert-butylhydroquinone-----	EKT.
2,4-Di-t-butyl phenyl 3,5-di-t-butyl hydroxybenzoate-----	FER.
1,3-Dichloro-5,5-dimethylhydantoin-----	GLY.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione (Dichloroisocyanuric acids and salts)-----	FMC.
1,1-Dicyclohexane-----	WTL.
Dicyclohexylammonium nitrite-----	SHC.
Dicyclopentadienylchromium-----	ARA.
Dicyclopentadienyliron-----	ARA.
N,N'-Diethyl-N,N'-diphenylurea-----	VDM.
Diethylene glycol terephthalate-----	UPF.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Di(2-ethylhexyl)chlorendate	VEL.
Di(2-ethylhexyl)-5,6-dicarboxy-4-ethyl-cyclohexyl octanoate	MET.
1,5-Diethyl-2-thio-4,6-pyrimidinedione	TNI.
2,5-Dihydrothiophene-1,1-dioxide (Sulfolene)	PLC.
3,5-Dihydroxy-3,5-dimethyl-1,2-peroxycyclopentane	WTC, WTL.
Diiodomethyl-p-tolyl sulphone	ABB.
Diisopropylbenzene hydroperoxide	HPC.
Diketene	BRD, EKT.
Dimer acid esters with polyethylene glycol hydrogen phthalate and castor oil	BAK.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL.
4,4-Dimethyl oxazolidine	EFH.
4,4-Dimethyl oxazoline	ANG.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol	MRK.
Dioxane (1,4-Diethylene oxide)	DOW, FER, MIL.
1,3-Dioxolane	FER.
Di-para-xylene	WCC.
Diphenyl phosphorochloridate	EK.
Dipropylene glycol salicylate	SBC.
*Dodecenylsuccinic anhydride	BCC, DIX, HMY, MIL.
Dodecyldiphenyl oxide	X.
4-(Dodecyloxy)-2-hydroxybenzophenone	EKT.
Dodecyl pyridinium chloride	TLC.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)	WLN.
6-Ethoxy-12-dihydro-2,2,4-trimethyl quinoline	MON.
Ethoxylated methylglucoside	CRN.
5-Ethyl-1-aza-3,7-dioxabicyclo[3.3.0]octane	ANG.
Ethyl chrysanthemate	SFS.
BENZOIC ACID SALTS:	
Ammonium benzoate	WTK.
Benzenephosphinic acid	SFS.
Cadmium benzoate	VNC.
Lauryl benzoate	MET.
Potassium benzoate	PFZ.
Sodium benzoate, U.S.P.	FB, HCP, JRC, KLM, MAL, PFZ.
Sodium benzoate, tech.	PFZ.
Benzoic acid salts, all other	FB, WTC.
2,6-DI-TERT-BUTYL-P-CRESOL (BHT):	
2,6-Di-tert-butyl-p-cresol, (BHT), Food grade	KPT, USR.

TABLE 2.—MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED,
IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC—CONTINUED	
*2,6-Di-tert-butyl-p-cresol, (BHT), Technical grade	KPT, SW, UCC, USR.
2-Ethylhexyl benzoate	TCC.
2-Ethylhexyl-p-dimethylaminobenzoate	VND.
Ethyl hydroxymethyl oleyl oxazoline	ANG.
Ethylidene norbornene	UCC.
N-Ethyl-N-methyl morpholinium bromide	RSA.
N-Ethyl-N-methyl pyrrolidinium bromide	RSA.
4-Ethylmorpholine	TX.
FURAN DERIVATIVES:	
2-Furaldehyde (Furfural)	BAK, QKO.
[5-(Phenylmethyl)]-3-furfuryl alcohol	PEN.
Tetrahydrofurfuryl alcohol	QKO.
Gallic acid, tech.	MAL.
Glyceryl p-aminobenzoate	VND.
4-Guanyl-1-nitrosoguanyl tetrazine	REM.
Hexabromocyclodecane	GTL.
*Hexamethylenetetramine, tech.	BOR, HMP, NOD, OMC, PLS, WCL.
Homomenthyl salicylate	WTC.
Hydroquinone, di(β-hydroxyethyl) ether	EKT.
p-Hydroxybenzoic acid, butyl ester	KLM.
p-Hydroxy benzoic acid esters	VND.
p-Hydroxybenzoic acid, ethyl ester	KLM.
p-Hydroxybenzoic acid, methyl ester	KLM, LEM.
p-Hydroxybenzoic acid, propyl ester	KLM, LEM.
N-(Hydroxyethyl)piperazine	TCH, UCC.
2-Hydroxy-4-methoxybenzophenone	GLY.
2-Hydroxy-2-methylphenyl propanone	MMC.
α-D-p-Hydroxyphenylglycine methyl ester K	BOC.
1,2,3-Indantrione monohydrate (Ninhydrin)	PIC.
o-Iodobenzoic acid	RSA, SFS.
Isobornyl methacrylate	RH.
*LACTONES:	
Butyrolactone	GAF.
Caprolactone	UCC.
D-Glucoheptono-1,4-lactone, CP	PFN.
Glucono-δ-lactone	PFZ.
Lactones, all other	PFN.
Lanolin acetate	CRN.
Lanolin acid	CRN.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Lanolin acid, isopropyl ester-----	CRN.
Lanolin alcohol acetate-----	CRN.
*Maleic anhydride-----	AMO, ASH, DKA, MON, USS.
8-p-Menthyl hydroperoxide-----	HPC.
4-Methoxyphenol-----	ASL, EKT.
Methylaziridine-----	ARS.
Methyl-p-benzoquinone-----	EK.
2,2'-Methylenebis-(4-methyl-6-tert-butylphenol)-----	SW.
2,2'-Methylenebis(3,4,6-trichlorophenol) (Hexachlorophene)-----	GIV, VEL.
4-Methylmorpholine-----	TX.
1-Methyl-2-pyrrolidone, monomer-----	GAF.
Morpholine-----	AIP, DOW, TX.
Morpholine salt of p-toluene sulfonic acid-----	AMB.
Neopentyl glycol dibenzoate-----	VEL.
5-Nitro-1H-indazole-----	EK.
Octabromodiphenyl oxide-----	TNA.
Octadecenyl succinic anhydride-----	MIL.
Octenylsuccinic anhydride-----	MIL.
Oxalyl bis(benzylidene hydrazide)-----	EKT.
Pentaerythritol tribenzoate-----	VEL.
Phenothiazine-----	WAG(E).
2-Phenoxyethanol (Ethylene glycol monophenyl ether)-----	TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether)-----	EKT.
α -D-Phenylglycine methyl ester K-----	BOC.
2-Phenoxypropanol-----	DOW.
Phenylglyoxylic acid methyl ester-----	SFS.
Phenyl xylol ethane-----	HCC, TCC.
Phthalic acid, lead salt, (Dibasic)-----	ALI.
Picramic acid, sodium salt-----	SDC.
*PINENE AND DERIVATIVES:	
Pinane-----	SCM.
Pinane hydroperoxide-----	SCM.
2-Pinanol (cis and trans)-----	SCM.
α -Pinene-----	ARZ, SCM.
* β -Pinene-----	ARZ, HPC, NCI, SCM.
Pinene, sulfate-----	ARZ, HPC, NCI.
Pine oil, natural sulfate-----	NCI.
*Pine oil, synthetic-----	ARZ, NCI, SCM.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Polypropylene glycol glycerol triether and epichlorohydrin bisphenol epoxy resin-----	BAK.
Polypropylene glycol glyceryl triether (epichlorohydrin- bisphenol a) epoxy resin copolymer, ethoxylated-----	BAK.
Propoxylated methylglucoside-----	CRN.
Propylene glycol dibenzoate-----	VEL.
Propyl gallate-----	EKT.
2,4(1H,3H)Pyrimidinedione-----	SCM.
Resorcinol diglycidyl ether-----	WLN.
Resorcinol monobenzoate-----	EKT.
ROSIN ACID SALTS:	
Aluminum resinate-----	DRC.
Rosin acid salts, all other-----	ALI, SD.
Salicylic acid magnesium salt-----	KLM, PD.
Sodium benzene phosphinate-----	SFS.
Stannous octyl phthallate-----	X.
Stearyl melamine-----	SNW.
Styrene oxide-----	UCC.
Succinic anhydride-----	BCC, SOC.
Sucrose benzoate-----	VEL.
Tall oil, chemically modified-----	CCC, FOC, GAF, WVA, X, X, X.
*TALL OIL SALTS (LINOLEIC-ROSIN ACID SALTS):	
Calcium maganese tallate-----	MCI, SHP.
Calcium tallate-----	CCA, X.
Cobalt manganese tallate-----	MCI.
Cobalt tallate-----	MCI, SHP.
Lead manganese tallate-----	SHP.
Lead tallate-----	MCI.
Manganese tallate-----	MCI, SHP.
Tallow alkyl tallate-----	X.
Zinc tallate-----	MCI.
Tall oil salts, all other (Linoleic-rosin acid salts)-----	SHP, WTC, WTK, X.
TANNIC ACID:	
Tannic acid, N.F.-----	MAL.
Terpene hydrocarbons, monocyclic (Solvenol)-----	HPC, NCI, SCM.
Terpene polymers-----	ARZ.
Tetrabromobisphenol A-----	GTL, TNA, X.
Tetrabromobisphenol A, ethoxylated-----	GTL.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Tetrabromobisphenol A (carbonate) oligomer,	
tribromophenolend-capped-----	GTL.
n-Tetradecenylsuccinic anhydride-----	DIX.
1,2,3,4-Tetrahydronaphthalene (Tetralin)-----	DUP.
Tetrahydrothiophene-----	PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)-----	PLC.
4,4-Thiobis[6-tert-butyl-o-cresol] polymer-----	CRZ.
Thiophene-----	PAS.
Triallyl cyanurate-----	ACY.
Tributyltin benzoate-----	COS.
3,4,4'-Trichlorocarbaniide-----	MON.
*1,3,5-Trichloro-s-triazine-2,4,6-(1H,3H,5H)trione	
(Trichloroisocyanuric acid)-----	FMC, MON, OMC.
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.
2,4,6-Triphenoxy-s-triazine-----	AMB.
Triphenyltin hydroxide-----	X.
1,3,5-Tris[2-hydroxyethyl]-S-hexahydrotriazine-----	HLI.
1-Vinyl-2-pyrrolidinone--other copolymers-----	GAF.
1-Vinyl-2-pyrrolidinone-methylacrylic acid,	
dimethylamine ethyl ester, copolymer-----	GAF.
1-Vinyl-2-pyrrolidinone, monomer-----	GAF.
1-Vinyl-2-pyrrolidinone-vinyl acetate copolymer-----	GAF.
Cyclic chemicals, all other-----	ALD, DOW, ESA, GAF, HXL, MRF, NES, PAC,
	PLC, REG, RH, RSA, SK, STC, TNA, TX, UCC, VDM,
	VIK, WTK, X, X.
ACYCLIC	
*NITROGENOUS COMPOUNDS:	
Acetamidine hydrochloride-----	WTC.
Acetamidoethanol (N-Acetyl-ethanolamine)-----	GAF, SBC.
Acetone oxime-----	ALB.
Alkyl C ₁₂ C ₁₄ amine hydrochloride-----	COS.
*AMIDES:	
Acetamide-----	ACS, WTK.
Acrylamide monomer-----	ACY, SOH, X.
Acrylamide polymer with N,N-Diethyl-N-methyl-2(1-oxo-2-propenyloxy)ethaniminium sulfate-----	X.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMIDES--CONTINUED	
Amido amine salts as curing agents-----	CEL, PAC, X.
1,1'-Azobisformamide-----	FMT, OMC, USR.
Bis[2-(octadecylamido)ethyl]-N-(2-cyanoethyl)-N-ethyl ammonium ethyl sulfate-----	SBC.
Chloro-N-(2-hydroxyethyl)acetamide-----	GLY.
Coconut oil amide-----	ARC, CAD, FTX(E).
N,N-Diethyldodecanamide-----	EK, UPJ.
N,N-Dimethylacetamide-----	DUP.
N,N-Dimethylacetoacetamide-----	EKT.
Dimethylaminopropyl methacrylamide-----	TX.
Dimethyl caprylamide capramide-----	HAL.
N,N-Dimethylformamide-----	AIP, DUP, HAL.
Dimethyl oleamide-----	HAL.
Erucamide-----	ARC, WTC.
* N,N'-Ethylenebis-oleamide (Oleic acid-ethylenediamine condensate (Amine/acid ratio = 1/2))-----	CCW, GLY, WTC.
*N,N'-Ethylenebis(stearamide)-----	CCW, DA, GLY, WTC.
Fish oil fatty acid amide-----	WTC.
Formaldehyde adduct condensation-----	COS.
N-(Hydroxymethyl)-formamide-----	X.
Methacrylamide-----	DUP.
N-Methylacetamide-----	ARS, EKT.
Oleamide (Octadecene amide)-----	ARC, WTC.
Oleoylpalmitamide-----	HXL.
Oxamide-----	HML.
Ricinoleamide-----	MRT.
Stearamide (Octadecane amide)-----	ARC, WTC.
Stearyl erucamide-----	HXL.
Tallow amide, hydrogenated-----	ARC, CAD.
N,N,N,N-Tetra(hydrogenated tallowalkyl)butane diamide-----	ARC.
Amides, all other-----	ALD, ARS, BRD, DOW, SOL, WTC.
*AMINES:	
Allylamines-----	SHC, VGC.
Bis-hexamethylenetriamine amine-----	CXI, DUP, MON.

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

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, VGC.
tert-Butylamine, mono-----	MON.
Di-n-butylamine-----	AIP, PAS.
Diisobutylamine-----	AIP, VGC.
Tri-n-butylamine-----	AIP, PAS.
n-Butylethylamine-----	AIP, VGC.
Di-tert-butylethyldiamine-----	VGC.
Diethylaminoethanethiol HCl-----	EVN.
Diethylenetriamine-----	DOW, TX, UCC.
Diisopropylamine-----	AIP, PAS, UCC.
Dimethylaminopropylamine-----	TX, UCC.
Dimethylaminopropylamine, propoxylated-----	TX.
N,N-Dimethylbutylamine-----	SOL.
1,3-Dimethylbutylamine-----	MET.
N,N-Dimethylethylamine-----	SOL.
N-Ethylallylamine-----	VGC.
ETHYLAMINES:	
*Diethylamine-----	AIP, PAS, UCC.
*Ethylamine, mono-----	AIP, PAS, UCC.
*Triethylamine-----	AIP, PAS, UCC, VGC.
Ethylenediamine-----	DOW, TX, UCC.
(2-Ethylhexyl)amine, mono-----	ARC, VGC.
1,6-Hexanediamine (Hexamethylenediamine)-----	DUP, MON.
n-Hexylamine-----	CKI, PAS.
*Isopropylamine, mono-----	AIP, PAS, UCC, VGC.
METHYLAMINES:	
*Dimethylamine-----	AIP, DUP, GAF, IMC.
*Methylamine, mono-----	AIP, DUP, GAF, IMC.
*Trimethyl amine-----	AIP, DUP, GAF, IMC.
Mixed primary T-alkylamines-----	RH.
Nitrilotriacetoneitrile-----	HMP, VGC.
tert-Octylamine-----	RH.
Pentaethylenehexamine-----	UCC.
PENTYLAMINES (AMYLAMINES):	
Dipentylamine-----	PAS, VGC.
Pentylamine, mono-----	PAS.

