

SYNTHETIC ORGANIC CHEMICALS

**United States Production
and Sales, 1980**



USITC PUBLICATION 1183

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UNITED STATES INTERNATIONAL TRADE COMMISSION

**SYNTHETIC
ORGANIC CHEMICALS**

**United States Production
and Sales, 1980**

**U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON: 1981**

USITC PUBLICATION 1183

UNITED STATES INTERNATIONAL TRADE COMMISSION

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This report was prepared principally by William Baker, Tedford C. Briggs, Edmund Cappuccilli, Kenneth Conant III, Cynthia B. Foreso, J. Lawrence Johnson, Eric Land, Bonnie Jean Noreen, Edward J. Taylor, and Sharon Thompson.

Assistance in the preparation of the report was provided by Mildred C. Higgs, Robert Allison, Frances Battle, Patricia Bentley, Brenda Carroll, Arlene Coleman, Laura Conway, Russell Flynt, Sharon Greenfield, Kenneth Kozel, Susan Lemarie, Anne Riordan, and Wanda Tolson. Automatic Data Processing input was provided by James Gill and Marie Jagannathan.

**Address all communications to
Office of the Secretary
United States International Trade Commission
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INTRODUCTION

This is the 64th 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 800 producers.

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

Data are reported by producers for only those items where the volume of production or sales or value of sales exceeds certain minimums. Those minimums 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 applied to 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.

An exception to the methodology described above is the section on elastomers; for these products the statistics are estimated from reports of the Departments of Commerce and Labor, and data for shipments are recorded rather than data on sales.

The second table in each section (except elastomers) 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 includes their office addresses.

Table 2 of the Appendix summarizes and gives the competitive status of U.S. general imports in 1980 of benzenoid intermediates and finished benzenoid products, entered under schedule 4, parts 1B and 1C, of the Tariff Schedules of the United States.

Table 3 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 Colourists.

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

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

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

Produced, separated, and consumed in the same plant or establishment. A commodity is considered separated either when it is isolated from the reaction 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;

¹Title 18, U.S.C. 1905, and title 44, U.S.C. 3508.

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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, your company, unless inclusion of such processing is specifically requested in the reporting instructions for individual sections;
 Intermediate products which are formed in the manufacturing process, but are not isolated from the reaction system--that is, not weighed, analyzed, or otherwise measured; except such products as described above as being produced and not isolated, but directly converted to a finished or semifinished item.
 Materials that are used in the process but which are recovered for re-use or sale;
 Waste products having no economic significance.

SALES are actual quantities of commodities sold by ORIGINAL MANUFACTURERS ONLY. Sales include the quantity and value of:

Shipments of a commodity for domestic use or for export, or segregation in a warehouse when title has passed to the purchaser in a bona fide sale;
 Shipments of a commodity produced for you by others under toll agreements;
 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 a 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

Combined production of all synthetic organic chemicals, tar, and primary products from petroleum and natural gas in 1980 was 339,723 million pounds--a decrease of 4.2 percent less than the output in 1979 (see table 1). Sales of these materials in 1980, which totaled 181,188 million pounds, valued at \$60,444 million, were 2.9 percent smaller than in 1979 in terms of quantity and 13.9 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 1980, production of all synthetic organic chemicals, including cyclic intermediates and finished products totaled 215,125 million pounds, or 5.7 percent less than the output in 1979. Only two sections showed an increase in production in 1980 over 1979. Miscellaneous end-use chemicals and chemical products (23,602 million pounds) increased by 5.6 percent and pesticides and related products (1,468 million pounds) increased by 2.7 percent. The remaining sections showed a decrease in production in 1980 over 1979. Rubber-processing chemicals (291 million pounds) led the decrease with a loss of 26.3 percent; medicinal chemicals (244 million pounds) decreased 22.0 percent; organic pigments (69 million pounds) decreased 21.6 percent; elastomers (4,770 million pounds) decreased 18.6 percent; plasticizers (1,784 million pounds) decreased 16.4 percent; flavor and perfume materials (175 million pounds) decreased 10.3 percent; cyclic intermediates (45,070 million pounds) decreased 9.1 percent; plastics and resin materials (38,186 million pounds) decreased 8.8 percent; dyes (69 million pounds) decreased 7.9 percent; miscellaneous cyclic and acyclic chemicals (94,368 million pounds) decreased 4.5 percent; and surface-active agents (4,853 million pounds) decreased 1.9 percent.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS AND THEIR RAW MATERIALS:
U.S. PRODUCTION AND SALES, 1979 AND 1980

CHEMICAL	PRODUCTION			SALES					
				QUANTITY			VALUE		
	1979	1980	INCREASE: OR DECREASE: (-),1980: OVER 1979 ¹	1979	1980	INCREASE: OR DECREASE: (-),1980: OVER 1979 ¹	1979	1980	INCREASE: OR DECREASE: (-),1980: OVER 1979 ¹
	Million: pounds	Million: pounds	Percent	Million: pounds	Million: pounds	Percent	Million: dollars	Million: dollars	Percent
Grand total ² -----	354,651	339,723	-4.2	186,647	181,188	-2.9	53,074	60,444	13.9
Tar-----	5,896	4,366	-26.0	3,444	3,128	-9.2	...	...	...
Primary products from petroleum and natural gas-----	120,564	120,232	-0.3	62,658	64,292	2.6	7,175	10,646	48.4
Synthetic organic chemicals, total ² -----	228,191	215,125	-5.7	120,545	113,768	-5.6	45,899	49,798	8.5
Cyclic intermediates-----	49,574	45,070	-9.1	21,544	20,060	-6.9	6,566	7,248	10.4
Dyes-----	266	245	-7.9	241	227	-5.8	797	791	-0.8
Organic pigments-----	88	69	-21.6	67	61	-9.0	378	361	-4.5
Medicinal chemicals-----	313	244	-22.0	226	167	-26.1	1,043	1,153	10.5
Flavor and perfume materials-----	195	175	-10.3	135	129	-4.5	236	254	7.6
Plastics and resin materials-----	41,871	38,186	-8.8	36,834	33,550	-8.9	15,380	16,011	4.1
Rubber-processing chemicals-----	395	291	-26.3	280	194	-30.7	345	296	-14.2
Elastomers (synthetic rubber) ³ ---	5,860	⁴ 4,770	-18.6	4,002	⁵ 3,258	-18.6	2,325	⁶ 2,280	-1.9
Plasticizers-----	2,133	1,784	-16.4	1,814	1,574	-13.2	826	858	3.9
Surface-active agents-----	4,948	4,853	-1.9	2,859	2,928	2.4	1,144	1,296	13.3
Pesticides and related products-----	1,429	1,468	2.7	1,369	1,406	2.7	3,631	4,078	12.3
Miscellaneous end-use chemicals and chemical products-----	22,342	23,602	5.6	11,478	14,075	22.6	3,032	3,499	15.4
Miscellaneous cyclic and acyclic chemicals-----	98,777	94,368	-4.5	39,696	36,139	-9.0	10,196	11,672	14.5

¹Percentages calculated from figures rounded to thousands.

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

³We are awaiting official statistics from the U.S. Department of Commerce.

⁴Estimated by using data from the 1981 U.S. Industrial Outlook, p. 179.

⁵Estimated by using the ratio of sales quantity as compared to production for elastomers in 1979.

⁶Value was computed by using the average price indexes for 1979 and 1980 which came from The Producers Prices and Prices Indexes for July 1980 and The Producers Prices and Prices Indexes for March 1981, pages 65 and 77, respectively.

SYNTHETIC ORGANIC CHEMICALS, 1980

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 1980 was 210,356 million pounds or 7.8 percent less than the output of 228,191 million pounds reported for 1979, and 100.9 percent more than the output of 104,711 million pounds reported in 1967 (see table 2). Sales of synthetic organic chemicals in 1980 amounted to 110,510 million pounds, valued at \$47,518 million, compared with 120,546 million pounds, valued at \$45,899 million in 1979 and 55,177 million pounds, valued at \$10,438 million in 1967. Production of all cyclic products (intermediates and finished products combined) in 1980 totaled 66,834 million pounds or 12.8 percent less than the 76,637 million pounds reported for 1979 and 99.6 percent more than the 33,479 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 1980 totaled 143,523 million pounds, or 5.3 percent less than the 151,554 million pounds reported for 1979 and 101.5 percent more than the 71,232 million pounds reported for 1967.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1979 AND 1980

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

CHEMICAL	1967 ¹	1979	1980	INCREASE OR DECREASE (-)	
				1980 OVER	1980 OVER
				1967	1979
				Percent	Percent
Organic chemicals, cyclic and acyclic, grand total:					
Production-----	104,711,357	228,191,343	210,356,473	100.9	-7.8
Sales-----	55,176,823	120,545,589	110,509,967	100.3	-8.3
Sales value-----	10,438,453	45,898,751	47,518,404	355.2	3.5
Cyclic, total:					
Production-----	33,479,469	76,637,176	66,833,907	99.6	-12.8
Sales-----	19,328,628	40,330,744	35,045,536	81.3	-13.1
Sales value-----	4,610,293	20,559,751	22,265,859	383.0	8.3
Acyclic, total:					
Production-----	71,231,888	151,554,167	143,522,566	101.5	-5.3
Sales-----	35,848,195	80,214,845	75,464,431	110.5	-5.9
Sales value-----	5,828,160	25,339,000	25,252,545	333.3	-0.3
1. Cyclic Intermediates					
Production-----	20,793,132	49,574,216	45,069,670	116.8	-9.1
Sales-----	9,461,180	21,544,445	20,060,375	112.0	-6.9
Sales value-----	1,000,359	6,566,387	7,248,265	624.6	10.4
2. Dyes					
Production-----	206,240	265,881	245,348	19.0	-7.7
Sales-----	198,592	241,396	227,448	14.5	-5.8
Sales value-----	332,049	797,212	790,664	138.1	-0.8
3. Organic Pigments					
Production-----	53,322	88,248	69,373	30.1	-21.4
Sales-----	42,867	66,885	60,771	41.8	-9.1
Sales value-----	108,354	377,509	361,334	233.5	-4.3
4. Medicinal Chemicals					
Cyclic:					
Production-----	110,129	178,550	174,597	58.5	-2.2
Sales-----	70,120	102,790	102,606	46.3	-0.2
Sales value-----	348,873	923,879	1,095,950	214.1	18.6
Acyclic:					
Production-----	69,941	134,540	69,279	-1.0	-48.5
Sales-----	56,804	122,865	64,625	13.8	-47.4
Sales value-----	36,402	119,266	56,844	56.2	-52.3

See footnotes at end of table.

TABLE 2. --SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1979, AND 1980--CONTINUED

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

CHEMICALS	1967 ¹	1979	1980	INCREASE OR DECREASE (-)	
				1980 over 1967	1980 over 1979
<i>5. Flavor and Perfume Materials</i>					
				Percent	Percent
Cyclic:					
Production-----	57,978	109,027	97,791	68.7	-10.3
Sales-----	47,285	76,756	73,760	56.0	-3.9
Sales value-----	52,866	153,047	156,794	196.6	2.4
Acyclic:					
Production-----	53,558	85,512	76,911	43.6	-10.1
Sales-----	49,311	58,358	55,238	12.0	-5.4
Sales value-----	40,495	83,458	96,726	138.9	15.9
<i>6. Plastics and Resin Materials</i>					
Cyclic:					
Production-----	5,033,497	12,867,081	11,753,214	133.5	-8.7
Sales-----	4,224,121	11,089,619	9,606,419	127.4	-13.4
Sales value-----	1,036,940	6,038,224	6,316,455	509.1	4.6
Acyclic:					
Production-----	8,759,452	29,004,100	26,432,776	201.8	-8.9
Sales-----	7,753,242	25,744,137	23,944,008	208.8	-7.0
Sales value-----	1,635,690	9,341,575	9,694,713	492.7	3.8
<i>7. Rubber-Processing Chemicals</i>					
Cyclic:					
Production-----	220,139	338,654	258,300	17.3	-23.7
Sales-----	169,970	233,994	167,854	-1.2	-28.3
Sales value-----	116,318	316,285	269,905	132.0	-14.7
Acyclic:					
Production-----	43,994	56,083	33,130	-24.7	-40.9
Sales-----	30,878	45,705	26,071	-15.6	-43.0
Sales value-----	15,477	28,935	26,047	68.3	-10.0
<i>8. Elastomers (Synthetic Rubber)</i>					
Cyclic:					
Production-----	2,297,637	3,267,457	...	...	...
Sales-----	1,940,099	1,929,398	...	...	...
Sales value-----	439,580	725,327	...	...	...
Acyclic:					
Production-----	1,524,908	2,592,626	...	...	...
Sales-----	1,321,945	2,072,836	...	...	...
Sales value-----	434,657	1,599,326	...	...	...
<i>9. Plasticizers</i>					
Cyclic:					
Production-----	929,871	1,825,925	1,388,935	49.4	-23.9
Sales-----	865,084	1,532,596	1,219,999	41.0	-20.4
Sales value-----	167,827	649,848	608,372	262.5	-6.4
Acyclic:					
Production-----	332,908	307,026	395,505	18.8	28.8
Sales-----	296,767	281,391	353,589	19.1	25.7
Sales value-----	93,142	175,693	250,018	168.4	42.3
<i>10. Surface-Active Agents</i>					
Cyclic: ²					
Production-----	1,418,444	1,235,265	1,154,101	-18.6	-6.6
Sales-----	852,238	677,840	616,824	-27.6	-9.0
Sales value-----	95,810	296,902	339,708	254.6	14.4
Acyclic:					
Production-----	2,060,851	3,713,174	3,698,583	79.5	-0.4
Sales-----	897,786	2,181,640	2,310,680	157.4	5.9
Sales value-----	220,877	846,604	956,552	333.1	13.0

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1980

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1979, AND 1980--CONTINUED

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

CHEMICAL	1967 ¹	1979	1980	INCREASE OR DECREASE (-)	
				1980 over 1967	1980 over 1979
<i>11. Pesticides and Related Products</i>					
				Percent	Percent
Cyclic:					
Production-----	823,158	760,899	1,054,309	28.1	38.6
Sales-----	681,532	773,868	1,017,006	49.2	31.4
Sales value-----	627,742	2,283,864	3,079,575	390.6	34.8
Acyclic:					
Production-----	226,505	668,509	413,893	82.7	-38.1
Sales-----	215,831	595,201	389,315	80.4	-34.6
Sales value-----	159,301	1,346,824	998,923	527.1	-25.8
<i>12. Miscellaneous End-Use Chemicals and Chemical Products³</i>					
Cyclic:					
Production-----	(1,535,922)	3,810,382	3,680,087	139.6	-3.4
Sales-----	(775,540)	930,766	855,764	10.3	-8.1
Sales value-----	(283,575)	543,636	577,347	103.6	6.2
Acyclic:					
Production-----	(58,159,771)	18,531,356	19,922,403	-65.8	7.5
Sales-----	(25,225,631)	10,547,517	13,218,867	-47.6	25.3
Sales value-----	(3,192,119)	2,488,552	2,922,055	-8.5	17.4
<i>13. Miscellaneous Cyclic and Acyclic Chemicals³</i>					
Cyclic:					
Production-----	...	2,315,591	1,888,182	...	-18.5
Sales-----	...	1,130,391	1,036,710	...	-8.3
Sales value-----	...	887,632	1,421,490	...	60.1
Acyclic:					
Production-----	...	96,461,241	92,480,086	...	-4.1
Sales-----	...	38,565,195	35,102,038	...	-9.0
Sales value-----	...	9,308,767	10,250,667	...	10.1

¹Standard reference base period for Federal Government general-purpose index numbers.²Includes ligninsulfonates.³Items 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 1980 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-----	197	Elastomers (synthetic rubber)-----	30
Dyes-----	37	Plasticizers-----	55
Organic pigments-----	36	Surface-active agents-----	183
Medicinal chemicals-----	92	Pesticides and related products-----	89
Flavor and perfume materials-----	43	Miscellaneous end-use chemicals and chemical products-----	149
Plastics and resin materials-----	271	Miscellaneous cyclic and acyclic chemicals-----	288
Rubber-processing chemicals-----	28		

SECTION I -- TAR AND TAR CRUDES

7

STATISTICAL HIGHLIGHTS

Cynthia B. Foreso

Tar

Coal tar is produced chiefly by the steel industry as a byproduct 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 1980 amounted to 534 million gallons (see table 1). Production in 1980 was 9 percent less than the 590 million gallons of coal tar produced in 1979. Sales of coal tar in 1980 amounted to 325 million gallons compared with 344 million gallons in 1979. U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1979 or 1980; 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 and 1B.

Domestic production of industrial and specification grades of benzene reported by coke-oven operators and petroleum refinery operators in 1980 amounted to 2,007 million gallons--20 percent more than the 1,673 million gallons reported for 1979. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum refiners in 1980 amounted to 1,147 million gallons compared with 903 million gallons in 1979. In 1980 the output of toluene (including material produced for use in blending in aviation fuel) amounted to 1,017 million gallons--1 percent more than the 1,010 million gallons reported for 1979. Sales of toluene (Nitration grade, 1°) in 1980 were 677 million gallons compared with 597 million gallons in 1979. The output of xylene in 1980 (including that produced for blending in motor fuels) was 909 million gallons, compared with 972 million gallons in 1979. Over 99 percent of the 909 million gallons of xylene produced in 1980 was obtained from petroleum sources. Sales of xylene increased slightly to 443 million gallons in 1980 compared with 439 million gallons in 1979.

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SYNTHETIC ORGANIC CHEMICALS, 1980

Production and sales figures on crude naphthalene from coal-tar oils in 1980 could not be published without disclosing the operations of individual companies. Production of petroleum-derived naphthalene in 1980 amounted to 103 million pounds, compared with 163 million pounds in 1979. Production figures on road tar for 1980 cannot be published; in 1972 production amounted to 30 million gallons.

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 1980 tar crudes were supplied by 10 companies and company divisions.

TABLE 1.--TAR AND TAR CRUDES; U.S. PRODUCTION AND SALES, 1980

[Listed below are all tar crudes 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 separately 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--	543,068	324,852	...	...
Crude light oil: ³ Coke-oven operator-----	1,000 gal--	159,403	103,085	...	...
Light-oil distillates:					
Benzene, all grades, total ⁴ -----	1,000 gal--	2,007,397	1,146,946	1,083,722	.95
Coke-oven operators ⁵ -----	1,000 gal--	50,781	50,710	47,667	.94
Petroleum refiners ⁶ -----	1,000 gal--	1,956,616	1,096,236	1,036,055	.94
Toluene, all grades, total ⁴ -----	1,000 gal--	1,017,321	676,977	771,012	1.14
Coke-oven operators-----	1,000 gal--	7,812	8,026	9,069	1.13
Petroleum refiners-----	1,000 gal--	1,009,509	668,951	761,943	1.13
Xylene, all grades, total ⁴ -----	1,000 gal--	908,546	442,502	424,542	.96
Coke-oven operators-----	1,000 gal--	1,364	1,400	1,330	.95
Petroleum refiners-----	1,000 gal--	907,182	441,102	6423,212	.95
Solvent naphtha: ³					
Coke-oven operators-----	1,000 gal--	1,252	1,217	...	...
Crude tar-acid oils: ³					
Coke-oven operators-----	1,000 gal--	16,293	3,204	...	...
Creosote oil (Dead oil) (tar distillers) ⁷					
(100% creosote basis), total-----	1,000 gal--	...	...	...	...
Distillate as such (100% creosote basis)-----	1,000 gal--	60,648	37,072	35,483	.94
Creosote content of coal tar solution (100% creosote basis)-----	1,000 gal--	...	...	(⁸)	(⁸)
Tar, refined, for uses other than road tar----	1,000 gal--	12,005	9,913	10,758	1.08
Pitch of tar (tar distillers) ⁷ , total-----	1,000 tons-	1,192	975	245,882	252.18
Hard (water softening point above 160° F)---	1,000 tons-	735	530	113,844	214.80
Other ⁹ -----	1,000 tons-	457	445	132,038	296.71

¹Unit value per gallon or ton as specified.

²Includes only data for coal tar reported to the Office of Energy Data and Interpretation, Energy Information Administration, Department of Energy (Energy Data Reports, Coke & Coal Chemicals monthly, December, 1980, March 2, 1981). At date of publication, sales value for coal tar was not available. 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.

³Data reported by tar distillers are not included because publication would disclose the operations of individual companies. At date of publication, sales value for coke-oven operators was not available.

⁴Includes 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.

⁵Benzene, specification grades (1°, 2°)

⁶Sales value figures are estimated from Energy Data Reports, Coke & Coal Chemicals monthly, December, 1980, March 2, 1981.

⁷Data from coke-oven operators were unavailable at time of publication.

⁸In 1980, production of coal-tar solution containing creosote (100% solution basis) amount to 36,011 thousand gallons; sales were 34,992 thousand gallons, valued at 28,893 thousand dollars, with a unit value of \$0.83 per gallon.

⁹Includes pitch emulsion, medium and soft pitch.

SYNTHETIC ORGANIC CHEMICALS, 1980

Footnotes--Continued

Note 1.--Statistics for materials produced in coke and gas-retort ovens are compiled by the Office of Energy Data and Interpretation, Energy Information Administration, 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 1980 report because publication would disclose the operation of individual companies. Preliminary coke-oven operators data were obtained from cumulative totals reported in Energy Data Reports, Coke & Coal Chemicals monthly, December, 1980, March 2, 1981, as the annual publication data were not available to include in this report.

TABLE 1A.--TAR: U.S. PRODUCTION AND CONSUMPTION, 1979 AND 1980

(In thousands of gallons)			
TAR	1979	1980	
PRODUCTION			
Coal tar from coke-oven byproduct plants, total ¹ -----	589,553	534,068	
CONSUMPTION			
Total-----	(²)	(²)	
Tar consumed by distillation, total-----			
Coal tar distilled or topped by coke-oven operators ¹ -----	(²)	(²)	
Coal tar and oil-gas tar distilled by tar distillers ³ -----	341,863	308,659	
Tar consumed by the producers chiefly as fuel ¹ -----			
Coal tar consumed at coke-oven plants in miscellaneous uses ¹ -----	(²)	(²)	

¹Reported to the office of Energy Data and Interpretation, Energy Information Administration, Department of Energy.

²Department of Energy data were not available at time of publication.

³Reported to the U.S. International Trade Commission. Represents tar purchased from companies operating coke-ovens and gas retort plants and distilled by companies operating tar-distillation plants. Statistics also include tar consumed other than by distillation by tar distillers.

TABLE 1B.--TAR AND TAR CRUDES; SUMMARY OF U.S. PRODUCTION OF SPECIFIED PRODUCTS, 1967, 1979, AND 1980

TAR AND TAR CRUDES	UNIT OF QUANTITY	1967 ¹	1979	1980	INCREASE, OR DECREASE (-)	
					1980 OVER 1967	1980 OVER 1979
					Percent	Percent
Coal tar ² -----	1,000 gal--	780,334	589,553	534,068	-32	-9
Benzene: ³						
Coke-oven operators-----	1,000 gal--	90,642	60,940	50,781	-44	-17
Petroleum refiners-----	1,000 gal--	878,704	1,611,720	1,956,616	123	21
Total-----	1,000 gal--	969,346	1,672,660	2,007,397	107	20
Toluene: ³						
Coke-oven operators-----	1,000 gal--	19,357	9,238	7,812	-60	-15
Petroleum refiners-----	1,000 gal--	624,454	1,000,665	1,009,509	62	1
Total-----	1,000 gal--	643,811	1,009,903	1,017,321	58	1
Xylene: ³						
Coke-oven operators-----	1,000 gal--	5,488	1,364	1,364	-75	0
Petroleum refiners-----	1,000 gal--	449,349	970,789	907,182	102	-7
Total-----	1,000 gal--	454,837	972,153	908,546	100	-7
Naphthalene:						
Crude ⁵ -----	1,000 lb---	520,991	(⁶)	(⁶)	(⁶)	(⁶)
Petroleum naphthalenes, all grades-----	1,000 lb---	376,679	163,367	103,357	-73	-37
Total-----	1,000 lb---	897,670	(⁶)	(⁶)	(⁶)	(⁶)
Creosote oil (Dead oil): ⁷						
Distillate as such (100% creo- sote basis)-----	1,000 gal --	108,832	80,530	(⁶)	(⁸)	(⁸)
Creosote content of coal tar solution (100% creosote basis)-----	1,000 gal--	17,402	27,159	(⁶)	(⁸)	(⁸)
Total-----	1,000 gal--	126,234	107,689	79,137	(⁸)	(⁸)

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

²Includes only data for coal tar reported to the Office of Energy Data and Interpretation, Energy Information Administration, Department of Energy.

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

⁴Includes data for material produced for use in blending motor fuels. Statistics are not comparable with monthly figures which include some o-xylene.

⁵Naphthalene solidifying at less than 79°C. Figures include production by tar distillers and coke-oven operators and represent combined data for the commercial grades of naphthalene. Because of conversion between grades, the figures may include some duplication. Statistics on naphthalene refined from domestic crudes are reported in the section on "Cyclic Intermediates."

⁶Statistics cannot be published; to do so would disclose the operations of individual companies.

⁷Includes data for creosote oil produced by tar distillers and coke-oven operators and used only in wood preserving.

⁸Comparison not possible because 1980 data from the Department of Energy were not available at time of publication for inclusion in report.

TABLE 2.--TAR CRUDES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURERS, 1980

[CHEMICALS FOR WHICH SEPARATE STATISTICS ARE GIVEN IN TABLE 1 ARE MARKED 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]

TAR CRUDES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Light-oil distillates:	:
*Solvent naphtha ¹ -----	: NEV.
Pyridine, crude bases-----	: KPT.
Naphthalene, crude, solidifying at:	:
74° C to less than 79° C:	:
74° C to less than 76° C-----	: ACS, KPT.
76° C to less than 79° C-----	: ACS, KPT.
Methylnaphthalene-----	: KPT.
*Crude tar-acid oils: ¹	:
Tar-acid content 5% to less than 24%-----	: KPT.
Tar-acid content 24% to 50%-----	: ACS.
Cresylic acid, crude-----	: FER, KPT.
*Creosote oil (Dead oil):	:
*Distillate as such-----	: ACS, COP, KPT, RIL, WTC.
*Creosote in coal tar solution-----	: ACS, KPT, RIL, WTC.
All other distillate products:	:
Carbon black oil-----	: KPT.
Creosote tar acid oil-----	: KPT.
Crude coal tar solvent-----	: KPT.
Crude tetralin-----	: KPT.
Priming and refractory oil-----	: KPT.
All other-----	: ACS, KPT.
Tar, road-----	: ACS, RIL.
Tar for other uses:	:
Crude-----	: HUS.
Refined-----	: ASC, KPT, RIL.
*Pitch of tar:	:
Soft (water softening point less than 110° F)-----	: ACS, KPT.
Medium (water softening point 110° F to 160° F)-----	: ACS, COP, KPT, RIL.
*Hard (water softening point above 160° F)-----	: KPT, RIL, WTC.
Pitch emulsion-----	: JEN.
Refined anthracene-----	: ACS.

¹Does not include manufacturers' identification codes for producers which report to the Office of Energy Data and Interpretation, Energy Information Administration, Department of Energy. Those producers are listed in the U.S. Department of Energy, Energy Data Reports, September, 1980, entitled "Coke Producers in the United States in 1979."

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1980

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 1980 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ACS	Allied Chemical Corp., Chemicals Co. Div.	KPT	Koppers Co., Inc.:
COP	Coopers Creek Chemical Corp.		Organic Materials Group
			Roads Materials Div.
FER	Ferro Corp., Productol Chemical Div.	NEV	Neville Chemical Co.
HUS	Husky Industries, Inc.	RIL	Reilly Tar & Chemical Corp.
JEN	Jennison-Wright Corp.	WTC	Witco Chemical Corp.

Note.--Complete names 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

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STATISTICAL HIGHLIGHTS

Cynthia B. Foreso

Primary products that are derived from petroleum and natural gas¹ 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 120,232 million pounds in 1980. Production in 1979 was 120,564 million pounds. Production and sales data for dicyclopentadiene was dropped from Section II and added to Section III of this report, accounting for the decrease in production data for 1980. The output of aromatic and naphthenic products from petroleum amounted to 32,616 million pounds in 1980, compared with 31,222 million pounds in 1979. Sales amounted to \$3,724 million in 1980 and \$2,517 million in 1979. In 1980, production of benzene was 14,322 million pounds; production of toluene was 7,279 million pounds; and production of xylene was 6,895 million pounds (table 1).

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 87,615 million pounds in 1980, compared with 89,341 million pounds in 1979. Sales of these products were valued at \$6,922 million in 1980, compared with \$4,659 million in 1979. Production of ethylene was 28,676 million pounds in 1980. The output of 1,3-butadiene in 1980 was 2,799 million pounds. Production of propylene in 1980 was 13,676 million pounds (table 1).

Data for 1980 crude products from petroleum and natural gas for chemical conversion were supplied by 79 companies or company divisions.