TABLE 2.—MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED,
IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC—CONTINUED	
*NITROGENOUS COMPOUNDS—CONTINUED	
*AMINES—CONTINUED	
PENTYLAMINES (AMYLAMINES)—CONTINUED	
Tripentylamine	PAS.
Polyalkylene polyamine	DOW.
Poly(oxypropylene)diamine	TX.
PROPYLAMINES:	
Dipropylamine	AIP, PAS, VGC.
*Propylamine, mono	PAS, VGC.
Tripropylamine	PAS, VGC.
Tetraethylenepentamine	CKI, DOW, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine	MON, UCC.
Tetramethylethylenediamine	BKM, RH.
Triethylenetetramine	DOW, UCC.
Amines, all other	ALD, MON, PAC, USR, VEL, X.
2-Aminoethanol hydrochloride	HCP, OMC.
2-Aminoethanol (Monoethanol amine) sulfite	EVN, OMC.
Aminoethoxyethanol	TX.
2-(2-Aminoethylamino)ethanol	
(Aminoethylethanolamine)	ANG, DOW, HDG, UCC.
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate)	EVN.
2-Amino-2-ethyl-1,3-propanediol	ANG.
Aminoguanidine hydrochloride	REM.
2-Amino-2-(hydroxymethyl)-1,3-propanediol	
[Tris(hydroxymethyl)aminomethane]	ANG, WTK.
2-Amino-2-methyl-1,3-propanediol	ANG.
2-Amino-2-methyl-1-propanol	ANG.
2-Amino-2-methyl-1-propanol hydrochloride	CCC.
tert-Butylaminoethanol	PAS.
tert-Butylaminoethyl methacrylate	AAC, CPS.
tert-Butylaminoethyl methacrylate	RH.
tert-Butyldiethanolamine	PAS.
1-Butyl-3-ethyl-2-thiourea	PAS.
Butyl isocyanate	UPJ.
2-Chloro-n,n-diisopropylethylamine	SK.
2-Chloro-N,N-dimethylethylamine (Dimethylamino ethyl chloride) hydrochloride	SOL.
2-Chloro-N,N-dimethylpropylamine hydrochloride	SOL.
3-Chloro-2-hydroxypropyltrimethyl ammonium chloride	DOW.
Choline	HFT, RH.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
N-Cocoamidopropyl-N,N-dimethyl-N-sodium acetate, ammonium salt	BAK.
1-(2-Cyanoethyl)ethyl urea	GAF.
Di-amine derivatives of dimer acids	SCP.
2-Dibutylaminoethanol	PAS.
1,3-Dibutyl-3-thiourea	RBC, VNC.
2-Diethylaminoethanol (N,N-Diethylethanolamine)	PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol	PAS, UCC.
2-Diethylaminoethyl acrylate	X.
Diethylaminoethylacrylate, dimethyl sulfate, quaternary salt	CPS.
*2-Diethylaminoethyl methacrylate	BLM, CPS, DUP.
Diethylaminomethylacrylate, methyl chloride, quaternary salt	BLM, CPS.
Diethylaminomethylmethacrylate, methyl chloride, quaternary salt	AAC, BLM, CPS.
Diethylcarbamoyl chloride	GAF.
Diethylenetriamine stearamide	HRT.
Diethylhydroxylamine	PAS.
N,N-Diethyl-N-methyl-2(1-oxo-2-propenyloxy) ethaniminium sulfate	X.
*1,3-Diethyl-2-thiourea	PAS, RBC, VNC.
2-Diisopropylaminoethanol (N,N- Diisopropylethanolamine)	PAS, UCC.
2-Diisopropylaminoethyl methacrylate	DUP.
Dimethylamine epichlorohydrin copolymer	X.
Dimethylamine sulfate	RH.
2-Dimethylaminoethanethiol hydrochloride	EVN.
2-Dimethylaminoethanol (N,N-Dimethylethanolamine)	PAS, PEL, TX, UCC.
Dimethylaminoethyl acrylate	BLM.
Dimethylaminoethyl-3-dimethylaminopropyl ether	TX.
Dimethylaminoethyl methacrylate	AAC, BLM, CPS.
Dimethylaminomethylmethacrylate, dimethyl sulfate, quaternary salt	AAC, BLM, CPS.
Dimethylaminomethanol	X.
2-Dimethylamino-2-methyl-1-propanol hydrochloride	WPG.
1-(Dimethylamino)-2-propanol	ANG, PAS, PEL.
1,1-Dimethylhydrazine	USR.
2,5-Dithiobiurea	FMT.
tert-Dodecylsuccinamide	GAF.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*ETHANOLAMINES:	
*Diethanolamine-----	DOW, ICI, OMC, TX, UCC.
*Monoethanolamine-----	DOW, ICI, OMC, TX, UCC.
*Triethanolamine-----	DOW, ICI, OMC, TX, UCC.
2-Ethylaminoethanol (Ethylmonoethanolamine)-----	PAS.
N,N-Ethylenebis(12-hydroxystearamide)-----	CAS.
Ethylenediamine dihydrochloride-----	RSA.
1,1-Ethylenediurea-----	EK.
2-Ethylhexyl nitrate-----	X.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone-----	SDW.
N-Ethyl-N-hydroxyethyl-1,4-pentanediamine-----	SDW.
2-Ethyl-2-nitro-1,3-propanediol-----	ANG.
Formamidinedisulfide dihydrochloride-----	FKE.
Glycine ethyl ester hydrochloride-----	SFS.
Hexamethylenediamine adipate (Nylon salt)-----	BLY, DUP, MON.
N-(2-Hydroxyethyl)-12-hydroxystearamide-----	CAS.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris- (hydroxymethyl)nitromethane)-----	ANG.
ISOPROPYLAMINES:	
Monoisopropylamine-----	DOW.
Diisopropylamine-----	DOW, X.
Triisopropylamine-----	DOW.
2-Isopropylaminoethanol-----	PAS.
Ketimine, tetrafunctional-----	PAC, SCP.
2-Methoxyethyl carbamate-----	VAL.
3-Methoxypropylamine-----	TX.
2-Methylaminoethanol (N-Methylethanolamine)-----	PAS, UCC.
Methyl carbamate-----	NSC.
*2,2'-(Methylimino)diethanol (Methyldiethanolamine)-----	DOW, PAS, UCC.
Methyl isocyanate-----	UCC.
2-Methyl-2-nitro-1,3-propanediol-----	ANG.
2-Methyl-2-nitro-1-propanol-----	ANG.
*NITRILES:	
*Acetonitrile-----	BKC, DUP, SOH, X.
*Acrylonitrile, monomer-----	ACY, DUP, MON, SOH.
Adiponitrile-----	DUP.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile)-----	DUP.
n-Butyronitrile-----	EKK, WYT.

TABLE 2.—MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC—CONTINUED	
*NITROGENOUS COMPOUNDS—CONTINUED	
*NITRILES—CONTINUED	
Citral nitrile	SBC.
Coconitrile	ARC.
Crotonitrile	RBC.
Cyanoacetic acid	KF.
Cyanoethyl acrylate	TKL.
3-Ethoxypropionitrile	DIX.
Ethyl cyanoacetate	KF.
Hexadecanenitrile	ARC.
Isobutyronitrile	EKX.
Lactonitrile	MON.
Lauronitrile (Dodecyl nitrile)	ARC.
3-Methoxypropionitrile	X.
Methyl cyanoacetate	KF.
Methylisobutyl ketone aminonitrile	HMP.
*2-Methylactonitrile (Acetone cyanohydrin)	CYR, DUP, MON, RH, SOH.
Oleonitrile (Octadecene nitrile)	ARC.
Pentenitrile	DUP.
Propionitrile	MON.
Soya nitrile	ARC.
Stearonitrile (Octadecane nitrile)	SHX.
Tallow nitrile	ARC, SHX.
3,3'-Thiodipropionitrile	EVN.
Vinylacetoneitrile	ARC.
Nitriles, all other	ALD, DUP, EVN, OMC, RSA, TNA.
Nitromethane	ANG.
1-Nitropropane	ANG.
2-Nitropropane	ANG.
Octadecyl isocyanate	MOB.
Pentaerythritol tetranitrate	DUP, HPC.
Polyvinyl octadecyl carbamate	ESA.
n-Propylaminoethanol	X.
Semicarbazide hydrochloride	OMC.
Tetramethylguanidine	ACY.
Thiosemicarbazide	FMT.
Trimethylamine hydrochloride	X.
Trimethylaminoethyl ethanolamine	EKT.
Nitrogenous compounds, acyclic, all other	ALD, BLY, FKE, LAK, LMI, NES, OMC, RPC, TX, UCC, WTC, X, X, X.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, 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, UCC.
Acetic anhydride from acetic acid, recovered, by vapor-phase process-----	CEL, PFZ.
Acetyl chloride-----	WCC.
*Acrylic acid-----	CEL, DBC, DOW, RH, UCC.
Adipic acid-----	DUP, MON.
Azelaic acid-----	EMR.
2,2-bis(Hydroxy-methyl)-propionic acid-----	IMC.
Bromobutyric acid-----	GTL.
tert-Butylperoxy maleic acid-----	WTC, WTL.
Butyric acid-----	CEL, EKT.
Butyric anhydride-----	EKT.
Butyryl chloride-----	WCC.
Castor oil fatty acids, dehydrated-----	PFZ.
Chloroacetic acid, mono-----	PFZ.
Citric acid-----	MLS, PFZ.
Crotonic acid (2-Butenoic acid)-----	EKT.
Decanoyl chloride-----	WTL.
2,2-dichloroacetyl chloride-----	RDA, SHC.
Dimer acid (C- ₃₆ Aliphatic dibasic acid)-----	EMR, SYL.
Dimethylpropionic acid-----	ENJ.
Di-n-propylacetic acid-----	CYL.
Dithiodipropionic acid-----	EVN.
Dodecanedioic acid-----	DUP.
1,2-Ethanedisulfonic acid-----	SK.
2-Ethylhexanoic acid (α -Ethylcaproic acid)-----	EKT, UCC.
2-Ethylhexanoyl chloride-----	PPG, WTL.
*Fatty acids, hydrogenated-----	DRL, GLY, SHX.
Fatty acids, non-hydrogenated-----	DRL, WVA.
Formic acid, 90%-----	CEL, UCC.
*Fumaric acid-----	AGC, MON, PFZ.
Gluconic acid, technical-----	PFZ.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS ACID ANHYDRIDES, AND HALIDES--CONTINUED	
Glycolic acid (Hydroxyacetic acid)-----	DUP.
Heptanoic acid-----	CEL.
Heptanoyl chloride-----	WCC.
n-Hexadecenylsuccinic anhydride-----	HMY.
Isethionic acid (2-Hydroxyethanesulfonic acid)-----	WTC.
Isoascorbic acid (Erythorbic acid)-----	PFZ.
Isobutyric acid-----	EKX.
Isobutyric anhydride-----	EKT.
Isononanoyl chloride-----	STC, WTL.
Iso-octadecenoic acid-----	SYL.
Iso-octadecenylsuccinic anhydride-----	HMY.
Isopentanoic acid-----	UCC.
Itaconic acid (Methylenesuccinic acid)-----	PFZ.
LACTIC ACID:	
Lactic acid, edible, 100%-----	MON.
Lauroyl chloride-----	WCC, WTL.
Maleic acid-----	PFN, PFZ.
Malic acid-----	AGC.
Mercaptoacetic acid (Thioglycolic acid)-----	EVN.
3-Mercaptopropionic acid-----	EVN.
Mercaptosuccinic acid (Thiomalic acid)-----	EVN.
Methacrylic acid-----	DUP, RH.
Methanesulfonic acid-----	PAS.
Methanesulfonyl chloride-----	PAS.
Myristoyl chloride-----	WCC.
Neodecanoic acid-----	ENJ.
Nonanoic acid (Pelargonic acid)-----	CEL, EMR.
Nonanoyl chloride-----	WCC.
Nonenylsuccinic anhydride-----	HMY.
Octanoyl chloride-----	HMY, WCC.
Oleic acid-----	DRL.
Oleoyl chloride-----	FTX, HRT, STC.
Oxalic acid-----	ACS.
Oxalyl chloride-----	ESA.
Oxidized Fischer Tropsch wax-----	SNW.
3-Oxo-1,5-pentanedioic acid-----	SDC.
Palmitoyl chloride-----	SFS, STC, X.
Peroxyacetic acid-----	FMB, UCC.
Pivaloyl chloride-----	PPG, VEL, WCC.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYRIDES, AND ACYL HALIDES--CONTINUED	
Polyacrylic acid	: BFG, BKM, RH, SNW, X.
*Propionic acid	: CEL, DOW, EKT, UCC.
Propionic anhydride	: EKT.
Sebacic acid	: WTH.
Sebacoyl chloride	: WTL.
Sorbic acid (2,4-Hexadienoic acid)	: MON.
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, ALD, BKM, DRL, EK, FMC, PAS, RDA.
*SALTS OF ORGANIC ACIDS:	
*ACETIC ACID SALTS:	
Aluminum acetate	: ACS, NCC.
Ammonium acetate	: BKC, WTK.
Barium acetate	: BKC.
Butyltin acetate (Dibutyltin diacetate)	: UCC.
*Calcium acetate	: ACS, HFT, JRC, NCC.
Chromium acetate	: SHP.
Copper acetate	: BKC.
Lead acetate	: BKC.
Lead subacetate	: BKC.
*Magnesium acetate	: BKC, HCP, JRC, SHP.
Manganese acetate	: SHP.
Nickel acetate	: BKC, SHP.
*Potassium acetate	: ACS, BKC, HCP, JRC, NCC.
*Sodium acetate	: ACS, ATL, BKC, EKT, HCP, JRC, NCC, X.
Sodium diacetate	: HCP, JRC, NCC.
*Zinc acetate	: ACS, BKC, DIX, NCC, SHP, WTK.
Zirconium acetate	: CCG, TZC.
Acetic acid salts, all other	: X.
Adipic acid, ammonium salt	: SOL.
Allylsulfonic acid, sodium salt	: IOC.
Aluminum tridecanate	: KCH.
Aluminum tris(ethyl acetoacetate)	: KCH.
Bis(2-ethylhexyl) phosphate, sodium salt	: WFG.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
CITRIC ACID SALTS:	
Ammonium citrate	PFZ.
Calcium citrate	PFZ.
Diethanolamine citrate	X.
Potassium citrate	HXL, MLS, PFZ.
Sodium citrate	HXL, MLS, PFZ, X.
Citric acid salts, all other	WTK.
*2-ETHYLHEXANOIC ACID (ALPHA-ETHYLCAPROIC ACID) SALTS	
Aluminum 2-ethylhexanoate	NOC, WTC.
Barium 2-ethylhexanoate	NOD.
Bismuth 2-ethylhexanoate	SHP.
Cadmium 2-ethylhexanoate	CCA, VNC, WTC.
*Calcium 2-ethylhexanoate	CCA, COS, FER, MCI, NOD, TRO.
Chromium 2-ethylhexanoate	MCI, SHP.
*Cobalt 2-ethylhexanoate	CCA, MCI, NOD, SHP, TRO, WTC.
Cobalt-potassium 2-ethylhexanoate	MCI.
Copper 2-ethylhexanoate	MCI, NOD.
Dibutyltin di-2-ethylhexanoate	COS.
Iron 2-ethylhexanoate	CCA, NOD.
*Lead 2-ethylhexanoate	CCA, COS, NOD, SHP, TRO, WTC.
Lithium 2-ethylhexanoate	WTC.
*Manganese 2-ethylhexanoate	CCA, COS, FER, MCI, NOD, SHP, TRO, WTC.
*Nickel 2-ethylhexanoate	MCI, NOD, SHP, WTC.
Potassium 2-ethylhexanoate	CCA, MCI, PEL.
Rare earths 2-ethylhexanoate	CCA, MCI, NOD.
Sodium 2-ethylhexanoate	BOC, LIL.
Stannous 2-ethylhexanoate	FER, WTC.
*Zinc 2-ethylhexanoate	CCA, COS, MCI, NOD, OMC, SHP, VNC, WTC.
*Zirconium 2-ethylhexanoate	CCA, COS, FER, MCI, NOD, TRO, WTC.
2-Ethylhexanoic acid salts, all other	NOD, WTC.
FORMIC ACID SALTS:	
Calcium formate	IMC.
Potassium formate	HCP.
Sodium formate, refined	WTK.
Sodium formate, technical	BKC, IMC, PST.
Formic acid salts, all other	WTK.
Fumaric acid, lead salt	ALI.
GLUCOHEPTANOIC ACID SALTS:	
Zinc α -glucoheptonate	PFN.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
GLUCONIC ACID SALTS:	
Potassium glycolate-----	HCP, X.
Sodium gluconate-----	PFN, PFZ, PMP, X.
Glycolic acid, sodium salt-----	HCP.
2-Hydroxy-3(2-propenyloxy)-1-propanesulfonic acid, sodium salt-----	AAC.
TERTIARY-ALPHA-ALKYLCARBOXYLIC ACID SALTS (ISOCARBOXYLIC ACID SALTS):	
Calcium t- α -alkylcarboxylate-----	MCI.
Cobalt t- α -alkylcarboxylate-----	MCI, MCK.
Copper t- α -alkylcarboxylate-----	MCI.
Iron t- α -alkylcarboxylate-----	MCI.
Lead t- α -alkylcarboxylate-----	MCI.
Manganese t- α -alkylcarboxylate-----	CCA, MCI.
Mixed t- α -alkylcarboxylic acid salts-----	MCI.
Zinc t- α -alkylcarboxylate-----	MCI.
Zirconium t- α -alkylcarboxylate-----	MCI.
Isononanoic acid, lead salt-----	CCA.
Isooctanoic acid, calcium salt-----	CCA.
Isethionic acid, sodium salt-----	MCB.
Isoascorbic acid, sodium salt (Sodium erythorbate)-----	PFZ.
LACTIC ACID SALTS:	
Sodium lactate (Nalac)-----	PFN.
Lactic acid salts, all other-----	PFN.
LAURIC ACID SALTS:	
Barium cadmium laurate-----	FER.
Dibutyltin dilaurate-----	X.
Lauric acid salts, all other-----	FER, WTC.
Lead salts of menhaden fish oil, c-14 to c-22(lead fishate)-----	ELC, MCI.
LINOLEIC ACID SALTS:	
Calcium linoleate-----	CCA.
Cobalt linoleate-----	CYL, SHP.
Manganese linoleate-----	SHP.
MALEIC ACID SALTS:	
Dibutyltin maleate-----	FER.
Tribasic lead maleate-----	ALI.

TABLE 2.—MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED,
IDENTIFIED BY MANUFACTURER, 1984—CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC—CONTINUED	
*SALTS OF ORGANIC ACIDS—CONTINUED	
MERCAPTOACETIC ACID (THIOGLYCOLIC ACID) SALTS:	
Ammonium mercaptoacetate	EVN.
Calcium mercaptoacetate	EVN.
Sodium mercaptoacetate	EVN, X.
Mercaptoacetic acid (Thioglycolic acid) salts, all other	CCA.
Mercaptopropionic acid, dibutyltin salt	WTC.
NEODECANOIC ACID SALTS:	
Calcium neodecanoate	CCA, MCI, SHP.
Cobalt neodecanoate	MCI, SHP, UCC.
Lead-cobalt neodecanoate	MCI.
Lead neodecanoate	MCI.
Lithium neodecanoate	MCI.
Manganese neodecanoate	MCI, SHP.
Nickel neodecanoate	MCI.
Rare earths neodecanoate	MCI.
Zinc/calcium/cobalt neodecanoate	MCI.
Zinc neodecanoate	SHP.
Zirconium neodecanoate	MCI, SHP.
OCTANOIC-ACID (CAPRYLIC ACID) SALTS:	
Aluminum octanoate	SYP.
Octanoic acid (Caprylic acid) salts, all other	ALI, WTC.
*OLEIC ACID SALTS:	
Calcium oleate	X.
Copper oleate	MCI, NOD, WTC.
Zinc oleate	MCI.
Oleic acid salts, all other	SHP.
OXALIC ACID SALTS:	
*Ammonium oxalate	ACS, BKC, HML, WTK.
*Potassium oxalate	ACS, BKC, HML, WTK.
Sodium oxalate	BKC, HML, WTK.
PHOSPHORODITHIOIC ACID SALTS (DITHIOPHOSPHATES):	
Potassium dihexyl phosphorodithioate	ACY.
Sodium di-sec-butyl/diethyl phosphorodithioate	ACY.
Sodium di-sec-butyl phosphorodithioate	ACY.
Sodium diethyl phosphorodithioate	ACY.
Sodium dihexyl phosphorodithioate	ACY.
Sodium diisopropyl phosphorodithioate	ACY.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
PROPIONIC ACID SALTS:	
*Calcium propionate-----	HFT, NCC, PFZ.
Cobalt propionate-----	MCI, X.
*Sodium propionate-----	HFT, NCC, PFZ, X.
Propionic acid salts, all other-----	X.
Silver trifluoroacetate-----	EK.
Sodium di-2-ethylhexyl sulfosuccinate-----	WPG.
RICINOLEIC ACID SALTS:	
Ricinoleic acid salts, all other-----	WTC.
Sodium formaldehyde bisulfite-----	EK.
Sodium formaldehyde sulfoxylate-----	DA.
Sodium-N-methyl-N-oleyl taurate-----	WPG.
Sodium sorbitol borate-----	ICI.
*STEARIC ACID SALTS:	
*ALUMINUM STEARATES:	
Aluminum distearate-----	NOC, NOD, SYP, WTC.
Aluminum monostearate-----	MAL, NOD, SYP.
Aluminum tristearate-----	NOC, NOD, SYP, WTC, X.
Ammonium stearate-----	WPG.
*Barium stearate-----	NOC, NOD, SYP, VNC, WTC.
*Cadmium stearate-----	SYP, VNC, WTC.
*Calcium stearate-----	DA, FER, MAL, NOC, NOD, SNW, SYP, WTC.
*Cobalt stearate-----	MCI, SHP, WTC.
Ferric stearate-----	WTC.
Lead stearate-----	WTC.
Lead stearate, dibasic-----	ALI.
Lithium stearate-----	NOC, SYP, WTC.
*Magnesium stearate-----	ALI, MAL, NOD, SYP, WTC.
Nickel stearate-----	WTC.
Trioxy aluminum tristearate-----	KCH.
*Zinc stearate-----	CCC, DA, MAL, NOC, NOD, PLS, SYP, VNC, WTC.
Stearic acid salts, all other-----	SYP, WTC.
TARTARIC ACID SALTS:	
Potassium sodium tartrate-----	PFZ.
XANTHIC ACID SALTS, NOT USED FOR FLOTATION:	
Sodium isopropylxanthate-----	ESX.
Salts of organic acids, all other-----	ALD, EK, TCH, WTC.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
*ALDEHYDES:	
Acetaldehyde-----	CEL, EKK, UCC.
Acrolein (Acrylaldehyde)-----	UCC.
*Butyraldehyde-----	CEL, DBC, EKK, UCC.
Crotonaldehyde-----	EKT.
2-Ethylhexanal (α -Ethylcaproaldehyde)-----	EKK, UCC.
2-Ethyl-3-hydroxyhexanal-----	UCC.
*Formaldehyde (37% HCHO by Weight)-----	BOR, CBD, CEL, DUP, GAF, GP, HPC, IMC, MON, NOD, PKI, RCI, WCL.
Glutaraldehyde-----	UCC.
Glyoxal-----	ACY.
*Isobutyraldehyde-----	CEL, DBC, EKK, TU, UCC.
Isopentaldehyde, mixed isomers-----	UCC.
Methacrolein (methacrylaldehyde)-----	RDA.
*Propionaldehyde-----	CEL, EKK, UCC.
Succinaldehyde-sodium bisulfite complex-----	EK.
Valeraldehyde (Pentanal)-----	UCC.
*KETONES:	
*ACETONE:	
*Acetone from cumene-----	AFP, CLK, DOW, GE, GP, GYR, MON, SHC, SKO, USS.
*Acetone from isopropyl alcohol-----	EKT, ENJ, SHC, UCC.
Acetone, crude-----	ATR.
5-Chloro-2-pentanone-----	SDW.
1-Chloropinacolone-----	CHG.
Chloro-2-propanone (Chloroacetone)-----	EK, MRK.
Diisoamyl ketone-----	EKT.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)-----	EKK.
2-Heptanone (Methyl amyl ketone)-----	EKT.
3-Heptanone (Ethyl butyl ketone)-----	UCC.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	CEL, SHC, UCC.
Isovalerone (Diisobutyl ketone)-----	EKT, UCC.
*Methyl ethyl ketone-----	ATR, CEL, ENJ, SHC, UCC.
5-Methyl-2-hexanone (Methyl isoamyl ketone)-----	EKT.
*Methyl isobutyl ketone-----	EKT, ENJ, SHC, UCC.
4-Methyl-3-penten-2-one (Mesityl oxide)-----	UCC.
Methylpseudoionone-----	NCI.
Methyl vinyl ketone-----	PFZ.
2-Octanone (Hexyl methyl ketone)-----	WTH.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*KEYTONES--CONTINUED	
2,4-Pentanedione (Acetylacetone)-----	UCC.
3-Pentanone (Diethyl ketone)-----	EKT, HEX, ORT, UCC.
Pseudoionone-----	NCI, SCM.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)-----	UCC.
Ketones, all other-----	ALD, UCC.
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED:	
*ALCOHOLS, C ₁₁ OR LOWER, UNMIXED (95% OR MORE PURE):	
Allyl alcohol-----	FMC.
AMYL ALCOHOLS:	
2-Methyl-1-butanol-----	UCC.
1-Pentanol-----	UCC.
*BUTYL ALCOHOLS:	
*n-Butyl alcohol (n-Propylcarbinol)-----	CEL, DBC, EKX, GAF, SHC, UCC, VST.
sec-Butyl alcohol (Methylethylcarbinol)-----	ENJ, SHC.
tert-Butyl alcohol (Trimethylcarbinol)-----	ATR, SHC.
*Isobutyl alcohol (Isopropylcarbinol)-----	CEL, CPS, DBC, EKX, SHC, UCC.
1-Decanol-----	TNA, VST.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)-----	UCC.
*Ethyl alcohol, synthetic only-----	CEL, DOW, EKX, SHC, UCC, USI, VST.
*2-Ethyl-1-hexanol-----	DBC, EKX, SHC, TU, UCC.
n-Heptyl alcohol-----	EKK.
n-Hexyl alcohol-----	TNA, VST.
Iso-decyl alcohol-----	ENJ.
Isononyl alcohol-----	ENJ.
Iso-octadecyl alcohol-----	SHX.
Iso-octyl alcohol-----	ENJ.
*Isopropyl alcohol-----	ACS, ATR, ENJ, SHC, UCC.
*Methanol, synthetic only-----	AIP, ALM, ATR, BOR, CEL, DUP, EKT, GP, HST, TMC, MON, TID.
2-Methyl-1-pentanol-----	ENJ, UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)-----	UCC.
1-Octanol-----	TNA, VST.
2-Octanol (sec-Capryl alcohol)-----	WTH.
4-Penten-1-ol-----	ALD.
*Propyl alcohol (Propanol)-----	CEL, EKX, UCC.
2-Propyn-1-ol (Propargyl alcohol)-----	GAF.
Alcohols, unmixed C ₁₁ or lower, all other-----	ALD, CXI, DOW, SHC, UCC.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED--CONTINUED	
*ALCOHOLS C ₁₂ OR HIGHER, UNMIXED (95% OR MORE PURE):	
Alcohol mixtures, C ₁₂ through C ₁₈ only	SHC, SHX, TNA, VST, WTH.
Dodecyl alcohol (Lauryl alcohol)	TNA, VST.
1-Hexadecanol (Cetyl alcohol)	CRN, PG, VST.
2-Hexyl-1-decanol	SCP.
Isohexacosanol	SCP.
1-Octadecanol (Stearyl alcohol)	CRN, PG, VST.
cis-9-Octadecen-1-ol (Oleyl alcohol)	SHX.
2-Octyl dodecan-1-ol	SCP.
1-Tetradecanol (Myristyl alcohol)	VST.
1-Tridecanol	ENJ.
2,6,8-Trimethyl-4-nonanol	UCC.
MIXTURES OF ALCOHOLS:	
Alcohol mixtures, other	CO, ENJ, SCP, TNA.
*Alcohol mixtures, C ₁₁ or lower only	CO, CXI, EKX, ENJ, NCI, PG, SHC, TNA.
*Alcohol mixtures, C ₁₉ through C ₂₀ only	SHC, TNA, WTH.
*ESTERS OF MONOHYDRIC ALCOHOLS:	
Acrylic monomers, mixed	AAC.
Allyl methacrylate	AAC, BLM, CPS, GLY, SHC.
AMYL ACETATES:	
Amyl acetate (n-Pentyl acetate)	UCC.
Amyl acetates, all other	WTL.
*BUTYL ACETATES:	
*n-Butyl acetate	CEL, DBC, EKT, UCC.
*Isobutyl acetate	CEL, DBC, EKT, EKX, UCC.
Bis[t-butylperoxy]-1,9-nonanedioate	WTL.
*Butyl acrylate	CEL, DBC, RH, UCC.
n-Butyl chlorocrotonate	MAL.
sec-Butyl chloroformate	PPG.
Butyl lactate	CPS.
Butyl maleate	TCH.
Butyl mercaptopropionate	EVN.
Butyl methacrylate	DUP, RH.
Butyl oleate	ELC.
tert-Butyl peroxyacetate	AZT, WTL.
*tert-Butyl peroxy-2-ethylhexanoate	AZT, WTC, WTL.
tert-Butyl peroxyisobutyrate	AZT, WTL.
tert-Butyl peroxyisopropylcarbamate	CAD, PPG, WTL.
tert-Butyl peroxyneodecanoate	WTC, WTL.
*tert-Butyl peroxyvalerate	AZT, WTC, WTL.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Butyl stearate-----	CRN.
Cetylcicosyl methacrylate-----	RH.
Cetyl lactate-----	SBC, VND.
Diallyl maleate-----	AAC, FMC.
Dibutyl fumarate-----	RCI.
*Dibutyl maleate-----	NOD, RCI, USS.
Di(sec-butyl)peroxydicarbonate-----	WTL.
Diethyl carbonate (Ethyl carbonate)-----	PPG.
Diethyl dipropylmalonate-----	ABB.
Di(2-ethyl-1-hexyl) chloroformate-----	WTC.
Di(2-ethyl-1-hexyl) maleate-----	CCC, CHP, RPC, WPG.
Di(2-ethyl-1-hexyl) peroxydicarbonate-----	WTL.
Diethyl maleate-----	ACY.
Dilauryl-3,3'-thiodipropionate-----	CCW, EVN.
Dimethyl carbonate-----	PPG.
Dimethyl maleate-----	AAC, BLM.
Dimyristyl-3,3'-thiodipropionate-----	CCW.
Dioctyl maleate-----	RCI, USS.
Distearyl-3,3'-thiodipropionate-----	CCW, EVN.
Dithiobis(stearyl propionate)-----	EVN.
Ditridecyl maleate-----	EFH.
Di(tridecyl)-3,3'-thiodipropionate-----	EVN, SM.
Dodecylpentadecyl methacrylate-----	RH.
Dodecyl succinic lactate-----	SM.
*2-Ethoxyethyl acetate-----	EKT, EKK, ICI, UCC.
*Ethyl acetate (100% basis)-----	CEL, EKT, EKK, MON, UCC.
Ethyl acetoacetate-----	BRD, EKT.
*Ethyl acrylate-----	CEL, RH, UCC.
Ethyl chloroacetate-----	SK.
Ethyl chloroformate-----	ESX, PPG.
Ethyl chlorothiolformate-----	SFA.
Ethylene carbonate-----	TX.
2-Ethyl-1-hexyl acetate-----	EKT, MRF.
*2-Ethyl-1-hexyl acrylate-----	CEL, DBC, UCC.
2-Ethylhexyl chloroformate-----	PPG, VDM, WTC.
2-Ethyl-1-hexyl methacrylate-----	DUP.
Ethyl monofluoroacetate-----	RBC.
Ethyl phosphonothiodichloridate-----	TNA.
Ethyl silicate-----	SFS.
Ethyl sulfate (Diethyl sulfate)-----	UCC.