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

TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1980

[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 separately 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-----	120,231,549	64,292,088	10,645,633	\$0.17
AROMATICS AND NAPHTHENES ²				
Total-----	32,616,083	19,516,853	3,723,974	.19
Benzene (1° and 2°)-----	14,322,432	8,024,449	1,036,055	.13
Naphthalene, all grades-----	103,357	51,866	14,299	.28
Naphthenic acid-----	24,475	21,513	3,600	.17
Toluene, all grades, total-----	7,278,566	4,823,139	761,943	.16
Nitration grade, 1°-----	4,990,782	3,314,099	549,821	.17
Pure commercial grade, 2°-----	633,673	739,442	79,098	.11
All other ^{3 4} -----	1,654,111	769,598	133,024	.17
Xylenes, mixed, total-----	6,894,586	3,352,378	423,212	.13
3° grade-----	3,375,117	1,740,417	230,897	.13
5° grade-----	1,809,388	1,016,811	100,640	.10
All other ⁴ -----	1,710,081	595,150	91,675	.15
All other aromatics and naphthenes ⁵ -----	3,992,667	3,243,508	1,484,865	.46
ALIPHATIC HYDROCARBONS				
Total-----	87,615,466	44,775,235	6,921,659	.15
C ₂ Hydrocarbons, total-----	35,666,394	14,057,057	2,612,043	.19
Ethane-----	6,999,863	3,295,215	279,870	.08
Ethylene-----	28,666,531	10,761,842	2,332,173	.22
C ₃ Hydrocarbons, total-----	22,387,750	13,980,442	1,801,328	.13
Propane-----	8,712,223	8,177,238	792,296	.10
Propylene ⁶ -----	13,675,527	5,803,204	1,009,032	.17
C ₄ Hydrocarbons, total-----	10,480,338	4,810,347	1,056,934	.22
Butadiene and butylene fractions-----	1,034,454	460,622	124,261	.27
1,3-Butadiene, grade for rubber (elastomers)-----	2,798,951	2,249,397	604,066	.27
n-Butane-----	1,506,459	686,347	75,957	.11
1-Butene-----	125,775	118,243	27,445	.23
1-Butene and 2-Butene, mixed ⁷ -----	672,544	...	...	...
Isobutane-----	1,817,538	413,640	81,288	.20
Isobutylene-----	1,052,094	292,876	61,944	.21
Mixed butanes, 2-butene, mixed butylenes, and C ₄ hydrocarbon fractions-----	538,024	276,895	35,912	.13
All other ⁸ -----	934,499	312,327	46,061	.15
C ₅ Hydrocarbons, total-----	3,288,152	737,538	120,287	.16
Dibutanized aromatic concentrate-----	81,757	81,222	10,319	.13
Isoprene (2-Methyl-1,3-butadiene)-----	205,310	194,635	38,536	.20
Pentenes, mixed-----	228,766	...	...	...
All other ⁹ -----	2,772,319	461,681	71,432	.15
All other aliphatic hydrocarbons, derivatives and mixtures, total-----	15,792,832	11,189,851	1,331,067	.12
Alpha olefins ¹⁰ -----	935,116	544,198	209,151	.15 ³⁸

See footnotes at end of table.

TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1980--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ALIPHATIC HYDROCARBONS--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
All other aliphatic hydrocarbons, derivatives, and mixtures--Continued				
Dodecene (Tetrapropylene)-----	263,656	65,495	58,008	\$0.89
Heptenes, mixed-----	103,238	76,664	34,930	.46
Hexane-----	392,894	267,193	57,189	.21
Nonene (Tripropylene)-----	356,918	152,985	65,167	.43
n-Paraffins ¹¹ -----	3,442,721	2,825,488	396,096	.14
All other ¹² -----	10,298,289	7,257,828	510,526	.07

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 and 1B of the report on "Tar and Tar Crudes."

³Includes toluene, solvent grade, 90 percent.

⁴Includes toluene and xylene used as solvents, as well as that which is blended in aviation and motor gasolines.

⁵Includes data for alkyl aromatics, crude cresylic acid, refined cresylic acid, methylcyclopentane, polyethylbenzene, distillates, solvents and miscellaneous cyclic hydrocarbons.

⁶Includes data for refinery propylene.

⁷The statistics represent principally the butene content of crude refinery gases from which butadiene is manufactured.

⁸Includes data for butanes, mixed C₄ streams.

⁹Includes sales data only for C₅ hydrocarbon mixtures, isopentane, n-pentane, mixed pentenes, and piperlyenes.

¹⁰Includes data for the following molecular weight ranges: C₆-C₇; C₈-C₁₀; C₁₁-C₁₅; C₁₅-C₂₀; and others.

¹¹Includes data for the following chain lengths: C₆-C₉; C₉-C₁₅; C₁₀-C₁₄; C₁₀-C₁₆; and others.

¹²Includes production and/or sales data for acetylene, amylenes, cyclooctadiene, di-isobutylene, eicosane, hydrocarbon derivatives, methane, methyl acetylene propadiene, methylcyclopentadiene, mixtures of C₅ and C₆, C₅ and C₉ hydrocarbons, neohexane, n-heptane, n-octane, polybutene, propylene tetramer, triisobutylene, and other hydrocarbons, and production data only for all other C₅ hydrocarbons.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980

[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]

CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AROMATICS AND NAPHTHENES	
ALKYL AROMATICS:	
Cyclosoils-	SHC.
Alkyl aromatics: all other	AMO, BFG.
BENZENE:	
*Benzene 1 ⁰ (99-100 %)-	AMO, APR, ASH, ATR, CO, CPI, CRP, CSD, CSO, CSP, EKX, ERV, GOC, GRS, HES, IRC, MOC, MON, PLC, PPR, QH, SHC, SKO, SM, SOC, SOG, SUN, SWR, TID, TOC, TX, UCC, UOC.
*Benzene 2 ⁰ (98-98.9%)-	DOW.
Benzene 90-97.9% (Non-fuel)-	KLM.
Cresylic acid (Less than 75 percent distilling over 215°C)-	FER.
Cresylic acid, refined	ATR, ENJ.
*Naphthalene-	CO, CXI, MON, TID, UOC.
*NAPHTHENIC ACID:	
*Naphthenic acid, acid number 150-199	FER, GOC, HEC, SOC, SUN.
*Naphthenic acid, acid number 200-224	FER.
*Naphthenic acid, acid number less than 150	ATR, HEC, SUN, TX.
Petroleum phenols-	SKO.
*TOLUENE ALL GRADES:	
*Toluene, 1 ⁰ (99.5-100%)-	ASH, ATR, CPI, ENJ, GOC, GRS, HES, MOC, PLC, QH, SHC, SKO, SOG, SUN, SWR, TID, TOC, TX, UOC.
*Toluene, 2 ⁰ (98.5-99.4%)-	ATR, DOW, ELP, PPR, SOG, SUN, UCC.
*Toluene, 90-98.4% (Non-fuel)	CSD, CSP, HST, MON, PPR, PPX, SKO, SM.
*XYLENES, MIXED:	
*Xylene, 3 ⁰ (99-100%)-	AMO, ATR, CPI, GOC, HES, SHC, SOG, SWR.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AROMATICS AND NAPHTHENES--CONTINUED	
*XYLENES, MIXED--CONTINUED	
*Xylene, 5° (98-98.9%)	CSD, ENJ, GRS, HCF, MOC, PPR, QH, TOC, UOC.
*Xylene, 90-97.9% (Non-fuel)	AMO, ASH, CSP, MON, SOC, SUN, UCC.
*ALL OTHER AROMATICS AND NAPHTHENES:	
Aromatics, C9	CO.
Carbon black feedstock	ENJ.
Hydrocarbon polymer	JCC.
Polyethylbenzene	HST.
All other products from petroleum and natural gas, cyclic	DUP, EKX, ENJ, NWP, QH, SHC, SOG, SUN, TNA, TX, UCC.
ALIPHATIC HYDROCARBONS	
C/1 HYDROCARBONS:	
Methane	MON, SHO, TX, UCC.
C/2 HYDROCARBONS:	
Acetylene (For chemical use only)	DOM, MNO, MON, RH, UCC.
*Ethane	ACU, AMO, CO, ENJ, IRC, MON, OMC, PLC, SHO, SM, TX, USI.
*Ethylene	ACU, AMO, ATR, BAS, BFG, CBN, CO, CPX, CRP, DOM, DUP, EKX, ELP, ENJ, GOC, JCC, MCB, MON, NMP, OMC, PLC, SHC, SM, SMO, TX, UCC, USI, USS.
C/3 HYDROCARBONS:	
Hydrocarbons, C2-C3, mixtures	CSO, MON.
Methyl acetylene propadiene	CO, MON.
*Propane (Commercial and hd-5)	AMO, ASH, CCP, CLK, CO, COR, CPI, CSD, CSO, CSP, ECI, ENJ, GRS, IRC, MOC, OMC, PLC, SHO, SM, SOG, SUN, TCR, TX, UCC, UOC, USI.
*Propylene	ACU, AMO, ASH, ATR, BFG, CBN, CLK, CO, CPX, CRP, CSD, CSO, DOM, DUP, ECI, EKX, ELP, ENJ, EPC, GOC, JCC, MCB, MOC, MON, NMP, PLC, SHC, SIO, SKO, SM, SOC, SOG, SUN, TCR, TX, UCC, USS.
C/4 HYDROCARBONS:	
*Butadiene and butylene fractions	ACU, CO, CPX, CRP, DOM, EKX, GOC, NWP, UCC.
*1,3-Butadiene, grade for rubber (Elastomers)	AMO, ATR, BFG, CO, CPY, DOM, ELP, ENJ, FRs, MON, PLC, PTT, SHC, SM, TUS, UCC, USS.
*n-Butane	AMO, APR, COR, CSD, CSO, CSP, IRC, OMC, PLC, SHO, SM, SUN, USI.
Butanes, mixed	ENJ, OMC.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS--CONTINUED	
C/4 HYDROCARBONS--CONTINUED	
*1-Butene	GOC, PLC, PTT, TNA.
2-Butene	MON, PLC, SHC.
*1-Butene and 2-butene, mixed	ATR, CSO, DUP, ENJ, SHC, SOG.
Butylenes, mixed	MON, SM.
Hydrocarbons, C4, fraction	JCC.
*Isobutane (2-Methylpropane)	AMO, CSD, CSO, CSP, ELP, ENJ, IRC, OMC, PLC, SHO, SM, SUN, USI.
*Isobutylene (2-Methylpropene)	AMO, ENJ, OCC, PLC, SHC, UCC.
*Hydrocarbons, C4, all other	BFG, CBN, CRP, ELP, MCB, QH, SHC, SM, TNA.
C/5 HYDROCARBONS:	
Amylenes	SHC, SHO.
*Dibutanized aromatic concentrate	CO, ELP, JCC.
Isopentane (2-Methylbutane)	PLC, SHO.
*Isoprene (2-Methyl-1,3-butadiene)	ATR, CO, DOM, ENJ, MON, UCC.
n-Pentane	APR, PLC, SHO.
*Pentenes, mixed	COR, CXI, DOM, ENJ, QH, SHO.
Piperylene (1,3-Pentadiene)	DOM, MON.
*Hydrocarbons, C5, all other	ATR, CO, CSO, GOC, PLC, SHC, TX, USS.
ALPHA OLEFINS:	
Alpha olefins, C6-C7	GOC, SOC, TNA.
Alpha olefins, C8-C10	CXI, GOC, SOC, TNA.
Alpha olefins, C11-C15	GOC, SOC, TNA.
Alpha olefins, C15-C20	SOC.
Alpha olefins: all other	FER, OMC, SHC, SOC.
C/6 HYDROCARBONS:	
*Hexane	APR, ENJ, HMY, IRC, PLC, SHO, SOG, UOC.
Methylcyclopentadiene	ENJ.
Hydrocarbons, C6, all other	COR, CPI, ENJ, PLC, SMC.
C/7 HYDROCARBONS:	
n-Heptane	EKX, PLC.
*Heptenes, mixed	AIP, AMO, ENJ, SOG, TTD.
Hydrocarbons, C7, all other	ENJ.

TABLE 2.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS--CONTINUED	
C/8 HYDROCARBONS:	
Cyclooctadiene	CBM.
Di-isobutylene (Di-isobutene)	FRS, PTT.
n-Octane	SOG.
Hydrocarbons, C8, all other	AIP, CO, ENJ, FRS, SHC, TTD.
C/9 AND ABOVE HYDROCARBONS (EXCEPT ALPHA OLEFINS):	
*Dodecene	ATR, ENJ, GP, SOC, SUN, TX, UOC.
Eicosane	HMY.
*Nonene (Tripropylene)	AIP, ATR, CSP, ECI, ENJ, TIC, UOC.
*N-PARAFFINS - CARBON CHAIN LENGTH:	
n-Paraffins, C6-C9	CPX, SOG, UCC.
n-Paraffins, C6-Cl6	QH.
n-Paraffins, C9-Cl5	SHO, SOG.
n-Paraffins, Cl0-Cl5	CO, ENJ, SHO, SOG.
n-Paraffins, Cl0-Cl6	CO.
n-Paraffins	CO, COR, CSP, ENJ, GOC, SHC, SOC.
Polybutane	AMO, CSD, GOC, SOC.
Tri-isobutylene	GOC.
Hydrocarbons, C5-C9 and above, all other, including mixtures	CO, CRP, ENJ, MOC, PPR, QH, SOG.
HYDROCARBON DERIVATIVES:	
n-Butyl mercaptan (1-Butanethiol)	PAS, PLC.
tert-Butyl mercaptan (2-Methyl-2-propanethiol)	HAP, PAS.
Decyl mercaptans	PAS.
Ethyl mercaptan (Ethanolthiol)	HAP, PAS, PLC.
Hexadecyl mercaptans	PAS.
Isopropyl mercaptan (2-Propanethiol)	PAS.
Methyl mercaptan (Methanethiol)	PAS.
t-Nonyl mercaptan	PAS.
tert-Octyl mercaptan (2,4,4-Trimethyl-2-pentanethiol)	PAS.
Octyl mercaptans	PAS.
n-Propyl mercaptan (1-Propanethiol)	PAS.
Hydrocarbon derivatives: all other hydrocarbon derivatives	HAP, PAS, PLC, TX.