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

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:	
Dimethyl brassylate-----	EMR.
Docosanyl docosenoate-----	SBC.
Dodecenyl succinic 12-hydroxystearate-----	TX.
Isocetyl stearate-----	SCP.
Isopropyl lanolate-----	VND.
Isopropyl linoleate-----	VND.
Methyl esters of coconut oil-----	FTX, PG, WTC.
Methyl esters of lard-----	FER.
Methyl esters of tallow-----	CHL, FER.
Methyl 12-hydroxystearate-----	WTH.
Methyl iso-octadecenoate-----	SYL.
Methyl linoleate-----	HRT.
Methyl stearate-----	CHL.
*Myristyl myristate-----	CYL, SBC, VND.
Propyl oleate-----	CHP.
*Tridecyl stearate-----	DA, SCP, STC, WM, WTC.
Fatty acid esters, not included with plasticizers surface-active agents, all other-----	DA, SBC, WTC.
Hexyl acetate-----	ENJ.
Hexyl acrylate-----	CPS.
Isobutyl acrylate-----	DBC.
Isobutyl chloroformate-----	PPG.
Isobutyl isobutyrate-----	EKK.
Isobutyl methacrylate-----	RH.
Isodecyl acrylate-----	CPS.
Isodecyl methacrylate-----	CPS, RH.
Iso-octyl mercaptoacetate-----	CCW, EVN, MET.
Iso-octyl-3-mercaptopropionate-----	EVN.
Isopropyl acetate-----	EKT, UCC.
Isopropyl borate-----	ADC.
Isopropyl chloroformate-----	PPG.
Isostearyl neopentanoate-----	SBC, VND.
Lauryl acrylate-----	CPS.
Lauryl lactate-----	VND.
Lauryl methacrylate-----	AAC, CPS, RH, TX.
Laurylstearyl methacrylate-----	RH.
Maleic esters and copolymers-----	GAF.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Menthallylidene diacetate-----	RDA.
2-Mercaptoethyl adipate-----	X.
2-Methoxyethyl acrylate-----	CPS.
Methyl acetate-----	EKT, MON.
Methyl acetoacetate-----	BRD, EKT.
Methyl acrylate, monomer-----	CEL.
Methyl borate-----	SFS.
Methyl butyrate-----	WCC.
Methyl chloroformate-----	ESX, PPG.
Methyl formate-----	CEL.
Methyl-3-mercaptopropionate-----	PLC.
*Methyl methacrylate, monomer-----	CYR, DUP, RH.
Methyl pivaloylacetate-----	EKT.
Methyl sulfate (Dimethyl sulfate)-----	DUP.
Myristyl lactate-----	VND.
Octadecyl-3-mercaptopropionate-----	DUP, EVN.
*PHOSPHORUS ACID ESTERS:	
Amyl hydrogen phosphate-----	HK.
Bis (2-Chloroethyl)-2-chloroethylphosphonate-----	SM.
Bis(2-ethylhexyl) hydrogen phosphate-----	SM.
Bis(2-ethylhexyl)hydrogen phosphite-----	SM.
Bis(2-ethylhexyl) pyrophosphoric acid-----	SM.
Bis(tridecyl) hydrogen phosphite-----	SM.
Butyl dithiophosphoric acid-----	ESX.
Butyl hydrogen phosphate-----	HK, SM.
Butyl xylol acid phosphate-----	HK.
Dibutyl butylphosphonate-----	SM.
Dibutyl hydrogen phosphite-----	SFS, SM.
Dibutyl pyrophosphate-----	SM.
Diethyl hydrogen phosphite-----	SM.
Diethyl phosphorochloridothionate-----	SFS, TNA.
Dimethyl hydrogen phosphite-----	SM.
Dimethyl methylphosphonate-----	SM.
Dimethyl phosphoridothionate-----	SFS.
Dioleoyl hydrogen phosphite-----	SM.
2-Ethylhexyl hydrogen phosphate-----	SM.
Iso-octyl hydrogen phosphate-----	SM.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
*PHOSPHOROUS ACID ESTERS--CONTINUED	
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	OMC.
Trialkyl phosphite	MCB.
Tri(butoxyethyl)phosphate	SM.
Tributyl phosphate	FMC.
Triethyl phosphite	SFA, SM.
Triiso-octyl phosphite	MCB, SM.
Trimethyl phosphite	SM.
Tris(2-chloroethyl) phosphite	SM.
Tris(chloroisopropyl)thionophosphate	SM.
Tris-2-chloropropyl phosphate	PEL.
Tris(2-ethylhexyl) phosphite	ALD, MCB, SM.
Phosphorus acid esters, all other	HK, MCB, X.
*Propyl acetate	CEL, EKT, UCC.
Propylene carbonate	TX.
Stearyl methacrylate	CPS, RH, TX.
Tetraalkyl silicate	MON.
*Tetraethyl orthosilicate (Tetraethyl silicate)	KF, SFS, UCC.
Tetraethyl silicate, condensed	SFS, UCC.
Tetraoctyl orthosilicate	MON.
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.
Tetrabutyl titanate	DUP.
Tetraisopropyl titanate	DUP.
Tetrakis(2-ethylhexyl)titanate	DUP.
Triethanolamine titanate	KF.
Titanic acid esters, all other	DUP, X.
Trichloromethyl chloroformate	MHI.
Triethyl borate	TSA.
Triethyl orthoformate	KF.
Triethyl orthopropionate	KF.
Triisobutyl vanadate	SFS.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Trimethyl borate-----	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-----	ALD, EKT, ENJ, ICI, PAH, PD, SNW, USR, X.
*POLYHYDRIC ALCOHOLS:	
2,2-Bis(bromomethyl)-1,3-propanediol-----	DOW.
1,2(and 1,3)-Butanediol-----	CEL.
*1,4-Butanediol-----	BAS, DUP, GAF, X.
2-Butene-1,4-diol-----	BAS, GAF.
2-Butyne-1,4-diol-----	BAS, GAF.
3-Chloro-1,2-propanediol (Glycerol -chlorohydrin)-----	DIX, EKT, EVN.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)-----	DBC, EKK.
*Ethylene glycol-----	BAS, CEL, DOW, EKK, HCF, ICF, ICI, NWP, OMC, PPG, SHC, TX, UCC.
2-Ethyl-1,3-hexanediol-----	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane)-----	CEL.
Glycerol, synthetic only-----	DOW.
1,6-Hexanediol-----	DBC.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylolpropane)-----	IMC.
Mannitol-----	ICI.
3-Mercapto-1,2-propanediol (Thioglycerol)-----	EVN.
2-Methyl-2,4-pentanediol (Hexylene glycol)-----	SHC, UCC.
*Pentaerythritol-----	CEL, DOW, HPC, IMC, PST.
Propylene glycol (1,2-Propanediol)-----	ATR, DOW, DRC, OMC, TX, UCC.
*Sorbitol (70% by Weight)-----	BRD, EHC, ICI, PFZ.
Tetradecanediol-hexadecanediol mixture-----	SHC.
Trimethylolpropane-----	SVC.
2,2,4-Trimethyl-1,3-pentanediol-----	EKK.
Polyhydric alcohols, all other-----	ICI.
*ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS:	
*POLYHYDRIC ALCOHOL ESTERS:	
2-(2-Butoxyethoxy)ethyl acetate-----	EKT, ICI, UCC.
2-Butoxyethyl acetate-----	EKT, ICI.
1,3-Butylene glycol diborate-----	USB.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTER AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ESTERS--CONTINUED	
1,3-Butylene glycol diborate/hexylene glycol	
boric anhydride-----	USB.
Diethylene glycol adipate-----	CMB, DIX.
Diethylene glycol, borated-----	OMC.
Diethylene glycol chloroformate-----	PPG.
Diethylene glycol dimethacrylate-----	CPS, RH.
Dihydromyrcene-----	SCM, X.
2-(2-Ethoxyethoxy)ethyl acetate-----	AAC, EKT, MRT.
Ethylene glycol diacetate-----	EKT.
Ethylene glycol dimercaptoacetate-----	EVN.
Ethylene glycol dimethacrylate-----	RH.
Ethylene glycol hydroxyacetate-----	CCA.
Ethylene glycol phosphite-----	SM.
2-Ethyl-2(hydroxymethyl)-1,3-propanediol	
trimethacrylate-----	WM.
Glycerol tricaprylate caprate-----	WM.
Glyceryl diacetate (Diacetin)-----	HAL.
Glyceryl monoacetate (Monoacetin)-----	HAL.
Glyceryl monothioglycolate-----	EVN.
Glyceryl triacetate (Triacetin)-----	EKT.
1,6-Hexanediol diacrylate-----	CEL, RH.
Hydroxyethyl acrylate-----	DOW, RH.
Hydroxyethyl methacrylate-----	RH.
Hydroxypropyl acrylate-----	DOW, RH.
Hydroxypropyl methacrylate-----	AAC, GAI, RH.
2-Methoxyethyl acetate-----	UCC.
Pentaerythritol caprylate/caprate-----	WM.
Pentaerythritol stearate-----	GLY.
Pentaerythritol tetraacrylate-----	CEL.
Pentaerythritol tetrakis (3-Mercaptopropionate)-----	EVN.
Polyethylene polypropylene glycol glyceryl	
triether maleate-----	BAK.
Polypropylene-polyethylene glycol glyceryl	
triether citrate-----	BAK.
Propylene glycol dicaprylatecaprate-----	WM.
Propylene oxide, polymer with polyethylene glycol	
adipate-----	BAK.
Sucrose octa-acetate-----	HFT, PD.
Tetraethylene glycol diacrylate-----	CEL.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTER AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ESTERS--CONTINUED	
Tetraethylene glycol diheptanoate-----	WM.
Tetraethylene glycol dimethacrylate-----	AAC.
Triethylene glycol diacetate-----	EKT.
Triethylene glycol dimethacrylate-----	RH.
Trimethylolpropane pelargonate-----	WM.
Trimethylolpropane-hexyl dimerate-----	WTC.
Trimethylolpropane triacrylate-----	CEL, RH.
Trimethylolpropane tridecanoate-----	SM.
Trimethylolpropane tri(2-mercaptopropionate)-----	EVN, RH.
Trimethylolpropane trimethacrylate-----	MRT.
2,2,3-Trimethyl-1,3-pentanediol monoisobutyrate-----	EKK.
Tripropylene glycol diacrylate-----	CEL.
Polyhydric alcohol esters, all other-----	ARA, CEL, DOW, EKK, SNW, UCC.
*POLYHYDRIC ALCOHOL ETHERS:	
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.
Bis(2-methoxyethyl)ether (Diethylene glycol dimethyl ether)-----	ASL, FER.
*2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	DOW, EKK, ICI, OMC, SHC, UCC.
*2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)-----	DOW, EKK, ICI, OMC, SHC, UCC.
*2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)-----	DOW, OMC, UCC.
1-Butoxyethoxy-2-propanol-----	UCC.
Butyl ethers of tetra- and higher ethylene glycols(high boiling)-----	EKK, ICI.
*Diethylene glycol-----	BAS, CEL, DOW, EKK, HST, ICI, NWP, OMC, PPG, SHC, TX, UCC.
Diethylene glycol divinyl ether-----	GAF.
Dimethoxyethane (Ethylene glycol dimethyl ether)-----	ASL, FER.
*Dipropylene glycol-----	ATR, DOW, OMC, TX, UCC.
Dipropylene glycol monomethyl ether-----	OMC.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	EKK, ICI, OMC, SHC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)-----	DOW, EKK, ICI, OMC, SHC, UCC.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTER AND ETHER OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ETHERS--CONTINUED	
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	DOW, OMC, UCC.
Ethylene glycol di-tributyl ether	EKX, OMC.
Ethylene glycol monoisobutyl ether	OMC.
Ethyl ethers of tetra- and higher ethylene glycols (high boiling)	EKX, ICI.
2-[2-(Hexyloxy)ethoxy]ethanol	OMC, UCC.
1-Isobutoxy-2-propanol (Propylene glycol isobutyl ether)	NCW.
2-Methoxyethanol (Ethylene glycol monomethyl ether)	ICI, OMC, PPG, TX, UCC.
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	DOW, ICI, OMC, PPG, TX, UCC.
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	ASL, DOW, ICI, OMC, UCC.
2-(2-Methoxyethoxy)ethyl-2-methoxyethyl ether (Triethylene glycol dimethyl ether)	FER, OMC.
Methoxypolyethylene glycol	ICI, UCC.
1-Methoxy-2-propanol	DOW, OMC.
3-(3-Methoxypropoxy)propanol	DOW.
3-3-(3-Methoxypropoxy)propoxypropanol	DOW.
Paraformaldehyde	CEL.
Polyethoxylated-1,4-butanediol	X.
*Polyethylene glycol	ABB, DA, DOW, HDG, ICI, OMC, STC, TX, UCC, X.
Polyethylene glycol dimethyl ether	SHX, X.
Polyethylene glycol mono decyl ether	BAK.
*Polyglycols, ethylene glycol and glycol ether, mixed	ASL, CEL, DIX, DOW, UCC, X.
Polymethylvinyl ether monoethylmaleate	TNI.
Polyoxyalkylene glycol	OMC.
*POLYPROPOXY ETHERS:	
Poly(propoxy)butyle ether, ethoxylated	TX.
Polypropoxybutyl ether	DA.
Polypropoxy ethers, all other	ICI, UCC.
Polyoxypropylene polyoxyethylene glycol, mixed	UCC, WTC.
*Polypropylene glycol	DOW, HDG, OMC, SM, TX, X.
Polypropylene glycol glycerol tri-ether	BAK.
Polytetramethylene glycol ether	DUP, QKO.
Propoxyethanol (Ethylene glycol monopropyl ether)	EKX.
Propoxyethoxyethanol (Diethylene glycol monopropyl ether)	EKX.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTER AND ETHER OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ETHERS--CONTINUED	
Propylene glycol, mixed ethers-----	CXI, UCC.
Sorbitol, ethoxylated-----	GLY, ICI.
Sorbitol, propoxylated-----	ICI.
*Tetraethylene glycol-----	DOW, EKK, ICI, UCC.
2,2'-Thiodiethanol (Thiodiglycol)-----	DOW, MET(E), PLC, X.
Thiodipropanol-----	X.
*Triethylene glycol-----	CEL, CXI, DOW, EKK, ICI, OMC, PPG, SHC, TX, UCC.
Triethylene glycol dichloride-----	RH.
Tripropylene glycol-----	DOW, OMC, UCC.
Tripropylene glycol monomethyl ether-----	OMC.
Tri- and tetraethylene glycol monoethyl ethers, borate esters-----	OMC.
Polyhydric alcohol ethers, all other-----	ALD, DA, MIL, UCC, WTC, X.
*HALOGENATED HYDROCARBONS:	
BROMINATED (INCLUDING BROMOCHLORINATED) HYDROCARBONS:	
1-Bromobutane (n-Butyl bromide)-----	DAZ.
Bromochlorinated paraffin C ₁₀ C ₂₀ -----	FER.
Bromochloromethane-----	BKM, DOW.
Bromoethane (Ethyl bromide)-----	DOW, GTL.
1-Bromohexadecane-----	HMY.
1-Bromo-3-methyl-2-butene-----	SD.
1-Bromo-octadecane-----	HMY.
1-Bromopentane (n-Amyl bromide)-----	GTL.
1-Bromopropane (n-Propyl bromide)-----	DAZ, WCC.
2-Bromopropane (Isopropyl bromide)-----	DAZ.
Dibromohexadecane-----	TNA.
Dibromomethane (methylene bromide)-----	DOW.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide) Vinyl bromide (Bromoethylene)-----	DOW. TNA.
Brominated (Including bromochlorinated) hydrocarbons, all other-----	ALD, TNA, WTC.
*CHLORINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS:	
*Carbon tetrachloride-----	DA, DOW, DUP, FRO, LCP, SFI.
CHLORINATED PARAFFINS (C ₁₀ -C ₃₀):	
*Chlorinated paraffins, 35-64% chlorine-----	DA, DVC, FER, NEV, WTC, X.
Chlorinated paraffins, less than 35% chlorine-----	FER, NEV.
*Chlorinated paraffins, 65% or more chlorine-----	DA, DVC, FER, NEV.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HALOGENATED HYDROCARBONS--CONTINUED	
*CHLORINATED (NOT OTHERWISE HALOGENATED)	
HYDROCARBONS--CONTINUED	
1-Chlorobutane (n-Butyl chloride)-----	UCC.
*Chloroform-----	DA, DOW, FRO, LCP.
*Chloromethane (Methyl chloride)-----	DA, DCC, DOW, LCP, TNA, VST.
3-Chloro-2-methyl-1-propene (Methallyl chloride)-----	FMC.
3-Chloropropene (Allyl chloride)-----	DOW, SHC.
1,2-Dichloropropane (Propylene dichloride)-----	DOW.
2,3-Dichloropropane-----	DOW.
2,2-Dimethylchloropropane(neopentyl chloride)-----	TNA.
*Ethyl chloride (Chloroethane)-----	DOW, DUP, PPG, TNA.
*Ethylene dichloride-----	ATR, BFG, DA, DOW, FOR, FRO, GP, OMC, PPG, SHC, TNA, VST.
Hexyl chloride-----	TNA.
Lauryl chlorides-----	SHC, TNA.
*Methylene chloride (Dichloromethane)-----	DA, DOW, FRO, LCP.
Octyl chloride-----	TNA.
*Perchloroethylene (Tetrachloroethane)-----	DA, DOW, DUP, FRO, PPG.
*1,1,1-Trichloroethane (Methyl chloroform)-----	DOW, FRO, PPG.
1,1,2-Trichloroethane (Vinyl trichloride)-----	DOW.
Trichloroethylene-----	DOW, PPG.
1,2,3-Trichloropropane-----	DOW.
1,2,3-Trichloropropene-----	DOW.
*Vinyl chloride, monomer (Chloroethylene)-----	BFG, BOR, DOW, ENJ, FOR, GP, PPG, SHC, VST.
Vinylidene chloride, monomer (1,1-Dichloroethylene)---	DOW, PPG.
Chlorinated (Not otherwise halogenated)	
hydrocarbons, all other-----	ALD, X.
FLUORINATED (INCLUDING OTHER FLUOROHALOGENATED)	
HYDROCARBONS:	
2-Bromo-2-chloro-1,1,1-trifluoroethane-----	HOC.
Bromotrifluoroethylene-----	HOC.
Bromotrifluoromethane-----	DUP, GTL.
1-Chloro-1,1-difluoroethane-----	PAS.
*Chlorodifluoromethane (F-22)-----	ACS, DUP, KAI, PAS, RCN.
Chloropentafluoroethane-----	DUP.
Chlorotrifluoroethylene (Trifluorovinyl chloride)-----	ACS.
Chlorotrifluoromethane-----	DUP.
*Dichlorodifluoromethane (F-12)-----	ACS, DUP, KAI, PAS, RCN.
Dichlorotetrafluoroethane-----	ACS, DUP.
1,1-Difluoroethane-----	DUP, PAS.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HALOGENATED HYDROCARBONS--CONTINUED	
*FLUORINATED (INCLUDING OTHER FLUORAHALOGENATED)	
HYDROCARBONS--CONTINUED	
Hexafluoroethane-----	DUP.
Hexafluoropropylene, monomer-----	DUP.
1-Iodoperfluorohexane-----	DUP.
Polyhexafluoropropylene oxide-----	DUP.
Polytetrafluoroethylene ethyl iodide-----	DUP.
Tetrafluoroethylene, monomer-----	DUP, ICI.
Tetrafluoromethane-----	DUP.
*Trichlorofluoromethane (F-11)-----	ACS, DUP, KAI, PAS, RCN.
Trichlorotrifluoroethane-----	ACS, DUP, PAS.
Trifluoroethanol-----	HOC.
Trifluoromethane-----	DUP.
Trifluoropropene-----	HOC.
Vinyl fluoride, monomer-----	DUP.
Vinylidene fluoride, monomer-----	PAS.
Fluorinated (Including other fluorohalogenated)	
hydrocarbons, all other-----	DAZ, DUP, ICI, OH.
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.
Isopropyl iodide-----	RSA.
Iodinated (Not otherwise halogenated) hydrocarbons,	
all other-----	ALD, DPW.
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS:	
Acetone sodium bisulfite-----	EK.
ACETYLACETONE (ACAC) COMPLEXES:	
Chromium acetylacetonate complex-----	MCK, SHP.
Cobalt acetylacetonate complex-----	SHP.
Iron acetylacetonate complex-----	MCK, SHP.
Manganese acetylacetonate complex-----	SHP.
Nickel acetylacetonate complex-----	SHP.
ACYCLIC PEROXIDES:	
Acetylacetone peroxide-----	CAD.
Acetyl peroxide-----	UCC, WTL.
2,2-Bis[t-butyl peroxy]butane-----	WTL.
*2-Butanone peroxide-----	CAD, FRE, NOC, WTC, WTL.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ACYCLIC PEROXIDES--CONTINUED	
n-Butyl-4,4-bis[t-butylperoxy]valerate-----	CAD.
tert-Butyl hydroperoxide-----	ATR, FRE, WTC, WTL.
tert-Butyl peroxide (Di-tert-butyl peroxide)-----	CAD, WTC, WTL.
Decanoyl peroxide-----	WTC, WTL.
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.
Diperoxydodecanedioic acid-----	MMC.
Di-n-propyl peroxydicarbonate-----	WTL.
Aluminum isopropoxide (Aluminum isopropylate)-----	CHT, KCH.
*Carbon disulfide-----	PAS, PPG, SFI.
2,3-Dibromopropanol-----	GTL.
Diethyl-N,N-Bis(2-hydroxyethyl)amino methyl phosphinate--	SFS.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)--	EKK, PPG.
*EPOXIDES, ETHERS, AND ACETALS:	
Bis(2-Chloroethyl)ether (Dichlorodiethyl ether)-----	BKM.
Butylene oxide-----	DOW.
Butyl vinyl ether-----	GAF.
2,2-Dichloro-1,1-difluoroethyl methyl ether-----	DOW.
Epichlorohydrin-----	DOW, SHC.
*Ethylene oxide-----	BAS, CEL, DOW, EKK, ICI, NWP, OMC, PPG, SHC, SNO, TX, UCC.
Ethyl ether, U.S.P.-----	USI.
Ethyl ether, absolute-----	EKK, USI.
Ethyl ether, tech.-----	DOW, USI.
1,2-Ethanedithiol-----	RBC.
2-(Ethylmercapto)ethanol-----	DOM.
*GLYCIDYL ETHERS:	
Alkyl glycidyl ethers, C ₁₂ -C ₁₄ -----	WLN.
Alkyl glycidyl ethers, C ₈ -C ₁₀ -----	WLN.
Allyl glycidyl ether (Allyloxy-2,3-epoxypropane)-----	AAC, BLM, CPS.
1,4-Butanediol diglycidyl ether-----	WLN.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)-----	CPS, WLN.
tert-Butyl glycidyl ester-----	AAC.
2-Ethylhexyl glycidyl ether-----	WLN.
Polyol glycidyl ether-----	WLN.
Glycidyl ethers, all other-----	WLN.
Ethyl vinyl ether-----	GAF.
Glycidol (2,3-Epoxy-1-propanol)-----	DIX.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
EPOXIDES, ETHERS, AND ACETALS--CONTINUED	
*GLYCIDYL ETHERS--CONTINUED	
Isopropyl ether-----	ENJ, SHC.
Malonaldehyde bis(dimethyl) acetal-----	KF.
Methylal (Dimethoxymethane)-----	CEL.
Methyl ether (Dimethyl ether)-----	AIP, DUP.
Methyl vinyl ether-----	GAF, UCC.
Propylene oxide-----	ATR, DOW.
Epoxides, ethers, acetals, all other-----	STC, UCC, VIK.
FATS AND OILS, CHEMICALLY MODIFIED:	
Hydrogenated menhaden fish oil-----	CHL.
Hydrogenated tallow glycerides-----	CHL, SHX.
Linseed oil, oxygenated-----	CJO.
Stearic acid glycerides and oxidized stearic acid glycerides-----	SDW.
Sulfurized corn oil-----	SM.
Vegetable glycerides, hydrogenated-----	GLY.
Fats and oils, chemically modified, all other-----	DA.
Glutaraldehyde bis(sodium bisulfite)-----	EK.
Hexachlorodimethyl sulfone-----	SFS.
1-Hexadecanethiol-----	HMY.
Lauroyl peroxide-----	WTL.
2-Mercaptoethanol-----	MET, PLC.
Methyl sulfide (Dimethyl sulfide)-----	CRZ, PAS.
Methyl sulfoxide (Dimethyl sulfoxide)-----	CRZ.
1-Octadecanethiol-----	HMY.
*HYDROCARBONS:	
n-Decane-----	HMY, PLC.
3,3-Dimethylbutene-----	PLC.
n-Dodecane-----	HMY, PLC.
Hexadecane-----	HMY.
Isononanoyl peroxide-----	WTL.
Myrcene-----	SCM, X.
n-Nonane-----	HMY, PLC.
n-Octadecane-----	HMY.
n-Octane-----	HMY, PLC.
n-Tetradecane-----	HMY.
Hydrocarbons, all other-----	ALD, WTK.
ORGANO-ALUMINUM COMPOUNDS:	
Aluminum acetylacetonate complex-----	MCK.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-ALUMINUM COMPOUNDS--CONTINUED	
Aluminum di-sec-butoxide acetoacetic ester chelate----	CHT.
Aluminum diisopropoxide acetoacetic ester chelate----	CHT, KCH.
Aluminum ethyl-3-oxobutanoate-O ¹ ,O ³ -dihydroxy T-4----	CHT.
Aluminum (2-ethyl hexanoate)-oxo-homopolymer-----	KCH.
Aluminum tri-sec-butoxide-----	CHT.
Diethylaluminum chloride-----	TNA, TSA.
Diethyl aluminum ethoxide-----	TSA.
Diethylaluminum iodide-----	TNA, TSA.
Diisobutylaluminum chloride-----	TNA, TSA.
Diisobutylaluminum hydride-----	TNA, TSA.
Ethylaluminum dichloride-----	TNA, TSA.
Ethylaluminum sesquichloride-----	TNA, TSA.
Isopropenylaluminum-----	TSA, X.
Methylaluminum sesquichloride-----	TNA.
Oxy-aluminum octanoate-----	CHT.
Sodium dihydrobis(2-methoxyethoxy)aluminum hydride----	HXL, TNA.
Triethylaluminum-----	TNA, TSA.
Tri-n-hexyl aluminum-----	TNA, TSA.
Triisobutylaluminum-----	TNA, TSA.
Trimethylaluminum-----	MHI.
Tri-n-octylaluminum-----	TSA.
Tri-oxyaluminum tri-isopropoxide-----	CHT, KCH.
Organo-aluminum compounds, all other-----	ALD, TNA.
*ORGANO-BORON COMPOUNDS:	
Boron fluoride - ethyl ether complex-----	ACS.
Ethylamine with borane (1:1)-----	ACS.
1-Hexyl-1,2-dicarbododecaborane-----	X.
N-Methyl-methanamine with borane (1:1)-----	X.
2-Methyl-2-propanamine with borane(1:1)-----	X.
Triethylborane-----	X.
Trimethoxyboroxine-----	X.
N,N,N-Trimethyl methanaminium octahydrotriborate	X.
Organo-boron compounds, all other-----	MHI, TKL, X.
ORGANO-LITHIUM COMPOUNDS	
n-Butyllithium-----	FTE.
sec-Butyllithium-----	FTE.
Organo-lithium compounds, all other-----	ALD.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-MAGNESIUM COMPOUNDS:	
Butyl ethyl magnesium-----	TSA.
Di-n-hexyl magnesium-----	TNA.
Methylmagnesium bromide-----	ARA.
Methylmagnesium chloride-----	ARA.
Organo-magnesium compounds, all other-----	ARA.
ORGANO-SILICON COMPOUNDS:	
γ-Aminopropyltriethoxysilane-----	KF, SCM.
α-Chloropropyltrichlorosilane-----	DCC.
Chloropropyltrimethoxysilane-----	DCC, KF.
Chlorotrimethylsilane-----	DCC.
Dichlorodimethylsilane-----	DCC.
Dichloromethylsilane-----	DCC.
Dichloromethylvinylsilane-----	DCC, UCC.
Diethoxyphosphorylethyltriethoxysilane-----	UCC.
α-Glycidoxypolytrimethoxysilane-----	DCC, UCC.
Hexamethyldisilazane-----	SCM.
Isobutyltrimethoxysilane-----	KF.
Mercaptopropyltrimethoxysilane-----	KF.
α-Methacryloxypropyltrimethoxysilane-----	UCC.
Methyltrimethoxysilane and polymethyltrisiloxane-----	DCC, KF, UCC.
Polyoxyalkene silicones-----	UCC.
*Silicone fluids-----	DCC, MON, SPD, SWS, UCC.
Trichloromethylsilane-----	DCC.
Trichloropropylsilane-----	DCC.
Trichlorovinylsilane-----	UCC.
Tris(2-methoxyethoxy)vinyl silane-----	KF.
Vinyltriethoxysilane-----	UCC.
Organo-silicone compounds, all other-----	ALD, DA, KF, UCC, X.
ORGANO-TIN COMPOUNDS:	
Dibutyltin bis(butylmaleate)-----	CCA.
Dibutyltin bis(isooctylmercaptoacetate)-----	FER, X.
Dibutyltin bis(mercaptolaurate)-----	X.
Dibutyltin methoxide (Dibutylmethoxytin)-----	CCA.
Dibutyltin oxide-----	X.
Dimethyltin dichloride-----	WTC.
Ester tin mercaptoesters-----	CCA.
Octyltin-----	CCA, X.
Titanium acetylacetonate complex-----	KF.

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

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-TIN COMPOUNDS--CONTINUED	
Tributyltin acetate-----	X.
Tributyltin fluoride-----	X.
Tributyltin propylene glycol maleate-----	CCA.
Organo-tin compounds, all other-----	CCW, COS.
ORGANO-ZINC COMPOUNDS:	
Diethylzinc-----	MHI, TSA.
Zinc acetylacetonate complex-----	SHP.
Perchloromethanethiol (Perchloromethyl mercaptan)-----	SFC.
Perfluoroalkyl polyether-----	X.
*Phosgene (Carbonyl chloride)-----	DUP, MOB, OMC, PPG, RUC, UCC, 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.
Trimethylsulfonium iodide-----	DPW.
Miscellaneous acyclic chemicals, all other-----	ALD, CPS, NOD, PD, PLC, SHP, WTL, X.
*MIXTURES NOT SPECIFICALLY ITEMIZED:	
C ₁₂ -C ₁₅ Alcohol lactates-----	VND.
Alcohols, monohydric, and their esters, C ₈ and higher, mixed-----	EKX, MON, X.
Butanol residue stream-----	CEL.
Butyl formcel-----	CEL.
Celtone-----	CEL.
Fatty acid amide mixtures-----	HAL.
*Glycol residues-----	CKI, ICI, OMC.
Methacrylate based cationic polyelectrolytes-----	COS.
Methyl formcel-----	CEL.
Mixed alcohol borates-----	X.
Mixed chain length fatty acid, synthetic-----	ENJ, PG.
Morpholine residue stream-----	TX.
Oxidate light ends-----	HCF.
Polyethylene slip agents-----	DRC.
Polymethacrylic acid esters-----	ABB, DUP.
Silicone resins for mold release agents-----	CNI.
Mixtures of miscellaneous acyclic chemicals not specifically itemized, all other-----	DIX, MCB, UCC.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1984