TABLE 3.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: DIRECTORY OF MANUFACTURERS, 1980

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of primary products from petroleum and natural gas for chemical conversion to the U.S. International Trade Commission for 1980 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 Chemical Corp., Union Texas Petroleum Corp.	KLM	Kalama Chemical, Inc.
AIP	Air Products & Chemicals, Inc.	MCB	Borg-Warner Corp., Borg-Warner Chemicals
AMO	Standard Oil Co. (Indiana)	MNO	Monochem, Inc.
APR	Atlas Processing Co.	MOC	Marathon Oil Co., Texas Refining Div.
ASH	Ashland Oil, Inc.	MON	Monsanto Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.		
		NWP	Northern Petrochemical Co.
BAS	BASF Wyandotte Corp.		
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	OCC	Oxirane Corp. Sub. of Atlantic Richfield Co.
		OMC	Olin Corp.
CBN	Cities Service Co., Petrochemicals Div.	PAS	Pennwalt Corp.
CCP	Crown Central Petroleum Corp.	PLC	Phillips Petroleum Co.
CLK	Clark Oil & Refining Corp.	PPR	Phillips Puerto Rico Core, Inc.
CO	Conoco, Inc.	PPX	Phillips Paraxylene, Inc.
COR	Commonwealth Oil & Refining Co., Inc.:	PPT	Petro-Tex Chemical Corp.
CPI	Commonwealth Petrochemicals, Inc.		
CPX	Chemplex Co.	QH	Nueces Petrochemical Co.
CPY	Copolymer Rubber & Chemical Corp.		
CRP	Corpus Christi Petrochemical Co.	RH	Rohm & Haas Co.
CSD	Cosden Oil & Chemical Corp.		
CSO	Cities Service Co., Petroleum Products Group	SCH	Shell Oil Co., Shell Chemical Co. Div.
CSP	Coastal States Petroleum Co.	SHO	Shell Oil Co.
CXI	Chemical Exchange Industries, Inc.	SIO	Standard Oil Co.
		SKO	Getty Refining & Marketing Co.
DOW	Dow Chemical Co.	SM	Mobil Oil Corp.:
DUP	E. I. duPont de Nemours & Co., Inc.		Gas Liquids Dept.
			Mobil Chemical Co., Petrochemicals Div.
ECI	Energy Cooperative, Inc.	SNO	SunOlin Chemical Co.
EKX	Eastman Kodak Co., Texas Eastman Co. Div.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
ENJ	Exxon Chemical Americas		
EPC	Enterprise Products Co., Enterprise Petrochemicals Co. Sub.	SOG	Charter International Oil Co.
		SUN	Sun Company, Inc.
		SWC	Corco Cyclohexane, Inc.
FER	Ferro Corp., Productol Chemical Div.	SWR	Southwestern Refining Co.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.		
		TCR	Texas City Refining, Inc.
		TID	Getty Refining & Marketing Co., Delaware Refinery
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.	TNA	Ethyl Corp.
GP	Georgia-Pacific Corp., Houston Div.	TOC	Tenneco Oil Co., P & M
GRS	Champlin Petroleum Co.	TUC	Texas-U.S. Chemical Co.
		TX	Texaco, Inc.
HAP	Helmerich & Payne, Inc., National Gas Odorizing Div.		
HCF	Hercofina	UCC	Union Carbide Corp.
HEC	Hewchem	UOC	Union Oil Co. of California & Union Chemicals Div.
HES	Amerada Hess Corp. (Hess Oil Virgin Islands Corp.)	USI	National Distillers & Chemicals Corp., U.S. Industrial Chemicals Co.
HMY	Humphrey Chemical Co.		
HST	American Hoechst Corp., Petrochemical Div.	USS	USS Chemicals Div. of U.S. Steel Corp.
IRC	Independent Refinery Corp.		
JCC	Jefferson Chemical Co., Inc.		

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

STATISTICAL HIGHLIGHTS

Edmund Cappuccilli

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 1980 about 45 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 1980 amounted to 45,070 million pounds, a 9 percent decline from the 49,574 million pounds produced in 1979. Sales of cyclic intermediates in 1980 were 20,060 million pounds, valued at \$7,248 million, compared with 21,544 million pounds, valued at \$6,566 million in 1979.

Intermediates which were produced in excess of 2 billion pounds in 1980 were ethylbenzene (7,642 million pounds), styrene (6,856 million pounds), dimethyl terephthalate (6,054 million pounds), p-xylene (4,238 million pounds), cumene (3,459 million pounds), and phenol (2,568 million pounds). Other large-volume intermediates produced in 1980 were cyclohexane (1,964 million pounds), isocyanates (1,220 million pounds), o-xylene (995 million pounds), alkylbenzenes (896 million pounds), phthalic anhydride (818 million pounds), cyclohexanone (767 million pounds), aniline (659 million pounds), nitrobenzene (612 million pounds), bisphenol A (530 million pounds), monochlorobenzene (283 million pounds), and toluene-2,4-diamine (244 million pounds). The chemicals noted above accounted for 88 percent of the total output of intermediates in 1980.

III -- CYCLIC INTERMEDIATES

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1980

[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 manufacturers of each]

CYCLIC INTERMEDIATES	PRODUCTION		SALES	
	QUANTITY	VALUE	QUANTITY	UNIT VALUE ¹
	1,000 pounds	1,000 dollars	1,000 pounds	Per pound
Grand total-----	45,069,670	20,060,375	7,248,265	\$0.36
Acetoacetanilide-----	9,585	8,100	7,830	.97
o-Acetoacetanisidide-----	1,715	1,169	2,442	2.09
o-Acetoacetotoluidide-----	2,399	1,545	1,836	1.19
Acetophenone, tech-----	4,225	...	...	...
Alkylbenzenes ² -----	895,520	790,245	344,514	.44
p-[(p-Aminophenyl)azo]benzenesulfonic acid-----	192	...	...	...
Aniline (Aniline oil)-----	659,421	166,223	58,092	.35
Anilinomethanesulfonic acid and salt-----	202	...	...	...
Benzoic acid, tech-----	73,414	32,220	12,759	.40
2-Benzothiazolethiol, sodium salt-----	14,158	6,839	3,128	.46
Biphenyl-----	47,571	22,536	7,710	.34
p-tert-Butyltoluene-----	5,168	...	...	...
Chlorobenzene, mono-----	282,833	90,282	29,902	.33
4-Chloro-3-nitrobenzenesulfonamide-----	467	...	...	...
Cresols, total ³ -----	105,440	94,577	75,932	.88
o-Cresol-----	27,260	23,993	13,405	.56
All other ⁴ -----	78,180	70,584	62,527	.89
Cresylic acid, refined ³ -----	38,268	41,449	20,650	.50
Cumene-----	3,459,272	1,634,060	411,301	.25
Cyclohexane-----	1,963,743	1,845,776	451,298	.24
Cyclohexanone-----	766,815	38,497	18,869	.49
o-Dichlorobenzene-----	48,786	52,285	19,599	.37
p-Dichlorobenzene-----	75,054	72,312	27,874	.39
Dicyclopentadiene (includes cyclopentadiene)-----	67,890	66,424	10,006	.15
1,4-Dihydroxyanthraquinone (Quinizarin)-----	1,067	...	...	...
Ethylbenzene-----	7,642,124	281,154	64,259	.23
Hexamethylenimine-----	14,814	8,898	8,991	1.01
Isocyanic acid derivatives, total-----	1,219,947	1,008,546	744,014	.74
Polymethylene polyphenylisocyanate-----	511,144	410,413	280,699	.68
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)---	587,550	502,924	355,018	.71
Other isocyanic acid derivatives-----	121,253	95,209	108,297	1.14
4,4'-Isopropylidenediphenol (Bisphenol A)-----	529,687	130,468	61,975	.48
α-Methylstyrene-----	38,746	30,316	8,290	.27
o-Nitroaniline-----	10,614	...	...	...
p-Nitroaniline-----	14,428	...	...	...
Nitrobenzene-----	611,626	...	...	...
Nonylphenol-----	147,240	58,427	23,295	.40
Phenol, total ³ -----	2,567,510	1,297,113	391,452	.30
From cumene-----	2,432,656	...	...	...
All other-----	134,854	1,297,113	391,452	.30
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanol-amine)-----	299	257	202	.79
Phthalic anhydride-----	818,247	418,519	142,986	.34
Propiophenone-----	1,812	1,352	2,357	1.74
Salicylic acid, tech-----	39,048	...	...	...
Styrene-----	6,856,351	3,658,836	1,091,346	.30

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1980

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1980--CONTINUED

CYCLIC INTERMEDIATES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Terephthalic acid, dimethyl ester ⁵ -----	6,053,613	...	...	...
Toluene-2,4-diamine (4-m-Tolylenediamine)-----	243,753	...	...	...
o-Xylene-----	994,926	858,635	173,888	\$0.20
p-Xylene-----	4,237,583	2,785,773	741,677	.27
All other cyclic intermediates-----	4,504,097	4,557,542	2,289,801	.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 ovens 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,p)-cresol from petroleum and coal tar, m-cresol, and p-cresol.

⁵The figures for terephthalic acid, dimethyl ester (DMT) include 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 INTERMEDIATED FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980