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 1984 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.	DA :	Diamond Shamrock Corp., Chemicals Co.
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.
ALB :	Ames Laboratories, Inc.	DOW :	Dow Chemical Co.
ALD :	Aldrich Chemical Co., Inc.	DPW :	Deepwater, Inc.
ALI :	Associated Lead, Inc.	DRC :	Dock Resins Corp.
ALM :	Allemania Chemical Co.	DRL :	Darling & Co.
AMB :	American Bio-Synthetics Corp.	DUP :	E. I. duPont de Nemours & Co., Inc.
AMO :	Standard Oil Co. (Indiana)	DVC :	Dover Chemical Corp. Sub. of ICG Industries, Inc.
ANG :	Angus Chemical Co.	EFH :	E. F. Houghton & Co.
ARA :	Syntex Chemicals, Inc.	EHC :	Ethichem Corp.
ARC :	Azko Chemie America, Armak Chemicals	EK :	Eastman Kodak Co.:
ARS :	Arsynco, Inc.	EKT :	Tennessee Eastman Co. Div.
ARZ :	Arizona Chemical Co.	EKK :	Texas Eastman Co. Div.
ASH :	Ashland Oil, Inc.	ELC :	Elco Corp. Sub of Detrex Chemical Industries, Inc.
ASL :	Specialty Chemical Products Corp.	EMR :	Emery Industries Div. of National Distillers & Chemical Corp.
ATL :	Atlantic Industries, Inc.	ENJ :	Exxon Chemical Americas
ATR :	Atlantic Richfield Co., Arco Chemical Co.	ESA :	East Shore Chemical Co.
AZT :	Catalyst Resources, Inc.	ESX :	Essex Chemical Corp., Essex Industrial Chemicals, Inc.
BAK :	Baker International - Magna Corp.	EVN :	W. R. Grace & Co., Organic Chemicals Div., Evans Chemetics
BAS :	BASF Wyandotte Corp.	FER :	Ferro Corp.:
BCC :	Buffalo Color Corp.	FER :	Ferro Chemical Div.
BFG :	B. F. Goodrich Co., B. F. Goodrich Chemical Group	GR :	Grant Chemical Div.
BKC :	J. T. Baker Chemical Co.	KE :	Keil Chemical Div.
BKM :	Buckman Laboratories, Inc.	FKE :	Frank Enterprises, Inc.
BLM :	Balchem Corp., Arc Chemical Div.	FMC :	FMC Corp.:
BLY :	Berkley & Co., Inc.	FMB :	Specialty Chemicals Group
BOC :	Biocraft Laboratories, Inc.	FMT :	Fairmount Chemical Co., Inc.
BOR :	Borden Inc., Borden Chemical Div.	FOC :	Handschy Industries, Inc., Farac Varnishes
BRD :	Lonza, Inc.	FOR :	Formosa Plastics Corporation Louisiana
CAD :	Arzo Chemie America, Noury Chemicals	FRE :	Freeman Chemical Corp.
CAS :	Caschem, Inc.	FRO :	Vulcan Materials Co., Chemicals Div.
CBD :	Chembond Corp.	FTE :	Foote Mineral Co.
CCA :	Interstab Chemicals, Inc.	FTX :	Finetex, Inc.
CCC :	C.N.C. Chemical Corp.	GAF :	GAF Corp., Chemical Group
CCW :	Morton-Thiokol, Inc., Carstab Div.	GAI :	Glasurit America, Inc.
CEL :	Celanese Corp.:	GAN :	Gane's Chemicals, Inc.
CGY :	Celanese Chemical Co., Inc.	GE :	General Electric Co.
CHG :	Celanese Specialty Resins	GIV :	Givaudan Corp.
CHL :	Ciba-Geigy Corp.	GLY :	Glyco, Inc.
CHM :	Mobay Chemical Corp., Agricultural Chemicals Div.	GP :	Georgia-Pacific Corp.:
CHP :	Chemol, Inc.	PL :	Plaquemine Div.
CHR :	C. H. Patrick & Co., Inc.	RES :	Resins Operations
CHT :	Chattem, Inc.	GTL :	Great Lakes Chemical Corp.
CJO :	C. J. Osborn Chemicals, Inc.	GYR :	Goodyear Tire & Rubber Co.
CLK :	Clark Oil & Refining Corp.	HAL :	C. P. Hall Co.
CMB :	Cambridge Industries Co.	HCC :	Hatco Chemical Corp.
CNI :	Conap. Inc.	HCF :	Hercofina
CNP :	Nipro. Inc.	HCP :	Honig Chemical & Processing Corp.
COC :	Columbia Organic Chemicals Co., Inc.	HDC :	Hodag Chemical Corp.
COS :	Cosan Chemical Corp.	HEX :	Hexagon Laboratories, Inc.
CPS :	CPS Chemical Co., Inc.	HFT :	Syntex Agribusiness, Inc.
CRN :	GPC International, Inc., Amerchol Corp.	HK :	Occidental Chemical Corp., Industrial & Specialty Chemical Div.
CRZ :	Crown Zellerbach Corp., Chemical Products Div.		
CXI :	Chemical Exchange Industries, Inc.		
CYL :	Cyclo Chemical Corp.		
CYR :	CYRO Industries		

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1984--CONTINUED

CODE :	NAME OF COMPANY	CODE :	NAME OF COMPANY
HLI :	Witco Chemical Corp.	PIC :	Pierce Chemical Co.
HML :	Hummel Chemical Co.	PKI :	Perkins Industries, Inc.
HMP :	W. R. Grace & Co., Hampshire Chemicals Div.	PLC :	Phillips Petroleum Co.
HMV :	Humphrey Chemical Co.	PLS :	Plastics Engineering Co.
HOC :	Halocarbon Products Corp.	PMP :	PMP Fermentation Products, Inc.
HPC :	Hercules, Inc.	PPG :	PPG Industries, Inc.
HRT :	Hart Products Corp.	PST :	Perstorp Polyols, Inc.
HST :	American Hoechst Corp., Hoechst Fiber Industries Div.	QKO :	QO Chemicals, Inc.
HXL :	Hexcel Corp., Hexcel Chemical Products	RBC :	Fike Chemicals, Inc.
ICI :	ICI Americas, Inc., Chemicals Div.	RCI :	Reichhold Chemicals, Inc.
IGF :	Inmont Corp.	RCN :	Racon, Inc.
IMC :	International Minerals & Chemicals Corp., Industries Chemicals Div.	RDA :	Rhone-Poulenc, Inc.
IOC :	Sybron Chemical, Inc.	REG :	Regis Chemical Co.
JRC :	Jarchem Industries, Inc.	REM :	Remington Arms Co., Inc.
KAI :	Kaiser Aluminum & Chemical Corp.	RH :	Rohm & Haas Co.
KCH :	Joseph Ayers, Inc.	RPC :	Millmaster Onyx Group, Inc., Lyndall Chemical Co. Div.
KF :	Kay-Fries, Inc., Chemical Div., Dynamit Nobel of America, Inc.	RSA :	R.S.A. Corp.
KLM :	Kalama Chemical, Inc.	RUG :	Rubicon, Inc.
KPT :	Koppers Co., Inc.	SBC :	Scher Chemicals, Inc.
LAK :	Bofors Nobel, Inc.	SCM :	SCM Corp.: Organic Chemicals Div. PCR, Inc.
LCP :	LCP Chemicals - West Virginia, Inc.	SCP :	Henkel Corp.
LEM :	Napp Chemicals, Inc.	SD :	Sterling Drug, Inc.: Sterling Pharmaceuticals, Inc.
LIL :	Eli Lilly & Co.	SDC :	Sandoz Chemicals Corp.
LMI :	North American Chemical Co.	SDH :	Sterling Drug, Inc.: Hilton Davis Chemical Co. Div.
MAL :	Mallinckrodt, Inc.	SDW :	Sterling Organics
MCB :	Borg-Warner Corp., Borg-Warner Chemicals	STA :	Stauffer Chemical Co.: Agricultural Div.
MCI :	Mooney Chemicals, Inc.	SFA :	Calbio Chemicals, Inc.
MCK :	MacKenzie Chemical Works, Inc.	SFC :	Chlor Alkali Products
MET :	M & T Chemicals, Inc.	SFI :	Specialty & Intermediates Chemical Div.
MHI :	Morton-Thiokol, Inc., Ventron Div.	SFS :	Shell Oil Co., Shell Chemical Co. Div.
MIL :	Milliken & Co., Milliken Chemical Co.	SHC :	Shepherd Chemical Co.
MLS :	Miles Laboratories, Inc., Biotechnology Group	SHG :	Sherex Chemical Co., Inc.
MMC :	EM Industries, Inc., EM Science Div.	SHX :	SmithKline Beckman Corp., SmithKline Chemicals Div.
MOB :	Mobay Chemical Corp., Pittsburgh Div.	SKO :	Texaco Refining & Marketing Co.
MON :	Monsanto Co.	SM :	Mobil Oil Corp.: Mobil Chemical Co. Chemical Coatings Div.
MRF :	Morflex Corp.	SNO :	SunOlin Chemical Co.
MRK :	Merck & Co., Inc.	SNW :	Sun Chemical Corp., Chemicals Div.
MRT :	Morton-Thiokol, Inc., Morton Chemical Co. Div.	SOC :	Chevron Corp., Chevron Chemical Co.
NCC :	Niacet Corp.	SOH :	Sohio Chemical Co.
NCI :	Union Carbide Corp., Terpene & Aromatics Div.	SOL :	Southland Corp., Fine Chemical Div.
NES :	Ruetgers-Nease Chemical Co.	SPD :	General Electric Co., Silicone Products Dept.
NOC :	Norac Co., Inc.: Mathe Div.	STC :	American Hoechst Corp., Sou-Tex Works
NOD :	Nuodex, Inc.	SVC :	Capital City Product Co., Armstrong Chemical Plant
NSC :	National Starch & Chemical Corp.	SW :	Sherwin-Williams Co.
NTB :	National Biochemical Co.	SWS :	Stauffer Chemical Co., SWS Silicones Div.
NWP :	Northern Petrochemicals Co.	SYL :	Sylvachem Corp.
OH :	Anaquest	SYP :	Plastic Specialties & Technology, Inc., Synthetic Products Co. Div.
OMC :	Olin Corp.	TCC :	Sybron Chemical, Inc.
ORT :	Rohr Chemicals, Inc.	TCH :	Emery Industries, Inc., Trylon Div.
PAC :	Pacific Anchor Chemical Corp.	TID :	Texaco Refining & Marketing, Inc., Delaware Refinery
PAH :	Parish Chemical Co.	TLC :	Twin Lake Chemical, Inc.
PAS :	Parke-Davis, Div. of Warner-Lambert Co.	TNA :	Ethyl Corp.
PEL :	Pelron Corp.	TNI :	The Gillette Co., Chemical Div.
PEN :	CPC International, Inc., Penick Corp.	TRO :	Troy Chemical Corp.
PFN :	Pfanstiehl Laboratories, Inc.	TSA :	Texas Alkyls, Inc.
PFZ :	Pfizer, Inc. and Pfizer Pharmaceuticals, Inc.	TU :	Tenn-USS Chemical Co.
PG :	Procter & Gamble Co., Procter & Gamble Mfg. Co.		

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1984--CONTINUED

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

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

A P P E N D I X

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984

[Names of synthetic organic chemicals manufacturers that reported production and/or sales to the U.S. International Trade Commission for 1984 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
ABP	A & E Plastic Corp-----	818-968-3801	14505 Proctor Ave., P. O. Box 1268, Industry, CA 91749.
AZS	AZS Corp-----	404-873-1850	762 Marietta Blvd., N.W., Atlanta, GA 30318.
	AZS Chemical Corp-----	404-873-1851	762 Marietta Blvd., N.W., Atlanta, GA 30318.
ABB	Abbott Laboratories-----	312-937-6723	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-----	212-688-8360	4020 Ajinomoto Dr., Raleigh, NC 27610.
ARC	Akzo Chemie America, Arma Chemical-----	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.
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.
ALM	Allemania Chemical Co-----	504-687-6311	P. O. Box 716, Plaquemine, LA 70764.
ALL	Alliance Chemical, Inc-----	201-344-2344	33 Avenue P, Newark, NJ 07657.
BHE	Allied-Bendix Corp., Friction Materials Div.	518-273-6550	P. O. Box 238, Green Island, NY 12181.
	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.
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. 57E, 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.
BJL	American Burdick & Jackson-----	616-726-3171	1953 S. Harvey St., Muskegon, MI 49442.
AMB	American Bio-Synthetics Corp-----	414-384-7017	710 W. National Ave., P. O. Box 04275, 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-----	201-231-2477	Route 202-206 North, Somerville, NJ 08876.
STC	Sou-tex Words-----	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	American Synthetic Rubber Corp-----	502-448-2761	P. O. Box 32960, Louisville, KY 40232.
ALB	Ames Laboratories, Inc-----	203-874-2463	200 Rock Lane, P. O. Box 3024, Milford, CT 06460.
HVG	Ametek, Inc., Haveg Div-----	302-995-0410	900 Greenbank Rd., Wilmington, DE 19808.
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.
APX	Apex Chemical Co., Inc-----	201-354-5420	200 S. 1st St., P. O. Box 254, Elizabethport, NJ 07206.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
APO	Apollo Colors, Inc-----	312-564-9190	899 Skokie Blvd., Northbrook, IL 60062.
ADM	Archer-Daniels-Midland, ADM Clinton----	217-424-5200	1251 Beaver Channel Pkwy., Clinton, IA 52732.
ARD	Ardmore Chemical Co-----	201-481-2406	29 Riverside Ave., Newark, NJ 07104.
ARN	Arenol Chemical Corp-----	212-784-0948	40-33 - 23d St., Long Island City, NY 11101.
ARZ	Arizona Chemical Co-----	201-794-3200	1600 Route 208, Fair Lawn, NJ 07410.
ALS	Armco, Inc-----	513-425-5000	703 Curtis St., Middletown, OH 45043.
AGP	Armour-Dial, Inc-----	312-892-4381	2000 Aucutt Rd., Montgomery, IL 60538.
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-----	617-978-0144	Old Webster Rd., Oxford, MA 01540.
ALI	Associated Lead, Inc-----	215-427-3000	2545 Aramingo Ave., Philadelphia, PA 19125.
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.	215-557-2574	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.
ACC	Atomegic Chemetals Corp-----	516-349-8800	100 Fairchair Ave., Plainview, NY 11803.
AUX	Auralux Corp-----	203-886-2616	29 Stott Ave., Norwich, CT 06389.
KCH	Joseph Ayers, Inc-----	215-837-1808	275 Keystone Dr., Bethlehem, PA 18017.
BAS	BASF Wyandotte Corp-----	616-392-2391	491 Columbus Ave., Holland, MI 49423.
		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.
BKC	J. T. Baker Chemical Co-----	201-859-2151	222 Red School Lane, Phillipsburg, NJ 08865.
BAK	Baker International - Magna Corp-----	713-791-6340	P. O. Box 33387, Houston, TX 77233.
BLM	Balchem Corp., Arc Chemical Div-----	914-355-2891	P. O. Box 180, Slate Hill, NY 10973.
BLC	Ball Chemical Co., Ranbar Technology, Inc.	412-486-1111	1486 Butler Plank Rd., Glenshaw, PA 15116.
BAX	Baxter Travenol Laboratories, Inc-----	312-948-2000	6301 Lincoln Ave., Morton Grove, IL 60053.
BFF	Beatrice Foods: Farboil Co. Div-----	301-477-8200	8200 Fisher Rd., Baltimore, MD 21222.
BPT	Permuthane Div-----	617-531-1880	Corwin St., Peabody, MA 01960.
BCK	Beckman Instruments, Inc-----	619-438-9151	6200 El Camino Real, Carlsbad, CA 92008.
	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.
BCM	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 and Glass-----	801-486-2211	P. O. Box 1320, Salt Lake City, UT 84110.
BLY	Berkley & Co., Inc-----	713-336-1520	1 Trilene Dr., Spirit Lake, IA 51360.
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.
BNP	Bison Nitrogen Products Co-----	712-277-1340	Terra Centre, 600 4th St., Sioux City, IA 51101.
LAK	Bofors Nobel, Inc-----	616-788-2341	5025 Evanston Ave., Muskegon, MI 49443.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
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 Food Products Corp., 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
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	52d St. & Grays Ave., Philadelphia, PA 19143.
BUK	Buckeye Cellulose Corp-----	901-320-8183	1001 Tillman Ave., Memphis, TN 38122.
BKM	Buckman Laboratories, Inc-----	901-278-0330	1256 N. McLean Blvd., Memphis, TN 38122.
BCC	Buffalo Color Corp-----	716-827-4500	340 Elk St., Buffalo, NY 14210.
BUR	Burroughs Wellcome Co-----	919-248-3000	3030 Cornwallis Rd., Research Triangle Park, NC 27709.
CLF	CF&I Steel Corp., Pueblo Plant-----	303-561-6500	P. O. Box 316, Pueblo, CO 81002.
CFI	CF Industries, Inc-----	312-438-9500	Salem Lake Dr., Long Grove, IL 60047.
CCC	C.N.C. Chemical Corp-----	401-751-7711	P. O. Box 997, Annex Station, Providence, RI 02901.
	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	1050 Wall St. W., Lyndhurst, NJ 07071.
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.
CHB	Cambridge Industries Co-----	617-924-0026	440 Arsenal St., Watertown, MA 02172.
SVC	Capital City Products Co., Armstrong Chemical Plants.	608-752-9007	1530 S. Jackson St., Janesville, WI 53545.
CBC	Carbose Corp-----	814-443-1611	100 Maple St., Somerset, PA 15501.
CGL	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.
CEL	Celanese Corp.:		
	Celanese Chemical Co., Inc-----	214-689-4000	1250 W. Mockingbird Lane, Dallas, TX 75247.
	Celanese Engineering Resins-----	201-635-2600	26 Main St., Chatham, NJ 07928.
	Celanese Fibers Operations-----	704-554-2000	P. O. Box 32414, Charlotte, NC 28232.
	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.
CNT	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-----	512-882-8873	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 37410.
CHT	Chattem, Inc-----	615-821-4571	1715 W. 38th St., Chattanooga, TN 37409.
CBD	Chembond Corp-----	503-746-6501	P. O. Box 270, Springfield, OR 97477.
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.
CXI	Chemical Exchange Industries, Inc-----	713-526-8291	P. O. Box 812, Houston, TX 77001.
CHT	Chemithon Corp-----	206-937-9954	5430 W. Marginal Way, SW., Seattle, WA 98106.
CHL	Chemol, Inc-----	919-272-3121	P. O. Box 20687, Greensboro, NC 27420.
CRT	Chemos Corp-----	201-623-3334	225-235 Emmett St., Newark, NJ 07114.
SOC	Chevron Corp., Chevron Chemical Corp-----	415-894-7700	575 Market St., San Francisco, CA 94105.
CHO	Cholineco, Inc-----	803-943-4176	P. O. Box 476, Hampton, SC 29924.
CHH	CHR. Hansen's Laboratory, Inc-----	414-476-3630	9015 W. Maple St., West Allis, WI 53214.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
CGY	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.
CGO	Cifgo Petroleum Corp.	318-491-6011	P. O. Box 1562, Lake Charles, LA 70602.
CLK	Clark Oil & Refining Corp.	314-889-9600	7930 Clayton Rd., St. Louis, MO 63117.
CLI	Clintwood Chemical Co.	312-890-5790	4342 S. Wolcott Ave., Chicago, IL 60609.
GSP	Coastal Corp., Coastal States Petroleum Co.	512-887-4100	P. O. Drawer 521, Corpus Christi, TX 78403.
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.
GRS	Colorado Resins, Inc.	303-278-1963	4880 Robb St. - Unit #2, Wheat Ridge, CO 80033.
GIC	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.	803-425-1786	P. O. Box 1045, Camden, SC 29020.
CEI	Combustion Engineering, Inc., C-E Cast Products.	412-344-7500	P. O. Box 457, Muse, PA 15350.
CAC	Cominco American, Inc.	509-747-6111	W. 818 Riverside Ave., Spokane, WA 99201.
CMP	Commercial Products Co., Inc.	201-427-6887	117 Ethel Ave., Hawthorne, NJ 07506.
CNI	Conap, Inc.	716-372-9650	1405 Buffalo St., Olean, NY 14760.
CON	Concord Chemical Co., Inc.	609-966-1526	17th & Federal Sts., Camden, NJ 08105.
CO	Conoco Specialty Products, Inc.	713-293-1767	600 N Daisy 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.
CFA	Cooperative Farm Chemicals Association.	913-843-7300	P. O. Box 308, Lawrence, KS 06044.
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.
CLU	Core-Lube, Inc.	217-662-2136	P. O. Box 572, Danville, IL 61832.
GRP	Corpus Christi Petrochemicals Co.	713-751-7100	1000 Louisiana St., Suite 2700, Houston, TX 77002.
GOS	Cosan Chemical Corp.	201-460-9300	400 - 14th St., Carlstadt, NJ 07072.
GSD	Cosden Oil & Chemical Co.	214-750-2400	8350 N. Central, Dallas, TX 75206.
CRD	Croda, Inc.	212-683-3089	183 Madison Ave., New York, NY 10016.
CK	Crompton & Knowles Corp.	215-376-8749	500 Pear St., 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.
CRZ	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 55402.
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.
DRL	Darling & Co.	312-927-3000	4650 S. Racine Ave., Chicago, IL 60609.
DPI	Dart Polymers, Inc. Sub. of Dart Container Corp.	517-676-3800	432 Hogsback Rd., Mason, MI 48854.
DYS	Davies-Young Co.	314-291-1900	2700 Wagner Place, Maryland Heights, MO 63043.
DGO	Day-Glo Color Corp.	216-391-7070	4515 St. Clair Ave., Cleveland, OH 44103.
DPW	Deepwater, Inc.	714-451-3522	P. O. Box 17599, Irvine, CA 92713.
DEG	Degen Oil & Chemical Co., Inc.	201-43-1192	200 Kellogg St., Jersey City, NJ 07305.
DGC	Degussa Corp.	201-280-6500	Rt. 46 at Hollister Rd., Teterboro, NJ 07608.
DRR	Delta Resins & Refractories	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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
DRB	The Derby Co., Inc-----	617-342-5831	231 Industrial Park, 119 Authority Dr., Fitchburg, MA 01420.
DSO	DeSoto, Inc-----	312-391-9000	1700 S. Mt. Prospect Ave., Des Plaines, IL 60018.
UDI	DeSoto, Inc., Petrochemicals-----	817-625-2111	600 E. Central St., P. O. Box 2199, Fort Worth, TX 76113.
DEX	Dexter Chemical Corp-----	212-542-7700	845 Edgewater Rd., Bronx, NY 10474.
HYC	Hysol Div-----	818-968-6511	15051 E. Don Julian Rd., Industry, CA 91749.
MID	Midland Div-----	312-623-4200	E. Water St., Waukegan, IL 60085.
DAZ	Diaz Chemical Corp-----	716-638-6321	P. O. Box 194, Holley, NY 14470.
PLN	Disogrin Industries Corp-----	603-669-4050	Grenier Industrial Airpark, Manchester, NH 03130.
DPP	Dixie Pine Chemicals, Inc-----	601-584-6221	P. O. Box 470, Hattiesburg, MS 39401.
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 ICC Industries, Inc.	216-343-7711	W. 15th & Davis Sts., P. O. Box 40, Dover, OH 44622.
DOW	Dow Chemical Co-----	517-636-1000	2020 Willard H. Dow Center, Midland, MI 48640.
DCC	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-----	302-774-1000	DuPont Bldg., Wilmington, DE 19898.
DSC	Dye Specialties, Inc-----	201-866-9504	100 Plaza Center, Secaucus, NJ 07094.
MMC	EM Industries, Inc., EM Science Div-----	609-354-9200	2909 Highland Ave., Cincinnati, OH 45212.
AGI	EMS-American Grilon, Inc-----	803-481-9173	P. O. Box 1948, Sumter, SC 29150.
EPI	Eagle Pitcher Industries, Ohio Rubber Co. Div.	216-942-6500	P. O. Box 1398, Denton, TX 76201.
EGC	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-----	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	Elan 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	P. O. Box 3986, Odessa, TX 79760.
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-----	205-945-8061	530 Beacon Pwy. W., Birmingham, AL 35209.
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	Polymer Products Div-----	804-788-5000	8000 G.S.R.I. Ave., Baton Rouge, LA 70808.
	Exxon Chemical Americas-----	713-870-6018	P. O. Box 3272, Houston, TX 77001.
FMC	FMC Corp-----	215-299-6000	2000 Market St., Philadelphia, PA 19103.
FMN	Agricultural Chemical Corp-----	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	P. O. Box 2398, Paterson, NJ 07509.
FMT	Fairmount Chemical Co., Inc-----	201-344-5790	117 Blanchard St., Newark, NJ 07105.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
FRI	: Farmland Industries, Inc-----	: 816-459-6407	: P. O. Box 7305, Kansas City, MO 64116.
FEL	: Felton International, Inc-----	: 718-497-4664	: 599 Johnson Ave., Brooklyn, NY 11237.
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.
	: Keil Chemical Div-----	: 219-931-2630	: 3000 Sheffield Ave., Hammond, IN 46320.
	: Ottawa Chemical Div-----	: 419-691-3507	: 700 N. Wheeling St., Toledo, OH 43605.
	: 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.
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	: 200 N. First Ave., Park Falls, WI 54552.
FLM	: Fleming Laboratories, Inc-----	: 704-372-5613	: 2205 Thrift Rd., P. O. Box 34384, Charlotte, NC 28234.
CIK	: Flint Ink Corp., Cal/Inc Div-----	: 415-525-1188	: 1404 - 4th St., Berkeley, CA 94710.
FTE	: Foote Mineral Co-----	: 215-363-6500	: Route 100, Exton, PA 19341.
FMO	: Ford Motor Co., Paint Plant-----	: 313-466-1913	: 400 Groesbeck 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 Chemical 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 55112.
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.
GNT	: Gencorp, Polymers Div-----	: 216-798-3320	: 1 General St., Akron, OH 44329.
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	: 1 Campbell Rd., Schenectady, NY 12345.
SPD	: Silicone Products Dept-----	: 518-266-2641	: Waterford-Mechanicville Rd., Bldg. 11-MD24, 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.
GRG	: P D George Co-----	: 314-621-5700	: 5200 N. Second St., St. Louis, MO 63147.
	: Georgia-Pacific Corp.:	:	:
PSP	: Bellingham Div-----	: 206-733-4410	: P. O. Box 1236, Bellingham, WA 98227.
GP	: Houston Div-----	: 404-521-4000	: P. O. Box 1959, Pasadena, TX 77501.
GP	: Plaquemine Div-----	: 404-521-4000	: P. O. Box 629, Plaquemine, LA 70765.
GP	: PVC Compound Div-----	: 404-521-5200	: 8000 G.S. R.I. Rd., Baton Rouge, LA 70808.
GP	: Resins Operations-----	: 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.
GLY	: Glyco, Inc-----	: 203-847-1191	: 488 Main St., P. O. Box 5100, Norwalk, CT 06856.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group.	216-447-6000	6100 Oak Tree Blvd., Cleveland, OH 44131.
HCC	Goodson Chemical Corp-----	801-278-5311	3760 Highland Dr., Suite 200, Salt Lake City, UT 84106.
GYR	Goodyear Tire & Rubber Co-----	216-796-8668	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.
CPC	Grant Chemical Co-----	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, 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.
GOC	Gulf Oil Corp., Gulf Oil Products Co----	713-754-2000	P. O. Box 2001, Houston, TX 77252.
GTH	Guth Corp-----	312-547-7030	551 Granville, Hillside, IL 60162.
HAR	Haarmann & Reimer Corp-----	201-686-3132	111 U.S. Hwy. 22, P. O. Box 175, 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 07638.
FOC	Handschy Industries, Inc., Farac Varnishes & Chemicals.	312-597-7990	13601 S. Ashland Ave., Riverdale, IL 60627.
HAN	Hanna Chemical Coatings Corp-----	614-294-3361	1313 Windsor Ave., P. O. Box 147, Columbus, OH 43216.
HSB	Harshaw/Filtrol Partnership-----	216-292-9200	30100 Chagrin Blvd., Cleveland, OH 44124.
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.
HKY	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.
HCF	Hercofina-----	919-343-1150	310 N. Front St., P. O. Box 1694, Wilmington, NC 28402.
HPC	Hercules, Inc-----	302-594-5000	Hercules Plaza, Wilmington, DE 19899.
HER	Heresite-Saekaphen, 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.
HEC	Hewchem-----	601-863-6600	2500 - 33d Ave., P. O. Box 188, 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	P. O. Box 2316, High Point, NC 27261.
HIM	Himont, U.S.A., Inc-----	302-594-5500	1313 N. Market St., Wilmington, DE 19894.
HOG	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-----	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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--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-----	312-346-0300	30 W. Monroe St., Chicago, IL 60603.
ICF	Inmont Corp-----	201-365-3400	1255 Broad St., Clifton, NJ 07015.
IGC	Inmont Corp. Div of United Technologies Corp.	201-427-6700	150 Wagaraw Rd., Hawthorne, NJ 07506.
WM	Inolex Chemical Co-----	215-271-6400	Jackson & Swanson Sts., Philadelphia, PA 19148.
	Insilco Corp.: Enterprise Co. Div-----	312-541-9000	1191 S. Wheeling Rd., Wheeling, IL 60090.
ENP	Sinclair Paint Co. Div-----	213-268-2511	3960 E. Washington Blvd., Los Angeles, CA 90023.
SPC			
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.: Industrial Chemicals Div-----	812-232-0121	P. O. Box 207, Terra Haute, IN 47808.
		312-564-8600	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, Mattison, 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 709, 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-----	205-849-3031	P. O. Box 5327, Birmingham, AL 35217.
MCA	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 Center, 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.
KF	Kay-Fries, Inc., Chemical Div., Dynamit Nobel of America, Inc.	201-784-0200	10 Link Dr., Rockleigh, NJ 07647.
KMP	Kelly-Moore Paint Co., Inc-----	415-592-8337	987 Commercial St., San Carlos, CA 94070.
KCU	Kennecott Minerals Co., Utah Copper Div.	801-322-6178	P. O. Box 31838, Salt Lake City, UT 84131.
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 920, Hazelton, PA 18201.
KYS	Keysor 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.
KNP	Knapp Products, Inc-----	201-478-7945	220 Kemah Rd., Ridgewood, NJ 07450.
KHI	Koch Refining Co-----	316-832-5182	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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
KPT	Koppers Co., Inc-----	412-227-2000	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.
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.
LEA	Leatex Chemical Co.-----	215-739-6324	2722 N. Hancock St., Philadelphia, PA 19133.
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 Dunks Ferry Rd., Bensalem, PA 19020.
LIL	Eli Lilly & Co., Inc-----	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 90012.
LCS	Louisiana Chemical Specialties, Inc-----	504-775-1801	12537 Scenic Hwy., Baton Rouge, LA 70807.
MAK	MAK Chemical Corp-----	317-288-4464	1200 Rochester Ave., P. O. Box 2423, Muncie, IN 47302.
MET	M & T Chemicals, Inc-----	201-499-0200	P. O. Box 889, Laurens, SC 29360.
SOR	MW Manufacturers, Southern Resin Div-----	703-483-0211	P. O. Box 68, Thomasville, NC 27360.
MCK	Mackenzie Chemical Works, Inc-----	516-234-8600	1 Cordello Ave., Central Islip, NY 11722.
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., P. O. Box 5480, St. Louis, MO 63134.
MOR	Marathon Morco Co-----	713-337-1534	P. O. Drawer C, Dickinson, TX 77539.
MOC	Marathon Petroleum Co., Texas Refining Div.-----	419-422-2121	539 S. Main St., Findlay, OH 45840.
HRD	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.
MCA	Masonite Corp., Alpine 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 Chemical, Inc-----	312-244-3410	3938 Porett Dr., Gurnee, IL 60031.
MCC	McCloskey Varnish Co-----	215-624-4400	7600 State Rd., Philadelphia, PA 19136.
MCC	McCloskey Varnish Co. of the N.W-----	503-226-3751	4155 N.W. Yeon Ave., Portland, OR 97210.
MCC	McCloskey Varnish Co. of the West-----	213-726-7272	5501 W. Slauson, Commerce, CA 90040.
STG	McCormick & Co., Inc., McCormick-Stange, Flavor Div.-----	301-667-7171	230 Schilling Circle S., Hunt Valley, MD 21031.
MGK	McLaughlin Gormley King Co-----	612-544-0341	8810 - 10th Ave., N., Minneapolis, MN 55427.
MNP	McWhorter, Inc-----	312-428-2657	400 E. Cottage Place, Carpentersville, IL 60110.
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.
HER	Merichem Co-----	713-455-1311	1914 Haden Rd., Houston, TX 77015.
MLS	Miles Laboratories, Inc., Biotechnology Group.-----	219-262-7445	P. O. Box 932, Elkhart, IN 46515.
MIL	Milliken & Co., Milliken Chemical Co-----	803-472-9041	P. O. Box 817, Inman, SC 29349.
RPC	Millmaster Onyx Group, Inc., Lyndall Chemical Co. Div.-----	212-687-2757	Coronet Dr., Dalton, GA 30720.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
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.
	Mobay Chemical Corp.		
CHG	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	Penn Lincoln Pkwy. W., Pittsburgh, PA 15205.
SM	Mobil Oil Corp.		
	Gas Liquids Dept.	703-849-3000	P. O. Box 900, Dallas, TX 75221.
	Mobil Chemical Co.	201-262-9030	P. O. Box 726, Paramus, NJ 07652 and
		804-798-2288	P. O. Box 26683, Richmond, VA 23261.
	Chemical Coatings 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	Moretex 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.		
CCW	Garstab Div.	513-733-2100	West St., Reading, OH 45215.
MRT	Morton Chemical Div.	312-621-5555	2 N. Riverside Plaza, Chicago, IL 60606.
TCI	Texize Div.	803-963-4261	P. O. Box 368, Greenville, SC 29602.
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	P. O. Box 22930, Beechwood, OH 44122.
NTL	NL Industries, Inc.	212-621-9400	1230 Avenue of the Americas, New York, NY 10020.
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.
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.	215-482-6600	4601 Flat Rock Rd., Philadelphia, PA 19127.
NSC	National Starch & Chemical Corp.	201-685-5000	10 Finderne 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	Niles Chemical Paint Co.	616-683-3377	P. O. Box 307, Niles, MI 49120.
	Kordell Industries Div.	219-255-9678	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.
LMI	North American Chemical Co.	617-686-2907	19 S. Canal St., Lawrence, MA 01843.
NWP	Northern Petrochemical Co.	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, Franklinton, NC 27525.
NOD	Nuodex, Inc.	201-981-5000	P. O. Box 365, Turner Place, Piscataway, NJ 08854.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
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.
HKP	PVC Div-----	215-327-6400	P. O. Box 699, Pottstown, PA 19464.
OMC	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.
OPC	Orbis Products Corp-----	201-334-1600	94 Fanny Rd., Boonton, NJ 07005.
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 08110.
OCF	Owens-Corning Fiberglas Corp-----	419-248-8000	Fiberglas Tower, Toledo, OH 43659.
PBI	PBI-Gordon Corp-----	816-421-4070	1217 W. 12th St., Kansas City, MO 64101-9984.
PMP	PMP Fermentation Products, Inc-----	414-347-7467	917 W. Juneau Ave., P. O. Box 766, Milwaukee, WI 53201.
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.
PAH	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	Pennwalt Corp-----	215-587-7000	Three Parkway, Philadelphia, PA 19102.
WTL	Lucidol Div-----	716-877-1740	1740 Military Rd., Buffalo, NY 14240.
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.
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.
PTT	Petro-Tex Chemical Corp-----	713-477-9211	8600 Park Place Blvd., Houston, TX 77017.
FFN	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.
	Pfizer Pharmaceuticals, Inc-----	809-846-4300	P. O. Box 628, Barceloneta, PR 00617.
PHR	Pharmachem Corp-----	215-867-4654	719 Stefko Blvd., Bethlehem, PA 18016.
PLB	Pharmacia P-L Blochemicals, Inc-----	414-225-2600	2202 N. Bartlett Ave., Milwaukee, WI 53202.
PDI	Phelps Dodge Industries, Inc.,	219-456-4444	1302 E. Greighton Ave., Fort Wayne, IN 46801.
	Phelps Dodge Magnet Wire Co. Div.		
PPX	Phillips Paraxylene, Inc-----	809-864-1515	G. P. O. Box 4129, San Juan, PR 00936.
PLC	Phillips Petroleum Co-----	918-661-6600	15 Al Phillips Bldg., Bartlesville, OK 74004.
PPR	Phillips Puerto Rico Core, Inc-----	809-864-1515	G. P. O. Box 4129, San Juan, PR 00936.
PHC	Phthalchem, Inc-----	513-681-0099	6675 Beechland 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. Meridan Rd., Rockford, IL 61103.
PIL	Pilot Chemical Co-----	213-723-0036	11736 Burke St., Santa Fe Springs, CA 90670.
PPL	Pioneer Plastics Div. of LOF	207-784-9111	Pionite Rd., Auburn, ME 04210.
	Plastics, Inc.		
PKL	Plaskolite, Inc-----	614-294-3281	1770 Joyce Ave., P. O. Box 1497, Columbus, OH 43216.
PSL	Plaslok Corp-----	716-681-7755	3155 Broadway, Buffalo, NY 14227.
PLS	Plastics Engineering Co-----	414-458-2121	3518 Lakeshore Rd., Sheboygan, WI 53081.
PHC	Plastics Manufacturing Co-----	214-330-8671	2700 S. Westmoreland, Dallas, TX 75223.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
SYP	Plastics Specialties & Technologies, Inc., Synthetic Products Co.	216-531-6010	16601 St. Clair Ave., Cleveland, OH 44110.
PLX	Plex Chemical Corp.	415-471-6555	1205 Atlantic St., Union City, CA 94587.
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.
PYZ	Polyrez Co., Inc.	609-845-1813	P. O. Box 304, Woodbury, NJ 08096.
PLR	Polysar, Inc.		
	Latex Div.	216-836-0451	1795 W. Market St., Akron, OH 44313.
	Resins 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.	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.
PRX	Purex Corp.	213-630-7487	5101 Clark Ave., Lakewood, CA 90712.
QCP	Quaker Chemical Corp.	215-828-4250	Elm & Lee Sts., Conshohocken, PA 19428-0809.
QKO	QO Chemicals, Inc.	312-850-2359	823 Commerce Dr., Suite 200, Oak Brook, IL 60521.
QUN	K. J. Quin & Co., Inc.	617-321-3200	195 Canal St., Malden, MA 02148.
QN	Quintana Petrochemical Co.	512-289-2600	5441 Up River Rd., Corpus Christi, TX 78469.
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.
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., Morton 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 Operation.	502-459-9110	P. O. Box 37510, Louisville, KY 40232.
REM	Remington Arms Co., Inc.	203-333-1112	939 Barnum Ave., Bridgeport, CT 06601.
RNL	Resinall Corp.	203-329-7100	3065 High Ridge Rd., Stamford, CT 06903.
RDA	Rhone-Poulenc, Inc.	201-846-7700	120 Jersey Ave., New Brunswick, NJ 08903.
RCD	Richardson Polymer Corp.	203-245-0441	15 Meigs Ave., Madison, CT 06443.
AMS	Ridgway Color Co.	814-776-2151	75 Front St., Ridgway, PA 15853.
RTC	Riegel Textile Corp., Riechem Div.	803-242-6050	Sparks Ave., Ware Shoals, SC 29692.
RIK	Riker Laboratories, Inc. Sub. of 3M Co.	818-341-1300	19901 Nordhoff St., Northridge, CA 91324.
RSN	Rilsan Corp.	201-447-3300	139 Harristown Rd., Glen Rock, NJ 07452.
RT	Ritter International	213-245-6886	4001 Goodwin Ave., Los Angeles, CA 90039.
RIV	Riverdale Chemical Co.	312-756-2010	220 E. 17th St., Chicago Heights, IL 60411.
ROB	Robeco Chemicals, Inc.	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 149, 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 11802.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
NES	Ruetgers-Nease Chemical Co-----	814-238-2424	201 Struble Rd., College, PA 16801.
SCM	SCM Corp.: Coatings & Resins Div----- Organic Chemicals Div----- PCR, Inc-----	216-344-8000 904-764-1711 904-764-1711	925 Euclid Ave., Cleveland, OH 44115. P. O. Box 389, Jacksonville, FL 32201. 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.
SOS	SSC Industries, Inc-----	404-762-9651	1550 E. Taylor Ave., East Point, GA 30344.
NPR	Safeway Stores, Inc-----	415-944-4400	2800 Ygnacio Valley Rd., Walnut Creek, CA 94598.
STX	St. Croix Petrochemical Corp-----	809-773-6400	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 28211.
S	Sandoz, Inc., Colors & Chemicals Div-----	704-372-0210	Route #10, East Hanover, NJ 07936.
SCN	Schenectady Chemicals, Inc-----	518-370-4200	P. O. Box 1046, Schenectady, NY 12306.
SBC	Scher Chemicals, Inc-----	201-471-1300	1 Styertowne Rd., P. O. Box 1236, 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.
SPR	Scientific Protein Laboratories-----	608-849-5944	P. O. Box 158, Waunakee, WI 53597.
SPA	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.
SFR	Searle Food Resources, Inc-----	312-982-7000	4711 Golf Rd., Skokie, IL 60076.
SKP	Shakespeare Co., Monofilament Div-----	803-754-7011	P. O. Box 4060, Columbia, SC 29204.
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.
SW	The Sherwin-Williams Co.: Chemical Div-----	216-566-2000	101 Prospect Ave. NW., Cleveland, OH 44115.
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	P. O. Box 912, 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.
SOH	Sohio Chemical Co-----	216-575-4141	Midland Bldg., 101 W. Prospect, Cleveland, OH 44115.
SIC	Silmar Div-----	213-757-5141	12333 S. Van Ness Ave., Hawthorne, CA 90250.
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	8150 Virginia St. SW., Lenoir, NC 28645.
SOP	Southern Chemical Products Co-----	912-746-5147	430 Lower Boundary St., Macon, GA 31202.
ACT	Southland Corp.: 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	Specialty Chemical 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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
IPP	Spectrachem 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.
AMO	Standard Oil Company (Indiana)-----	312-856-6111	P. O. Box 5910-A, Mail Code 1201, Chicago, IL 60680.
SIO	Standard Oil (Ohio)-----	216-575-4141	101 Prospect Ave., Cleveland, OH 44115.
SFA	Stauffer Chemical Co.: Agricultural Div-----	415-544-9000	636 California St., San Francisco, CA 94108.
SFC	Calbio Chemicals, Inc-----	415-544-9000	636 California St., San Francisco, CA 94108.
SFI	Chlor Alkali Products-----	415-544-9000	636 California St., San Francisco, CA 94108.
SFF	Food Ingredients Div-----	415-544-9000	636 California St., San Francisco, CA 94108.
SFS	Specialty & Intermediates Div-----	415-544-9000	636 California St., San Francisco, CA 94108.
SWS	SWS Silicones Div-----	415-544-9000	636 California St., San Francisco, CA 94108.
STP	Stepan Chemical Co-----	312-273-3950	RR #1, Elwood, IL 60421 and 100 W. Henter Ave., Maywood, NJ 07607.
SD	Sterling Drug, Inc-----	212-907-2000	2144 E. State St., Trenton, NJ 08619.
SDH & TMS	Hilton Davis Chemical Co-----	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.
SBP	Sugar Beet Products Co-----	517-799-4941	302 Waller St., P. O. Box 1387, Saginaw, MI 48605.
SNW	Sun Chemical Corp.: 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-----	215-293-6618	100 Matsonford Rd., Radnor, PA 19087.
SNO	SunOlin Chemical Co-----	302-792-3100	P. O. Box F, 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.
INP	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.
SRY	Synray Corp-----	201-245-2600	209 N. Michigan Ave., Kenilworth, NJ 07033.
HFT	Syntex Agribusiness, Inc-----	417-866-7192	P. O. Box 1246 S.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	Copperhill, TN 37317.
TVA	Tennessee Valley Authority TVA, OACD, Div. of Chemical Operations, A-204 NFDC-----	205-386-2377	Muscle Shoals, AL 35660.
TU	Tenn-USS Chemicals Co-----	713-884-4400	P. O. Box 600, Pasadena, TX 77501.
TER	Terra Chemicals 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.
COO	The 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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
TUS	Texaco Butadiene Co-----	713-666-8000	P. O. Box 430, Bellaire, TX 77401.
SKO	Texaco Refining & Marketing, Inc-----	918-560-6000	P. O. Box 1650, Tulsa, OK 74102.
TID	Delaware Refinery-----	713-650-4642	Delaware City, DE 19706.
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.
SKT	Textron, Inc., Spencer Kellogg Div-----	716-852-5850	120 Delaware Ave., Buffalo, NY 14240.
TMH	Thompson Hayward Chemical Co-----	913-321-3131	5200 Speaker Rd., Kansas City, MO 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.
UPM	UOP, Inc., UOP Process Div-----	312-391-2000	20 UOP Plaza, Des Plaines, IL 60016.
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.
WTH	Union Camp Corp-----	201-628-9000	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.
UCC	Union Carbide Corp-----	304-747-0001	P. O. Box 8004, S. Charleston, WV 25303.
UOC	Union Oil Co. of California-----	213-977-7746	461 S. Boylston St., Los Angeles, CA 90017.
USR	Uniroyal, Inc., Chemical Group-----	203-723-3887	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.
USP	U.S. Polymers, Inc-----	314-638-1632	300 E. Primm St., St. Louis, MO 63111.
USS	U.S. Steel Corp.: Clairton Plant-----	412-433-1121	600 Grant St., Rm. 2316, Pittsburgh, PA 15230.
	Fairfield Plant-----	412-433-1121	600 Grant St., Rm. 2316, Pittsburgh, PA 15230.
	Gary Works-----	412-433-1121	600 Grant St., Pittsburgh, PA 15230.
	Geneva Plant-----	412-433-1121	600 Grant St., Rm. 1937, Pittsburgh, PA 15320.
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.
	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.
VSP	The Valspar Corp-----	612-332-7371	1101 S. 3d St., P. O. Box 1461, Minneapolis, MN 55440.
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, Murray, KY 42071.
VND	Van Dyk & Co., 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 and P. O. Box 3, Rifle Range Rd., Vicksburg, MS 39180.
	West Helena Plant-----	501-572-3701	P. O. Box 2648, West Helena, AR 72390.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1984--CONTINUED