[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-[(2-Acetamido-4-aminophenyl)zo]-1,5-naphthalenedi-sulfonic acid-	TRC.
2,2'-(5-Acetamido-2-methoxyphenyl)imino]diethanol	TCH.
3-Acetamido-N-(2-succinimidoethyl)-N-ethylaniline	EKT.
Acetanilide, tech.	SAL.
p-Acetanilide-	SDC.
*Acetoacetanilide-	BKM.
Acetic acid, phenyl ester-	BRD, EKT, HST.
*o-Acetoacetanilide	BRD, EKT, HST.
*o-Acetoacetotoluidide-	BRD, EKT, HST.
p-Acetoacetotoluidide-	HST.
2',4'-Acetoacetoxylidide	BRD, EKT.
Acetoacet-m-xylylidide	BRD, EKT.
1'-Acetonaphthone-	GIV.
*Acetophenone, tech.-	CLK, SKO, UCC.
p-Acetotoluidide	EK.
α-Acetylamino-p-toluenesulfonamide	SDM.
N-Acetylthranilic acid	SW.
p-Acetylbenzenesulfonamide	LIL.
p-Acetylbenzenesulfonic acid, sodium salt-	LIL.
p-Acetylbenzenesulfonylurethane-	LIL.
5-Acetyl-o-hydroxymethyl benzamide	SDM.
N-Acetylsulfanilyl chloride-	ACY.
2-Acetylthiophene-	PD.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ALKYLBENZENES:	
Alkylbenzene straight-chain (Except dodecyl and tri-decyl)	MON, WTC.
DODECYLBENZENE (INCLUDING TRIDECYLBENZENE):	
Dodecylbenzene, straight-chain	CO, MON, UCC, WTC.
Dodecylbenzene, other	CO, FER, MIL, SOC, WTC.
Alkylbenzene all other (Except dodecyl, tridecyl and straight-chain)	MON, PIC, WTC.
Alkylphenols, mixed	FER.
Alkylpyridines, mixed	RIL.
1-Amino-4-(4-acetaminoinilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid	VPC.
3'-Aminoacetanilide	AC, TRC.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	DUP, TRC.
3'-Amino-p-acetanilide	HST, SDC.
9-Aminoacridine	SDM.
5-Amino-2-(p-aminoanilino)benzenesulfonic acid	TRC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid	TRC.
3-Amino-p-anisilide	PCW.
1-Aminoanthraquinone and salt	ACY, TRC.
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9)	TRC.
p-Aminobenzamide	LEL, SDH.
1-Amino-4-benzamidoanthraquinone	ACY, TRC.
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid	TRC.
o-Aminobenzenethiol	FMT.
p-Aminobenzoic acid, tech.	LEL.
2-Amino-6-benzothiazolecarboxylic acid, monosodium salt	X.
2-Amino-6-benzothiazolesulfonic acid	DUP.
1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2-anthracene-sulfonic acid and sodium salt	TRC, VPC.
1-Amino-2-bromo-4-hydroxyanthraquinone	AC, DUP, VPC.
1-Amino-2-bromo-4-p-toluidinoanthraquinone	TRC.
2-Amino-1-chloroanthraquinone	EKT, VPC.
2-Amino-5-chlorobenzophenone	GNW.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-Amino-2-chloro-4-hydroxyanthraquinone	TRC.
3-Amino-6-chloropyridazine	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1]	ACY, BAS, DUP.
6-Amino-5-chloro-m-toluenesulfonic acid [SO ₃ H=1] (2B Acid)	ACY, DUP.
1-Aminocyclohexanecarboxylic acid, chloride	KF.
1-Amino-2,4-dibromoanthraquinone	DUP, TRC, VPC.
1-Amino-2,4-dichloroanthraquinone	TRC.
4-Amino-N,N-di(β-hydroxyethyl)aniline sulfate	WAY.
5-Amino-2,4-dimethylacetanilide	PD.
5-Amino-2,3-dimethylbenzenesulfethanamide	TRC.
3-Amino-9-ethylcarbazole	SDC.
4-Amino-N-ethyl-N-(β-methylsulfonamidoethyl)-m-toluidine phosphate	WAY.
4-Amino-3-hydroxy-1-naphthalenesulfonic acid	TRC.
6-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt	TRC.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid	TRC.
2-Amino-s-methoxybenzene-1-sulfonic acid	TRC.
4-Amino-5-methoxy-2-methylbenzenesulfonic acid	ATL, VPC, X.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid	AC, TRC.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid, sodium salt	DUP.
3-[(4-Amino-5-methoxy-o-tolyl)azo]-1,5-naphthalenedisulfonic acid	TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-naphthalenedisulfonic acid	TRC.
3-Amino-4-methylbenzamide	ARS.
2-Amino-4-methylbenzothiazole	LIL, MRT.
1-Amino-4-(4-methyleneaminomethyl)anilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid	VPC.
1-Amino-4-(4-methyleneaminomethyl-2-sulfoanilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid	VPC.
1-Amino-4-(3-and 4-methylenedimethylaminoanilino)-9,10-dihydro-9,10-dioxoanthracene-2-sulfonic acid	VPC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid	TRC.
2-Amino-6-methylpyridine	RIL.
2-Amino-4-(methylsulfonyl)phenol	TRC.
2-Amino-5-methyl-1,3,4-thiadiazole	ACY.
2-Amino-1,5-naphthalenedisulfonic acid	ACY.
3-Amino-1,5-naphthalenedisulfonic acid (C Acid)	TRC.
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)	AC, TRC.
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)	TRC.
2-Amino-1,5-naphthalenedisulfonic acid, sodium salt	X.
2-Amino-1-naphthalenedisulfonic acid (Tobias acid)	ACY, SM.
6-Amino-2-naphthalenedisulfonic acid (Broenner's acid)	AC, TRC.
1-Amino-5-naphthol	BUC.
5 (and 8)-Amino-2-naphthol	BUC.
8-Amino-2-naphthol	BUC, TRC.
6-Amino-1-naphthol-3-sulfonic acid, sodium salt (7-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt)	AC, TRC.
2-Amino-4-nitroacetanilide	SDC.
2-Amino-5-nitrobenzenesulfonic acid	TRC.
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	VPC.
2-Amino-5-nitrothiazole	AC, ATL.
3'-Amino-oxanilic acid	PCW.
4'-Amino-oxanilic acid	ATL.
3-Amino-2-oxazolidinone	ATL.
6-Aminopenicillanic acid	NOR.
o-Aminophenol	TRD, WYT.
p-Aminophenol	MAL, TRC.
m-[(p-Aminophenyl)azol]benzenesulfonic acid	EK, SCN.
*p-[(p-Aminophenyl)azol]benzenesulfonic acid	TRC.
7-[(4-Aminophenyl)azol]-1,3-naphthalenedisulfonic acid	ACY, TRC, VPC.
2,2'-(m-Aminophenylamino)diethanol, diacetate ester	TRC.
2-(p-Aminophenyl)-6-methyl-7-benzothiazoleedisulfonic acid	TRC.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt	ATL, DUP, TRC.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid	TRC.
m-Aminophenylphosphonic acid	ICI.
2-Aminopyridine	MEP, RIL.
3-Aminopyridine	RIL.
4-Aminopyridine	RIL.
3-Amino-p-toluamide	SDH.
α-Amino-p-toluenesulfonamide	SDM.
4-Amino-m-toluenesulfonic acid [SO ₃ H=1]	ACY, DUP.
6-Amino-m-toluenesulfonic acid [SO ₃ H=1]	DUP.
m-[(4-Amino-3-tolyl)azo]benzenesulfonic acid	TRC.
3-[(4-Amino-o-tolyl)azo]-1,5-naphthalenedisulfonic acid	TRC.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid	TRC.
3-(3-Amino-2,4,6-triiodophenyl)-2-ethylpropanoic acid	SDM.
*Aniline (Aniline oil)	ACY, DUP, FST, ICI, MAL, MOB, RUC, USR.
Aniline hydrochloride	ACY.
2-Anilinoethanol	EKT, MIL, TCH.
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid	TRC.
*Anilinomethanesulfonic acid and salt	ACY, ATL, TRC, VPC.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	EK.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid), potassium salt	SDC.
o-Anisidinomethanesulfonic acid	TRC.
Anisole, tech.	DUP.
9,10-Anthracenedicarboxaldehyde	EK.
Anthra[1,9]pyrazol-6(2H)-one (Pyrazoleanthrone)	SM, TRC.
Anthraquinone, 100%	TRC.
N,N'-(1,5-Anthraquinonylene)dianthranilic acid	TRC.
(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, di-sodium salt	TRC.
Benzaldehyde, tech.	HN, KLM, MNR.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid	TRC.
7H-Benz[de]lanthracen-7-one (Benzanthrone)	TRC.
Benzenesulfonic acid	EK.
Benzenesulfonic acid	UPF.
Benzenesulfonyl chloride	UPF, UPM, USR.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1,2,4-Benzenetricarboxylic acid 1,2-anhydride (Tri-		
mellitic anhydride)		AMO.
Benzhydrol (Diphenylmethanol)		PD.
Benzil		GHM, LEM.
Benzimidazole		EK.
*Benzoic acid, tech.		HH, KLM, PFZ, VEL.
Benzoin isobutyl ether		SFS.
Benzonitrile		BKM, SW.
Benzophenone		UPJ, UPM.
p-Benzoquinone		FKE.
*2-Benzothiazolethiol, sodium salt-		ACY, GYR, USR.
1H-Benzotriazole		FNT, SW.
2-Benzoxazolethiol		EK.
Benzoyl chloride		HK, VEL.
2-Benzoyl pyridine		GNM.
N-Benzylacetamide		SDM.
Benzylamine		ARS, HXL.
2-(Benzylamino)ethanol		HXL.
4-Benzyl-6-chloro-3-keto-2-methyl-7-sulfamyl-1,2,4-benzyl-4-		
thiadiazine-1,1-dioxide		ABB.
4-Benzyl-6-chloro-3-keto-7-sulfamyl-1,2,4-benzylthiadi-		
azine-1,1-dioxide		ABB.
Benzyl ether (Dibenzyl ether)		UPM.
3-(Benzylethylamino)acetanilide		EKT.
4,4'-Benzylidenedi-o-toluidine		ACY.
p-(Benzyl-oxy)phenol		FKE.
1-Benzyl-4-phenylisopiecotic acid, ethyl ester		SDM.
Benzyltrimethylammonium hydroxide		HXL.
Benzyltrimethylammonium methoxide		HXL.
[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'(2H,2'H)-dione		
(Pyrazoleanthrone Yellow)		
[4,4'-Bi-7H-benz[e]anthracene]-7,7'-dione		TRC.
*Biphenyl		ACY, TRC.
3'-[Bis(2'-acetoxyethyl)amino]-p-acetoanisidide		CHL, DOM, GOC, MON, SUN, TCC.
3-[N,N-Bis(2'-acetoxyethyl)amino-4-methoxyacetanilide		TCH.
N,N-Bis-(2'-acetoxyethyl)aniline		MIL.
		VPC.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Bis(p-aminocyclohexyl)methane	DUP, TRC.
1,5-Bis[1-anthraquinonylamino]anthraquinone	TRC.
1,4-Bis[1-anthraquinonylamino]anthraquinone and 1,4-bis-[5-chloro-1-anthraquinonylamino]anthraquinone (Mixed)	TRC.
2,6-Bis(p-azidobenzylidene)-4-methylcyclohexanone	X.
4,5'-Bis-benzoylamino-1,1'-anthrimid-2,2'-carbazole	VPC.
5,5'-Bis-benzoylamino-1,1'-anthrimid-2,2'-carbazole	VPC.
4,4'-Bis-benzoylamino-1,1'-anthrimid-2,2'-carbazole	VPC.
Bis(chlorosulfonyl)phthalocyaninedisulfonic acid, copper derivative	TRC.
4,4'-Bis(diethylamino)benzhydrol salt, 2,7-naphthalene disulfonic acid mixture	TRC.
4,4'-Bis(diethylamino)benzophenone (Ethyl ketone base)	X.
4-Bis[(p-diethylaminophenyl)methyl]-2,7-naphthalenedisulfonic acid, leuco form	TRC.
4,4'-Bis(dimethylamino)benzhydrol (Michler's hydrol)	X.
Bis(β-dimethylaminoethyl)phenylacetone	MYT.
1,5-Bis[2,4-dinitrophenoxy]-4,8-dinitroanthraquinone	VPC.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, diacetate ester	TCH.
4,4'-Bis[(p-hydroxyphenyl)azo]-2,2'-stilbenedisulfonic acid (C.I. Direct Yellow 4)	TRC.
1,2-Bis(tribromophenoxy)ethane	VEL.
p-Bromoaniline	EK.
3-Bromo-7H-benz[de]anthracen-7-one (3-Bromobenzanthrone)	ACY, TRC.
Bromobenzene, mono	GTL.
o-Bromobenzoic acid	PD.
2-Bromo-6-chloro-4-nitroaniline	HST.
2-Bromo-4,6-dinitroaniline	HST, SDC.
2-(2-Bromo-4,6-dinitrophenylazo)-5-diethylaminoacetanilide	TRC.
Bromoethylbenzene	RSA.
p-Bromofluorobenzene	OMC.
α-Bromo-p-nitrotoluene (p-Nitrobenzyl bromide)	SDM.
(p-Bromophenyl)acetone	SFS.
2-Bromopyridine	OMC, RIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-Bromotoluene		SFS.
2-Bromo-1,3,5-triethylbenzene		DUP.
p-Butylaniline		HDM, TNA.
2-tert-Butylanthraquinone		DUP.
p-tert-Butylbenzaldehyde		GIV.
n-Butylbenzene		PLC.
tert-Butylbenzene		PLC.
p-tert-Butylbenzoic acid		SHC.
o-(p-tert-Butylbenzoyl)benzoic acid		DUP.
2-tert-Butyl-p-cresol		ACY, KPT.
2'-tert-Butyl-4',6'-dimethylacetophenone		GIV.
2-tert-Butyl-4-ethylphenol		ACY.
tert-Butylhydroquinone		UPJ.
5-tert-Butylisophthalic acid		EKT.
2-tert-Butyl-5-methylanisole		GIV.
o-sec-Butylphenol		SCN, TNA.
o-tert-Butylphenol		TNA.
p-tert-Butylphenol		DOM, FER, SCN.
Butylphenols, mixed		FER, SCN, TNA.
*p-tert-Butyltoluene		GIV, SHC, SUN.
5-tert-Butyl-1,2,3-trimethylbenzene		GIV.
5-tert-Butyl-m-xylene		GIV, SUN.
6-tert-Butyl-2,4-xylene		PIT.
d-10-Camphorsulfonic acid		KF.
3'-Carboxy-2-chloro-4'-nitro-4-(trifluoromethyl)diphenyl ether		OMC.
3'-Carboxy-2-chloro-4'-nitro-4-(trifluoromethyl)diphenyl ether, sodium salt		OMC.
3-Carboxy-1,4-dimethylpyrrole-2-acetic acid		SDM.
2-Chloroacetamido-5-chlorobenzophenone		WYT.
2'-Chloroacetacetanilide		EKT, HST.
4'-Chloroacetophenone		LIL.
4'-(Chloroacetyl)acetanilide		DUP.
o-Chloroaniline		CWN, DUP.
m-Chloroaniline		DUP.
p-Chloroaniline		DUP, MON.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3-(o-Chloroanilino)propionitrile	DUP, TCH.
5-Chloro-o-anisidine [NH ₂ =1] (4-Chloro-o-anisidine [OCH ₃ =1])	ALL.
1-Chloroanthraquinone	TRC.
2-Chloroanthraquinone	ACY.
o-Chlorobenzaldehyde	SDH.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)	TRC.
*Chlorobenzene, mono-	DOM, MON, MTO, PPG, SCC.
p-Chlorobenzenesulfonic acid	UPF.
p-Chlorobenzenethiol	SFA.
o-Chlorobenzoyl chloride	PD.
7-Chloro-3-carboxylic acid-4-quinolinol	SDM.
Chloro(p-chlorophenyl)phenylmethane	OPC.
1-Chloro-1,4-dibutoxybenzene	ALL.
2-Chloro-1,4-diethoxybenzene	ALL.
1-Chloro-2,5-diethoxy-4-nitrobenzene	ALL.
7-Chloro-1,3-dihydro-3-hydroxy-5-phenyl-2H-1,4-benzodiazepin-2-one, acetate ester	MYT.
4'-Chloro-2',5'-dimethoxyacetanilide	HST, PCW.
4-Chloro-2,5-dimethoxyaniline	PCM.
5-Chloro-2,4-dimethoxyaniline	ALL.
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-Chloro-4,6-dinitrobenzenesulfonic acid	TRC.
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt	SDC.
3-Chlorodiphenylamine	SK.
Chlorodiphenylmethane	OPC.
N-(2-Chloroethyl)-N-ethylaniline	TCH.
4-Chloro-5'-ethyl-2'-hydroxybenzamide	LIL.
p-[(2-Chloroethyl)methylamino]benzaldehyde	DUP.
2-Chloroethyl-p-toluenesulfonic acid	TRC.
2-Chloro-4'-fluorobenzophenone	LIL.
p-(Chloromercuri)phenol	FKE.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Chloro-10-[3(4-methyl-1-piperazinyl)propyl]phenothiazine	SK.
ar-Chloromethylstyrene	DOM.
5-Chloro-2-(N-methyl)sulfamyl-4-sulfamyl-N-benzylaniline	ABB.
2-[(Chloromethyl)thiol]benzothiazole	BKM.
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)	DUP.
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)	VPC.
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	DUP, MON.
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)	SCC.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)	DUP, MON.
2-Chloro-5-nitrobenzenesulfonic acid	TRC.
*4-Chloro-3-nitrobenzenesulfonamide	AC, DUP, TRC.
2-Chloro-5-nitrobenzenesulfonic acid	TRC.
4-Chloro-3-nitrobenzenesulfonyl chloride	SDC.
2-Chloro-4-nitrobenzoic acid	SAL.
2-Chloro-5-nitrobenzoic acid	TRC.
2-Chloro-4-nitrobenzoic acid, potassium salt	SAL.
2-Chloro-5-nitrophenylmethyl sulfone	TRC.
4-Chloro-3-nitrophenylmethyl sulfone	TRC.
2-Chloro-4-nitrotoluene	DUP.
o-Chlorophenol	MON.
p-Chlorophenol	MON, RDA.
2-Chlorophenothiazine	SK.
4-Chloro- α -phenyl-o-cresol	MON.
o-Chlorophenylcyclopentyl ketone	PD.
(m-Chlorophenyl)diethanolamine	HST.
o-Chlorophenyl-1-hydroxycyclopentyl-N-methylketamine	PD.
3-(o-Chlorophenyl)-5-methyl-4-isoxazole carboxylic acid chloride	ARS.
1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	TRC.
4-Chlorophthalic acid	AC, SW, TRC.
(3-Chloropropenyl)benzene	SDM.
1-(3-Chloropropyl)-4-methylpiperazine	SK.
2-Chloropyridine	OMC.
7-Chloro-4-quinolinol	PD, SDM.
2-[[4-(7-Chloro-4-quinolyl)-amino]pentyl]ethylamino]ethanol	SDM.