IDENTIFICATION CODE	NAME OF COMPANY	TELEPHONE NUMBER	OFFICE ADDRESS
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	2555 Cumberland Pkwy., Suite 200, Atlanta, GA 30339.
VGC	Virginia Chemicals, Inc-----	804-483-7000	3340 W. Norfolk Rd., Portsmouth, VA 23703.
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 Co-----	314-658-7315	2526 Baldwin St., St. Louis, MO 63106.
WAG	West Design Chemical, Inc-----	913-384-4646	4350 Johnson Drive, Suite 280, Fairway, KS 66205.
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.
WPG	West Point-Pepperell, Inc., Griffitex-----	404-645-4000	1900 Cunningham Dr., Opelika, AL 36803.
WVA	Westvaco Corp., Chemical Div-----	212-688-5000	P. O. Box 70848, Charleston Heights, SC 29415.
WRD	Weyerhaeuser Co-----	715-384-2141	1401 E. 4th St., Marshfield, WI 54449.
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	Whitmover Laboratories, Inc-----	717-866-2151	99 S. Fairlane Ave., Myerstown, PA 17067.
WTK	Whittaker Corp., Heico Chemicals Div-----	717-476-0353	Rt. #11, Delaware Water Gap, PA 18327.
WHW	Whittmore-Wright Co., Inc-----	617-242-1180	62 Alford St., Boston, MA 02129.
WLN	Wilmington Chemical Corp-----	302-658-3515	P. O. Box 66, Pyles Lane, Wilmington, DE 19899.
WTC	Witco Chemical Corp-----	201-573-2800	155 Tice Blvd., Woodcliff Lake, NJ 07675.
HLI	Witco Chemical Corp-----	312-371-2000	14000 S. Seeley Ave., Blue Island, IL 60406.
WBC	Worthington Diagnostics Systems, Inc-----	703-893-5925	7655 Old Springhouse Rd., McLean, Va 22102.
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 Laboratories Div. of American Home Products Corp.	215-644-8000	P. O. Box 831, Lancaster Pike, Paoli, PA 19301.
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-----	α,α -Dichlorotoluene.
Benzanthrone-----	7H-Benz[de]anthracen-7-one.
Benzotrithloride-----	α,α,α -Trichlorotoluene.
Bisphenol A-----	4,4'-Isopropylidenediphenol.
B.O.N.-----	3-Hydroxy-2-naphthoic acid.
Broenmer'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'-Iminodianthraquinone.
Dibenzanthrone-----	Violanthrone.
Dichlone-----	2,3-Dichloro-1,4-naphthoquinone.
4,4'-Dihydroxydiphenylsulfone-----	4,4'-Sulfonyldiphenol.
Dimethyl POPOP-----	1,4-Bis[2-(4-methyl-5-phenyloxazoly1)]benzene.
4,5-Dinitrochrysazin-----	1,8-Dihydroxy-4,5-dinitroanthraquinone.
Dioxy S acid-----	4,5-Dihydroxy-1-naphthalenedisulfonic 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- δ^2,α -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-sulfohenyl)-2-pyrazoline-3-carboxylic acid.
Quinizarin-----	1,4-Dihydroxyanthraquinone.
2-Quinizarinsulfonic acid-----	9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic acid.
Quinoline yellow base-----	Quinophthalone.
R salt-----	3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt.
RG Acid (Violet acid)-----	4-Hydroxy-2,7-naphthalenedisulfonic acid.
Rhoduline acid (J Acid Imide)-----	7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid].
RR acid-----	3-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid.
S Acid-----	4-Amino-5-hydroxy-1-naphthalenesulfonic acid.
Schaffer's acid-----	6-Hydroxy-2-naphthalenesulfonic acid.
Silver salt-----	9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt.
Solvent Yellow 1-----	p-Phenylazoaniline and hydrochloride.
Solvent Yellow 3-----	4-(o-Tolylazo)-o-toluidine.
SS Acid (Chicago acid)-----	4-Amino-5-hydroxy-1,3-naphthalenedisulfonic acid.
Sulfanilic acid-----	p-Aminobenzenesulfonic acid.
o-Sulfobenzaldehyde-----	o-Formylbenzenesulfonic acid.

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-----	Phenylacetonitrile.
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.