III -- CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Chlororesorcinol	AC, PCW.
o-Chlorotoluene	HK.
α-Chlorotoluene (Benzyl chloride)	MON, SFS.
3-Chloro-p-toluidine [NH ₂ =1]	DUP.
4-Chloro-o-toluidine [NH ₂ =1] and hydrochloride	PCW.
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one	TRC.
p-Chloro-α,α-trifluorotoluene	HK.
4-Chloro-3,5-xyleneol	FER.
Cholic acid	WIL.
Cinnamoyl chloride	EK.
Copper, [2,2',2'',2''']-[29H,31H-phthalacyaninopentapenta-	
kis(methylene)pentakis[1H-isoindole-1,3(2H)-dionato]]	X.
*CRESOLS:	
m-Cresol	KPT.
*O-CRESOL:	
o-Cresol, from coal tar	FER, KPT.
o-Cresol, from petroleum	DA, FER, GE, MER, SW.
p-Cresol	SM, UPM.
CRESOLS, MIXED:	
(M,P)-CRESOL:	
(m,p)-Cresol, from coal tar	FER, KPT.
(m,p)-Cresol, from petroleum	DA, FER, MER.
(O,M,P)-CRESOL:	
(o,m,p)-Cresol, from coal tar	KPT.
Cresols, mixed	PIT.
*CRESYLIC ACID, REFINED:	
Cresylic acid, refined from coal tar	FER, KPT.
Cresylic acid, refined from petroleum	DA, FER, MER, NPC.
*Cumene (isopropyl benzene)	AMO, ASH, CLK, GOC, GP, GRS, MON, SHC, SKO, SOC, SUN, TX, UCC.
p-Cumylphenol	X.
2-[p-(Cyanacetamido)phenyl]-6-methyl-7-benzothiazolesul-	
fonic acid	DUP.
N-[3-[2-(2-Cyanoethyl)ethylamino]phenyl]acetamide	SDC.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde	DUP.
N-Cyanoethyl-N-ethylaniline	HDW.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-(2-Cyanoethyl)methylamino]benzaldehyde	DUP.
N-Cyano-S-methyl-N-2-(4-methyl-5-imidazolyl)methylthio-ethylisothiourea	SK.
3-Cyanopyridine	RIL.
4-Cyanopyridine	RIL.
1,5,9-Cyclododecatriene (CDDT)	DUP.
* Cyclohexane	CSD, ENJ, GOC, GRS, PLC, PPR, SUN, SMC, TX, UOC.
Cyclohexanol	APF, DBC, DUP, MON.
* Cyclohexanone	APF, DBC, DUP, MON.
Cyclohexanone oxime	APF, CEL, CNP, DBC, DUP, MON, UCC.
Cyclohexene	CNP.
3-Cyclohexene-1-carboxaldehyde	PLC, USR.
4-Cyclohexene-1,2-dicarboximide	UCC.
4-Cyclohexene-1,2-dicarboxylic anhydride	SFC.
Cyclohexene oxide	DKA.
8-(1-Cyclohexenyl)ethylamine	USR.
Cyclohexylamine	HXL.
N-Cyclohexyltaurine, sodium salt	ABB, RBC, VGC.
cyclooctadiene	GAF.
(2-Cyclopenten-1-yl)-2-propanone	DUP.
2-(N-Cyclopropylmethyl-N-phthalimidoacetyl)-amino-5-chlorobenzophenone	LIL.
p-Cymene	PD.
Diacenaphtho[1,2-j:1',2'-l]fluoranthene	HPC.
3,5-Diacetamido-2,4,6-triiodobenzoic acid	SDC.
1,4-Diaminoanthraquinone	SDM.
1,5(and 1,8)-Diaminoanthraquinone	TRC.
2,6-Diaminoanthraquinone	SDC.
2,4-Diaminobenzenesulfonic acid [SO ₃ H=1]	TRC.
2,5-Diaminobenzenesulfonic acid [SO ₃ H=1]	DUP, TRC.
1,3-Diaminocyclohexane	TRC.
1,4-Diamino-2,3-dichloroanthraquinone	DUP.
1,4-Diamino-2,3-dicyanoanthraquinone	DUP.
1,4-Diamino-2,3-dihydroanthraquinone	DUP.
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	ACY, DUP, TRC.
	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracenedicarboximide	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone	VPC.
2,6-Diaminopyridine	RIL.
4,4'-Diamino-2,2'-stilbenedisulfonic acid	CGY, SDH, TRC.
3,5-Diamino-2,4,6-triiodobenzoic acid	SDM.
2,5-Dianilino-3,6-dihydroterephthalic acid, dimethyl ester	VPC.
2,5-Dianilino-terephthalic acid	EKT, VPC.
2-Diazo-1-naphthol-5-sulfonic acid, sodium salt	HST.
4,5'-Dibenzamido-1,1'-iminodianthraquinone	ACY, TRC.
Dibenzo(b,def)chrysene-7,14-dione	TRC.
1,5-Dibenzoylnaphthalene	TRC, VPC.
N,N'-Dibenzylethylenediamine	WYT.
N,N'-Dibenzylmethylenediamine diacetate	WYT.
N,N'-Dibenzylidenetoluene- α,α -diamine	SDH.
4,10-Dibromo-anthrantrone	VPC.
3,9-Dibromo-7H-benz[de]lanthracen-7-one	TRC.
4,4'-Dibromobiphenyl	EK.
2,6-Dibromo-4-nitroaniline	HST, SDC.
3,5-Dibromo-3'-trifluoromethylsilylalanilide (Fluorophene)	PCW.
p-Dibutoxybenzene (DBB)	ALL.
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate salt (DBB Sulfate)	ALL.
2,6-Di-tert-butyl-o-dimethylamino-p-cresol	TNA.
2,6-Di-tert-butyl-4-nonylphenol	GAF.
2,4-Di-tert-butylphenol	FER, PIT, TNA.
2,6-Di-sec-butylphenol	TNA.
3,4-Dichloroaniline	DUP, MON.
1,5-Dichloroanthraquinone	TRC.
1,8-Dichloroanthraquinone	TRC.
2,6-Dichlorobenzaldehyde	DUP.
Dichlorobenzanthrone	ACY.
o(and p)-Dichlorobenzene	MTO.
*o-Dichlorobenzene	DOM, MON, PPG, SCC, SOI.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*p-Dichlorobenzene	DOM, MON, PPG, SCC, SOI.
4,6-Dichloro-m-benzenedisulfonamide	ABB.
3,3'-Dichlorobenzidine base and salts	CMH, X.
4,4'-Dichlorobenzil	MTO.
Dichlorobenzyl chloride	SFS.
7,16-Dichloro-6,15-dihydro-5,9,14,18-anthrazinetetrone	TRC.
Dichlorodiphenylsilane	DCC.
cis (and trans)-3-(2,2-Dichloroethenyl)-2,2-dimethylcyclo-	
propanecarboxylic acid, methyl ester	X.
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-	
sulfonic acid	TRC.
Dichloromethylphenylsilane	DCC.
2,6-Dichloro-4-nitroaniline	CMH.
1,2-Dichloro-4-nitrobenzene	DUP, MON.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	DUP, PCW.
2,4-Dichlorophenol	DOM, MON, RDA.
2,6-Dichloropyrazine	ACY.
3,6-Dichloropyridazine	ACY.
4,7-Dichloroquinoline	SDW, X.
2,5-Dichlorosulfanilic acid [SO ₃ H=1]	TRC, VPC.
2,5-Dichloro-4-sulfobenzenediazonium sulfate	TRC.
p,c-Dichlorotoluene	HK.
o,c-Dichlorotoluene (Benzal chloride)	SFS.
Dichlorohexylamine	ABB, VGC.
*Dicyclopentadiene (includes Cyclopentadiene)	CO, CXI, DOM, ENJ, GOC, MON, VEL.
Dicyclopentadiene diepoxide	X.
Dicyclopentadiene dioxide	VEL.
Didecylbenzene	CO.
p-Diethoxybenzene	ALL.
p-(Diethylamino)benzaldehyde	ATL, DUP, TRC.
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide	PD.
2[4-Diethylamino-2-hydroxybenzylbenzoic acid]	X.
7-Diethylamino-4-methylcoumarin, crude	PCM.
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)	ACY, X.
N-[3(diethylamino)phenyl]acetamide	TRC.
3-[(4'-N,N-Diethylamino)phenylazo]-1H-1,2,4-triazole	TRC.

III --CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-(Diethylamino)-o-tolualdehyde	DUP.
N,N-Diethylaniline	ACY, BCC.
2,6-Diethylaniline	TNA.
N,N-Diethyl-m-anisidine	DUP.
Diethylbenzene	DOM.
N,N-Diethylcyclohexylamine	DUP.
N,N-Diethyl-4-methoxymetanilamide	PCW.
N,N-Diethyl-m-phenetidine	TRC.
N,N-Diethyl-m-toluidine	DUP.
N,N-Diethyl-p-toluidine	RSA.
6,11-Dihydrodibenz(b,e)oxepin-11-one	PFZ, SK.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid-	TRC.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid,	
disodium salt	TRC.
9,10-Dihydro-9,10-dioxo-1,8-anthracenedisulfonic acid,	
Potassium salt	TRC.
9,10-Dihydro-9,10-dioxo-1,5(and 1,8)-anthracenedisul-	
fonic acid and salt	TRC.
9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and	
salt	ACY, TRC.
Dihydrophenylglycine dane salt	SK.
1,2-Dihydro-2,4,7-tetramethylquinoline	EKT.
*1,4-Dihydroxyanthraquinone	AC, ACY, DUP, EKT, HSH, TRC.
1,5(and 1,8)-Dihydroxyanthraquinone	TRC.
1,8-Dihydroxyanthraquinone	TRC.
2,5-Dihydroxy-p-benzenedisulfonic acid, dipotassium salt	EK.
2,4-Dihydroxybenzophenone	ACY.
1,5-Dihydroxy-4,8-dinitroanthraquinone	TRC, VPC.
1,8-Dihydroxy-4,5-dinitroanthraquinone	EKT, VPC.
N,N-Di(β-hydroxyethyl)-m-chloroaniline	MIL.
6,7-Dihydroxy-2-naphthalenesulfonic acid	WAY.
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-	TRC.
m-Diiodobenzene	EK.
Diisopropylbenzene	GP.
N,N-Diisopropyl-p-phenylenediamine	DUP.
2,5-Dimethoxyaniline	EKT.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1,5(and 1,8)-Dimethoxyanthraquinone	TRC.
2,5-Dimethoxybenzaldehyde	CMN, UPJ.
m-Dimethoxybenzene	ACY.
1,4-Dimethoxy-2-nitrobenzene	EKT.
2,5-Dimethoxytetrahydrofuran	HEX.
p-(Dimethylamino)benzaldehyde	ATL, DUP, EK, TRC, X.
m-(Dimethylamino)benzoic acid	X.
2-Dimethylaminomethyl-4-nitro-6-ethoxyphenol	ARA.
2-Dimethylaminomethyl-4-nitro-6-methoxyphenol	ARA.
1-(3-Dimethylaminopropylamino)-4-(4-methylanilino)-9,10-dioxoanthracene	VPC.
11-[3-(Dimethylamino)propyl]-11-hydroxydibenz(b,e)oxepin	PFZ, SK.
N,N-Dimethylaniline	ACY, BCC, TNA.
3,3'-Dimethylbenzidine hydrochloride	EK.
N,N-Dimethylbenzylamine	ARS, HXL, SM.
2,2'-Dimethyl-1,1'-bianthraquinone	TRC.
Dimethyl-1,4-cyclohexanedicarboxylic acid	EKT.
5,5-Dimethyl-1,3-cyclohexanedione	EKT.
N,N-Dimethylcyclohexylamine	ABB.
5,5-Dimethylhydantoin	GLY.
2,3-Dimethylindole	DUP.
2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride	TRC, WAY.
N,N-Dimethyl-1-naphthylamine	EK.
N,N-Dimethyl-p-nitrosoaniline	EK.
N-(2,6-Dimethylphenyl)-2-piperidine carboxamide	SDM.
1,4-Dimethylpiperazine	JCC, TX.
3,5-Dimethylpyrazole	UPJ.
N,N-Dimethyl-o-toluidine	RSB.
N,N-Dimethyl-p-toluidine	EK, RSA.
2,4-Dinitroacetanilide	SDC.
2,4-Dinitroaniline	HST, SDC.
1,5(and 1,8)-Dinitroanthraquinone	SDC, TRC.
m-Dinitrobenzene	DUP.
3,5-Dinitrobenzoic acid	SAL.
Dinitrocaryllphenol	RH.
4,4'-Dinitrodiphenyl ether	DUP.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2,4-Dinitrophenol, tech.	SDC, VPC.
3,5-Dinitrosalicylic acid	SAL.
4,4'-Dinitrostilbene-2,2'-disulfonic acid	CGY.
4,4-Dinitrostilbene-2,2'-disulfonic acid, sodium salt	X.
2,4-Dinitrotoluene	ACS, DUP, RUC, X.
2,4(and 2,6)-Dinitrotoluene	DUP, MOB.
3,5-Dinitro-p-toluenesulfonic acid	MON.
3,5-Dinitro-o-toluic acid	SAL.
Dinonylphenol	GAF, JCC, TX.
2,4-Di-tert-pentylphenol	PAS.
2-(2,4-Di-tert-pentylphenoxy)butyric acid	EK.
1,5-Diphenoxanthraquinone	VPC.
Diphenylamine	ACY, ORO, RUC, USR.
2,5-Diphenyl-p-benzoquinone	EK.
N,N'-Diphenylethylenediamine	RPC.
Diphenylmethane	UPM.
2,5-Diphenyloxazole	EK.
2,8-Diphenylthiazol[(5',4':7,8)anthra(2,1-d)thiazol-6,12-shinone	VPC.
1,3-Di-4-piperidylpropane	RIL.
4,4'-Dithiodianiline	ACY.
1,4-Di-p-toluidinoanthraquinone	TRC.
2,5-Di-p-toluidinoterephthalic acid	EKT.
Divinylbenzene	DOM, HST.
Dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenemethanol	HPC.
Dodecylaniline	MON.
p-Dodecylphenol	SFS.
Doxepin base	GAF, MCB, MON.
4(5)-Ethoxycarbonyl-5(4)-methylimidazole	SK.
Ethoxylated and propoxylated-m-toluidine	TCH.
6-(2-Ethoxy-1-naphthamido)penicillanic acid	MYT.
2-Ethoxy-1-naphthoic acid	MYT.
2-Ethoxy-1-naphthoyl chloride	OPC, WYT.
4-Ethoxy-o-phenylenediamine	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
N1-(6-Ethoxy-3-pyridazinyl)sulfanilamide	ACY.
3'-(Ethylamino)acetanilide	EKT.
N-Ethyl-N-(β-aminoethyl)-m-toluidine	X.
o-Ethylaniline	TNA.
N-Ethylaniline, refined	ACY, BCC, DUP.
2-(N-Ethylanilino)ethanol	DUP, MIL, TCH.
[2-(N-Ethylanilino)ethyl]trimethylammonium chloride	DUP.
3-(N-Ethylanilino)propionitrile	MIL, TCH.
α-(N-Ethylanilino)-m-toluenesulfonic acid	X.
α-(N-Ethylanilino)-p-toluenesulfonic acid	TRC.
*Ethylbenzene	AMO, ATR, CO, CSD, DOM, ELP, GOC, HST, KPT, MCB, MON, OCC, SOG, SUN, TOC.
Ethylbenzyl chloride	SFS.
d(-)Ethyl-3-(α-carboxybenzyl)amino crotonate, potassium salt	KF.
N-Ethyl-N-(2-chloroethyl)-3-toluidine	VPC.
2-(N-Ethyl-N,β-cyanoethyl)-4-acetaminoanisole	SDC, TCH, VPC.
N-Ethylcyclohexylamine (Herbicide intermediate)	ABB.
N-Ethyl-N-(2,3-dihydroxypropyl)-m-toluidine	EKT.
Ethylene-bis-tetrabromophthalimide	TNA.
3,3'-Ethylene-dioxydiphenol	MAY.
2-[N-Ethyl-p-[(6-methoxy-2-benzothiazoyl)azo]lanilino]ethanol	TRC.
dl-13B-Ethyl-3-methoxy-8,14-secogona-1,3,5(10),9(11)-tetraene-14,17-dione	MYT.
6-Ethyl-2-methylaniline	TNA.
N-Ethyl-N-(2-methylsulfonamidoethyl)-m-toluidine	X.
9-Ethyl-3-nitrocarbazole	SDC.
α-Ethyl-3-nitrocinnamic acid	SDM.
N-Ethyl-N-phenylbenzylamine	DUP, X.
N-Ethyl-N-(3'-sulfobenzyl)aniline	VPC.
Ethyl toluene	DOM.
N-Ethyl-m-toluidine	DUP.
3-(N-Ethyl-m-toluidino)propionitrile	MIL, TCH.
4-Fluoro-3-nitroaniline	OMC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
o-Fluoronitrobenzene	OMC.
o-Formylbenzenesulfonic acid, sodium salt	X.
1-Formylpiperidine	RIL.
Furan	GKO.
Furfuryl alcohol	GKO.
Furfurylamine	HXL.
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.
Hexahydro-1-methyl-4-phenyl-1H-azepine-4-carboxylic acid	WYT.
*Hexamethylenimine	CEL, CXI, DUP.
p-Hydrazinobenzenesulfonic acid	STG.
Hydroquinone, tech.	EKT, GYR.
4'-Hydroxyacetanilide	TRC.
3'-Hydroxyacetophenone	SDM.
p-Hydroxybenzaldehyde	DOM.
p-Hydroxybenzenesulfonic acid	FER, UPP.
p-Hydroxybenzoic acid	HN.
4-Hydroxycoumarin	SDM.
Hydroxycyclopentylphenylacetic acid	ARA.
3-[N-(2-Hydroxyethyl)anilino]propionitrile	MIL, TCH.
3-[N-(2-Hydroxyethyl)anilino]propionitrile acetate	MIL, TCH.
N-(2-Hydroxyethyl)-o-chloroaniline	EKT.
N-6-Hydroxyethyl-2,4-dihydroxybenzamide	PCM.
N-Hydroxyethylpyrrolidone (stripped)	GAF.
3-[N-(2-Hydroxyethyl)-m-toluidino]propionitrile	DUP.
6'-Hydroxy-5'-[(2-hydroxy-5-nitrophenyl)azo]-m-acetotoluidide	TRC.
7-Hydroxy-8-[[4'-(p-hydroxyphenyl)azo]-3,3'-dimethyl]-4-biphenylazo]-1,3-naphthalenedisulfonic acid	TRC.
4-Hydroxymetanilamide	DUP, TRC.
4-Hydroxymetanilic acid	TRC.
3-Hydroxy-2-methylcinchoninic acid	DUP, TRC.
4-Hydroxy-N'-methylmetanilamide	TRC.
4(5)-Hydroxymethyl-5(4)-methylimidazole hydrochloride	SK, X.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Hydroxy-7-methyl-1,8-naphthyridine-3-carboxylic acid, ethyl ester	X.
3-Hydroxy-N-(3-N-morpholino-7-propyl)-2-naphthimide	WAY.
7-Hydroxy-1,3-naphthalenedisulfonic acid	TRC.
3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt	ACY, TRC.
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt	ACY.
6-Hydroxy-2-naphthalenesulfonic acid, sodium salt	ACY, SDH, TRC.
8-Hydroxy-1-naphthalenesulfonic acid, 7-sultone	TRC.
3-Hydroxy-2-naphthoic acid (B.O.N.)	ACY, PCW.
3-Hydroxy-2-naphthoic acid, methyl ester	PCW.
2-Hydroxy-1,4-naphthoquinone	SAL.
N-(7-Hydroxy-1-naphthyl)acetamide	SAL.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-hydroxynaphthalene- 4-sulfonic acid	TRC.
2-Hydroxy-5-nitrometanic acid	TRC.
1-Hydroxy-6-octadecyloxy-2-naphthoic acid	TRC.
2-Hydroxy-4-n-octoxybenzophenone	ARA.
3-[(4-(4-Hydroxyphenylazo)-2,5-dimethoxyphenyl)azo]ben- zenesulfamic acid	CCM.
11 α -Hydroxyprogesterone	TRC.
1-Hydroxy-4-p-toluidinoanthraquinone	UPJ.
1,1'-Iminobis[4-aminoanthraquinone]	HSH, TRC.
1,1'-Iminobis[4-benzamidoanthraquinone]	ACY.
1,1'-Iminobis[4-nitroanthraquinone]	ACY.
Iminodanthraquinone (1,1'-Dianthrime)	ACY.
2-Indolecarboxylic acid	ACY.
Indole-2,3-dione	ARA.
Indole-2,4-dione	DUP.
2-Iodoacetamido-5-chlorobenzophenone	TRC.
p-Iodotoluene	WT.
Isatoic anhydride	EK.
Isobutylbenzene	SM.
*ISOCYANIC ACID DERIVATIVES:	PLC, TNA.
Bitoluene diisocyanate (TODI)	CMN.
Diphenylmethane-4,4'-diisocyanate (MDI)	MOB, UPJ.
Isocyanic acid, p-chlorophenyl ester	MOB.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1,1'-Methylenebis[4-isocyanatocyclohexane]	DUP.
Phenylisocyanate	MOB.
*Polymethylene polyphenylisocyanate	MOB, RUC, UPJ.
Toluene 2,4-diisocyanate	MOB, RUC, MOB.
*Toluene 2,4-and 2,6-diisocyanate (80/20 Mixture)	DUP, MOB.
Toluene 2,4-and 2,6-diisocyanate (65/35 Mixture)	ACS, BAS, DOM, DUP, MOB, OMC, RUC.
Toluene 2,4-and 2,6-diisocyanate (65/35 Mixture) and (80/20 Mixture)	DUP, MOB.
p-Toluenesulfonyl isocyanate	DUP.
Isocyanic acid derivatives, all other	CMN.
2-Isocyanatoacetanilide	DUP, MOB, UCC.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	TRC.
Isophthalic acid, diphenyl ester	AMO.
Isophthalonitrile	BVL.
Isophthaloyl chloride	SN.
N-Isopropylaniline	DUP.
Isopropylbiphenyl	USR.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene- α,α' -diol)	TCC.
*4,4'-Isopropylidenediphenol (Bisphenol A)	ARK.
4,4'-Isopropylidenediphenol, ethoxylated	DOM, GE, SHC, UCC, USS.
4,4'-Isopropylidenediphenol, propoxylated	ICI.
o-Isopropylphenol	ICI.
Isopropylphenol, mixed	FER, FMP, TNA.
Isothiocyanic acid, phenyl ester	FER.
Isocyananthrone (Isodibenzanthrone)	EK.
Leuco quinizarin (1,4,9,10-Anthratetrol)	TRC.
2,4-Lutidine	DUP, HSH, TRC.
3,5-Lutidine	KPT.
Mandelonitrile	RIL.
Melamine	KF.
p-Menta-1,4(8)-diene	ACY, MLC.
dl-p-Menta-1,8-diene (Limonene)	GIV.
p-Mentane-3-carboxylic acid	ARZ, NCI.
p-Menth-1-ene (Carvomenthene)	SDM.
1-Menthyl chloride	GIV.
Metanilic acid (m-Aminobenzenesulfonic acid)	SDM, TRC, USM.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Methoxyethylpiperidine	
N-(4-Methoxy-3-nitrophenyl)acetamide	RIL.
(p-Methoxyphenyl)acetic acid	SDC, VPC.
N-[4-[1-(2-Methoxyphenylamino)carbonyl]-2-oxopropylazo-phenyl]-4-[1[(2-methoxyphenylamino)carbonyl]-2-oxo-propylazo]benzamide]	HEX.
6-Methoxyquinoline	X.
Methylacetoacetic ester enamine of D-2-amino-2-(1,4-cyclohexadienyl)acetic acid, sodium salt	DUP.
1-(Methylamino)anthraquinone	TRD.
2-(N-Methylamino)ethanol	ACY.
3-(N-Methylamino)propionitrile	TCH.
5-Methyl-o-anisidinesulfonic acid	MIL, TCH.
m-Methylanisole	SW.
2-Methylanthraquinone	GIV.
3-Methylbenzof[quinoline]	ACY.
4-Methyl-2-benzothiazolamine	ACY.
2-Methylbenzothiazole	SDC.
4-Methylbenzothiazolone, hydrazone	FNT.
N-Methylbenzylamine	LIL.
5-(1-Methylbutyl)barbituric acid	HXL, SDM.
N-Methyl-N-carboxyanthranilic anhydride	BCC.
1-Methyl-4-(3-chloropropyl)piperazine hydrochloride	SK.
3-Methylcholanthrene	EK.
Methylcyclohexane	PLC.
N-Methylcyclohexylamine	ABB.
N-Methyldicyclohexylamine	ABB.
N-Methyl-2-dimethylaminopyrrole	SDM.
4-Methyl-2,6-dinitrophenol	SW.
4,4'-Methylenebis[N,N-dimethylaniline]	ACY, TRC.
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)	ACY, X.
4,4'-Methylenebis[3-hydroxy-2-naphthoic acid], disodium salt	EK.
4,4'-Methylenedianiline	ACS, DUP, RUC, USR.
1,2-Methylenedioxybenzene	CRZ.
1,2-Methylenedioxy-4-nitrobenzene	PD.

III -- CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
5,5'-Methylenedisalicylic acid	HN.
Methylhydroquinone	EKT.
(2,4-Methyl-5-imidazolyl)methylthioethylamine dihydrochloride	SK.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazole sulfonic acid	DUP.
N-Methyl-p-nitroaniline	ACY.
4-Methyl-2-nitroanisole	SW.
4-Methyl-3-nitrobenzoic acid, methyl ester	X.
2-Methyl-5-nitroimidazole	RDA.
5-Methyl-5-norbornene-2,3-dicarboxylic anhydride	BCC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide	VPC.
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	ACY, TRC.
3-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,5-naphthalenedisulfonic acid	TRC.
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO ₃ H=1]	TRC.
2-Methyl-5-phenylbenzoxazole	EK.
1-Methyl-4-phenylisonipecotic acid	MYT.
1-Methyl-4-phenylisonipecotic acid, ethyl ester	SDM.
4-Methylphthalic acid	EK.
4-Methylphthalic anhydride	EK.
3-(α-Methylpiperidino)propanol	LII.
3-Methyl-2-pyrazolin-5-one	DUP.
[(6-Methyl-2-pyridinyl)amino]methylenepropandioic acid, diethyl ester	X.
4-[(4-Methyl-2-pyrimidinyl)sulfamoyl]acetanilide	DUP.
N-Methylpyrrole-2-acetonitrile	SDM.
*α-Methylstyrene	CLK, GP, SKO, USS.
2-(Methylsulfonyl)-4-nitroaniline	TRC.
N-Methyl-N-[4-(1H-1,2,4-triazol-3-ylazo)phenyl]benzenethanamine	TRC.
1-Morpholino-2,5-dibutoxy-4-nitrobenzene	ALL.
1-Morpholino-2,5-diethoxy-4-nitrobenzene	ALL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NAPHTHALENE, SOLIDIFYING AT 79 C. OR ABOVE (REFINED FLAKE):		
Naphthalene, solidifying at 79° C. or above (Refined flake), from imported crude naphthalene		ASH.
2,7-Naphthalenedisulfonic acid		ACS, TRC.
1-Naphthalenesulfonic acid		TRC.
2-Naphthalenesulfonic acid		AC, ACY, SDC.
1-Naphthalenesulfonic acid, sodium salt		TRC.
1,4,5,8-Naphthalenetetracarboxylic acid		TRC.
Naphthalimide		SDC, VPC.
1-Naphthoic acid		GNM.
1-Naphthol (α -Naphthol)		UCC.
2-Naphthol, (8-Naphthol)		ACY.
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid		TRC.
1-Naphthylamine (α -Naphthylamine)		DUP.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine)		SDC.
Nicotinonitrile (3-Cyanopyridine)		NEP.
3'-Nitroacetanilide		EKT.
4'-Nitroacetanilide		TRC, VPC.
2'-Nitro-p-acetanisidide		DUP.
4'-Nitro-o-acetanisidide		DUP.
3'-Nitroacetophenone		SDH, SDM.
4'-Nitro-4-amino-3-methoxyazobenzene		SDC.
*o-Nitroaniline		DUP, MON, X.
*p-Nitroaniline		AC, DUP, MON.
2-Nitro-p-anisidine [NH ₂ =1]		DUP.
4-Nitro-o-anisidine [NH ₂ =1]		DUP.
5-Nitro-o-anisidine [NH ₂ =1]		SDH.
5-Nitroanthranilic acid		TRC.
1-Nitroanthraquinone		ACY, TRC.
m-Nitrobenzaldehyde		SDH.
4-Nitrobenzamide		X.
Nitrobenzene		ACY, DUP, FST, MOB, RUC.
m-Nitrobenzenesulfonic acid		TRC.
m-Nitrobenzenesulfonic acid, sodium salt		DUP, USM.
p-Nitrobenzenesulfonyl chloride		EK.
o-Nitrobenzoic acid		SAL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
m-Nitrobenzoic acid-	SAL, X.
p-Nitrobenzoic acid-	DUP.
m-Nitrobenzoic acid, sodium salt	SAL.
m-Nitrobenzoyl chloride-	SAL.
p-Nitro- <i>o</i> -bromotoluene	ARS.
2-Nitro- <i>p</i> -cresol	DUP.
4-Nitro- <i>m</i> -cresol	SW.
p-Nitro-N-(2-diethylamino)ethylbenzamide	MTP.
Nitrodiphenylamine	PD.
5-Nitro-2-furanmethanediol, diacetate-	ACY, MON.
5-Nitroisophthalic acid-	MOR.
3-Nitro-4-methoxyacetanilide	SAL, SDC.
1-Nitronaphthalene	TRC.
3-Nitro-1,5-naphthalenedisulfonic acid	DUP.
7 (and 8)-Nitronaphth[1,2-d] [1,2,3]oxadiazole-5-sul- fonic acid	TRC.
p-Nitrophenethyl alcohol	TRC.
o-Nitrophenol-	PCM.
p-Nitrophenol-	MON.
p-Nitrophenol, sodium salt	DUP, MON.
2-(<i>o</i> -Nitrophenylazo)-4,6-di- <i>tert</i> -pentylphenol (OH=1)	DUP.
4-Nitro- <i>o</i> -phenylenediamine	TRC.
5-Nitrosalicylaldehyde	FMT.
4-Nitrosodiphenylamine	EK.
4-Nitroso-N-ethyl-N-(β -methylsulfonamidoethyl)- <i>m</i> -tol- uidine	USR.
p-Nitrosophenol-	X.
4-Nitrosophenol, sodium salt	ACY, LC, SDC.
N-Nitroso-N-phenylhydroxylamine, ammonium salt	SDC.
4-Nitro-4'-(5-sulfo-2H-naphtho[1,2-d]triazol-2-yl)-2,2'- stilbenedisulfonic acid-	FKE.
3-Nitro- <i>p</i> -toluamide-	TRC.
o-Nitrotoluene	X.
m-Nitrotoluene	DUP, FST.
p-Nitrotoluene	DUP, FST.
Nitrotoluene mixtures-	DUP, FST.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
p-Nitrotoluene-o-sulfonic acid	AC, CGY, DUP, X.
3-Nitro-p-toluenesulfonic acid [SO ₃ H=1]	TRC.
5-Nitro-o-toluenesulfonic acid [SO ₃ H=1]	DUP.
5-Nitro-o-toluenesulfonyl chloride	CXI.
5-Nitro-o-toluidine [NH ₂ =1]	BUC, PCM.
2-Nitro-m-xylene	DUP.
4-Nitro-m-xylene	DUP.
Nonyl-dinonylphenol, mixture	USR.
*Nonylphenol	FER, GAF, JCC, KLM, MCB, MON, RH, SCN, TX.
Octylphenol	RH, SCN.
Octylphenoxydiethoxy chloride	RH.
α-Oximinopropiophenone	PD.
1-[(7-Oxo-7H-benz[e]anthracene-3-yl)amino]-anthraquinone	ACY, TRC.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester	VPC.
5-Oxo-1-(p-sulfofenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T)	STG.
4,4'-Oxydianiline	DUP, IEL, PD.
Pentabromochlorocyclohexane	DOW.
Pentabromoethylbenzene	TNA.
1,1,3,3,5-Pentamethylindan	GIV.
2-Pentylanthraquinone	DUP.
o-Pentylphenol (o-Amylphenol)	PAS.
p-tert-Pentylphenol	PAS.
3,4,9,10-Perylenetetra-carboxylic-3,4:9,10-dianhydride	VPC.
3,4,9,10-Perylenetetra-carboxylic-3,4:9,10-diimide	SDC, VPC.
Perylo[3,4-cd:9,10-c'd']dipyran-1,3,8,10-tetrone	SDC.
2-Phenethylamine (α-Phenethylamine)	HXL.
p-Phenetidine	MON.
*PHENOL:	
NATURAL:	
FROM COAL TAR:	
Phenol, natural, from coal tar, 39degree C., m.p.	FER.
Phenol, natural, from coal tar, all other	KPT.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*PHENOL--CONTINUED	
NATURAL--CONTINUED	
FROM PETROLEUM:	
Phenol, natural, from petroleum, all other	DA, FER, MER, NPC.
SYNTHETIC:	
BY CAUSTIC FUSION:	
Phenol, synthetic, by caustic fusion, U.S.P.	RCI.
Phenol, synthetic, by caustic fusion, all other	SM.
Phenol, synthetic, from chlorobenzene by vapor-phase hydrolysis, U.S.P.	GE.
*Phenol, synthetic, from cumene by oxidation, U.S.P.	AFP, CLK, DOW, GP, MON, SHC, SKO, SOC, UCC, USS.
Phenol, synthetic, all other	KLM.
Phenol, styrenate	MIL.
Phenolsulfonaphthalein, sodium salt	EK.
Phenolsulfonic acid, sodium salt	SAL.
3-Phenoxybenzaldehyde	HDM, TNA.
3-Phenoxybenzenemethanol	HDM.
2-(Phenoxyethyl)benzoic acid	PFZ.
2-(3)Phenoxyphenylpropionitrile	LIL.
Phenylacetic acid, ethyl ester, tech.	OPC.
Phenylacetic acid, methyl ester	OPC.
Phenylacetic acid, potassium salt	OPC, SFS.
Phenylacetone	OPC.
Phenylacetone trile (α-Tolunitrile)	OPC.
Phenylacetyl chloride	OPC.
2,2'-(Phenyl)aminoethanol, diacetic ester	TRC.
m-Phenylanthranilic acid	SDM.
p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydrochloride	TRC.
4-(Phenylazo)diphenylamine	EK.
2-Phenylbenzimidazole	SAL.
Phenyl-1,2,3-butanetriene-2-oxime	EK.
o-Phenylenediamine	DUP, EK, SM, TRC.
m-Phenylenediamine	DUP.
p-Phenylenediamine	DUP, SDC.
d-Phenylephrine	SDM.
dl-Phenylephrine base	SDM.
Phenyl ether (Diphenyl oxide)	DOM, MON.
dl-2-Phenylglycine (racemic)	KF.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
d(-)-2-Phenylglycine	KF.
Phenylglycine, potassium salt	BCC.
Phenylglycine, sodium salt	BCC, LIL.
d(-)-2-Phenylglycyl chloride hydrochloride	KF, UPJ.
*2,2'-(Phenyl)imino]diethanol (N-Phenyldiethanolamine)	EKT, MIL, TCH.
2,2'-(Phenyl)imino]diethanol, diacetate ester	SDC.
Phenylmalonic acid, diethyl ester	HEX.
3-Phenyl-5-methylisoxazole-4-carbonyl chloride	ARS.
Phenyl- α -naphthylamine	UCC.
o-Phenylphenol	DOW, RCI.
p-Phenylphenol	DOW.
o-Phenylphenol, sodium salt	DOW.
N-Phenyl-p-phenylenediamine	USR.
Phenylphosphinic acid	SFS.
Phenylphosphonothioic dichloride	SFA.
Phenylphosphorous dichloride	GAF, SFA.
1-Phenyl-1,2-propanedione, 2-oxime	EK, ORT.
Phenyl-2-propanone	ORT.
4-Phenylpropylpyridine	RIL.
1-Phenyl-3-pyrazolidinone	EK.
dl-Phenylsuccinic acid	PD.
4-Phenylsulfinyl-1,2-phenylenediacetamide	ARA.
4-Phenylsulfinyl-1,2-phenylenediamine	ARA.
4-Phenylthiomorpholine-1,1-dioxide	EKT.
Phenylundecanoic acid	EK.
1(2H)-Phthalazinone	X.
Phthalic acid	EK.
Phthalic acid, diallyl ester	TNA.
*phthalic anhydride	ACS, ACY, BAS, ENJ, HK, KPT, MON, SOC, STP, TNA, USS.
Phthalimide	SM.
Phthalimidoacetic acid	PD.
Phthalimidoacetyl chloride	PD.
[Phthalocyaninato(2-)]copper	DUP, PHC.
Phthalocyaninetetrasulfonyl chloride, copper derivative	DUP.
Phthaloyl chloride (Phthalyl chloride)	TLC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
PICOLINES:	
Picoline (3,4-mixture)	KPT, RIL.
2-Picoline (α -Picoline)	RIL.
3-Picoline (β -Picoline)	NEP, RIL.
4-Picoline (γ -Picoline)	RIL.
Picolinic acid	NEP.
Picolinonitrile (2-Cyanopyridine)	NEP.
3-Picolylamine	RIL.
Picric acid (2,4,6-Trinitrophenol)	SDC.
2-Pipecoline	LIL.
Piperazine mixture, crude	JCC, TX.
Piperidine	ABB, RIL.
3-Piperidinopropiophenone hydrochloride	ACY.
Polychlorobenzene	DOW.
Polyethylbenzene (80 percent diethylbenzene)	ELP.
*Propiophenone	HEX, ORT, UCC.
3-[N-(2-Propoxyethyl)anilinopropionitrile	MIL.
3-pyrazolidinone, 4,4-dimethyl-1-phenyl-	EK.
2 ^o Pyridine, refined	KPT, NEP, RIL.
Pyridine, refined all other grades	RIL.
Pyridine hydrochloride	EK.
3-Pyridinemethanol	RIL.
2 Pyridinethiol-1-oxide, sodium salt	OMC.
2 Pyridinethiol-1-oxide, zinc salt	OMC.
2-Pyrimidinol	CGY.
2-Pyrazolidinone	GAF, MAL.
Quinaldine	ACY.
Quinhydrone	EK.
QUINOLINE:	
Quinoline, 1 ^o and 2 ^o	KPT.
Resorcinol, tech.	KPT, LEM.
β -Resorcylic acid, lead salt	KPT.
Salicylaldehyde	DOW, RDA.
Salicylaldehyde oxime	EK.
Salicylanilide	PCM.
Salicylic acid, phenyl ester	DOW.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*Salicylic acid, tech.	DOM, HN, MON, SDH.
*Styrene (Vinylbenzene)	AMO, CSD, DOM, ELP, GOC, HST, KPP, MCB, MON, OCC, SHC, SUN, TX, USS.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	ACY, EK.
5-Sulfoisophthalic acid, 1,3-dimethyl ester, sodium salt	DUP.
5-Sulfoisophthalic acid, sodium salt	FCM.
4-Sulfoisophthalic acid	CMN.
*Terephthalic acid	AMO, HCF.
Terephthalic acid, dimethyl ester	DUP, EKT, HCF.
Terephthalic acid, diphenyl ester	BVL.
Terephthaloyl chloride	DUP, TLC.
Terephthaloyldiacetic acid, diethyl ester	FCM.
Terphenyl (Phenylbiphenyl) (m-, o-, and p-isomers)	MON.
Tetrabromophthalic anhydride	VEL.
1,2,4,5-Tetrachlorobenzene	DOM.
1,2,4,5-Tetrachloro-3-nitrobenzene	SDH.
Tetrachlorophthalic anhydride	MON.
2,3,5,6-Tetrachloropyridine	DOM.
Tetrahydrofuran	DUP, QKO.
Tetrahydrofurfuryl methacrylate	GAF.
1,2,3,4-Tetrahydro-6-methoxyquinoline	DUP.
1,2,3,4-Tetrahydronaphthalene	UCC.
1,2,3,4-Tetrahydro-2-naphthol	UCC.
1,2,3,4-Tetrahydro-2,2,4,7-tetramethylquinoline	EKT.
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	AC, TRC.
1,2,3,5-Tetramethylbenzene (Isodurene)	SUN.
1,2,4,5-Tetramethylbenzene (Durene)	SUN.
p-(1,1,3,3-Tetramethylbutyl)phenol	GAF.
Tetrazoethiol	HRT.
Tetrahydrofurfurylamine	HXL.
3,3'-Thiobis[7h-benz[de]anthracen-7-one]	TRC.
2-Thiophenecarboxaldehyde	EKT.
2-Thiophenecarboxylic acid	X.
Thiophenol	SFA.
s-Thymol	GIV.
Toluene-2,3-(and 3,4)-diamine (35/65 Mixture)	OMC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*Toluene-2,4-diamine (4-m-Tolylenediamine)	ACS, BAS, OMC, RUC, X.
Toluene-2,4-(and 2,6)-diamine (80/20 Mixture)	OMC.
Toluene-3,4-diamine	X.
p-Toluenesulfonic acid, sodium salt	NES.
p-Toluenesulfonic acid	SM, TEN, UPF.
p-Toluenesulfonic acid monohydrate	NES, UPF.
p-Toluenesulfonyl chloride	MON.
p-Toluenesulphonic acid, ethyl ester	FNT.
o-Toluidine	DUP.
m-Toluidine	DUP, FST.
p-Toluidine	DUP.
Toluidines, mixed	DUP.
o-Toluidinomethanesulfonic acid	DUP.
m-Toluidinomethanesulfonic acid	TRC.
2,2'-(m-Tolylimino)diethanol	ATL.
2,2'-(m-Tolylimino)diethanol, diacetate ester	MIL, TCH.
Tolyltriazole	SDC.
Triallyl trimellitate	SM.
2,4,6-Triamino-5-nitrosopyrimidine	FMP, TNA.
N,N,N-Tribenzylamine	SK.
2,4,6-Tribromophenol	HXL.
3,4',5-Tribromosalicylanilide	VEL.
1,2,3(and 1,2,4)-Trichlorobenzene	PCM.
1,2,4-Trichlorobenzene	PPG, SCC.
1,1,1-Trichloro-2,2-diphenylethane	DOM, SCC.
α,α,α-Trichloro-o-fluorotoluene	CWN.
3-Trichloro-methyl-1,2,4-thiadiazole	OMC.
1,2,4-Trichloro-5-nitrobenzene	OMC.
Trichlorophenylsilane	PCW.
α,α,α-Trichlorotoluene (Benzotrifluoride)	DCC.
α,α,α-Trifluoro-N-phenyl-m-toluidine	HK, SDH, VEL.
methyl)diphenylamine)	CGY, DGC, NIL.
α,α,α-Trifluoro-m-toluidine	SK.
2,4,3'-Trihydroxydiphenyl-	OMC.
	PCW, PIT.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Trimellitic anhydride, acid chloride	TLC.
Trimesic acid	AMB.
3,4,5-Trimethoxybenzaldehyde	MON.
1,2,3-Trimethylbenzene (Hemimellitine)	SUN.
1,2,4-Trimethylbenzene (Pseudocumene)	SUN.
2,3,3-Trimethyl-3H-indole	VPC.
1,3,3-Trimethyl- δ^2 , α -indolineacetaldehyde	ATL, DUP, TRC, VPC.
1,3,3-Trimethyl-2-methyleneindoline	DUP, VPC.
Trimethylphenylammonium chloride	TRC, X.
2,4,6-Trimethylpyridine	KPT.
Triphenylmethane	EK.
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)	DUP.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	GIV.
Vinylcyclohexane	DUP.
Vinylcyclohexene monoxide	UCC.
5-Vinyl-2-picoline (MVP)	PLC.
2-Vinylpyridine	RIL.
4-Vinylpyridine	RIL.
Vinyltoluene	DOM, UCC.
Violanthrone (Dibenzanthrone)	BCC.
*o-Xylene (90-100% of o-xylene isomer)	ATR, CO, CPI, ENJ, MON, PPR, PPX, SHC, SOC, SUN, TOC.
m-Xylene (90-100% of m-xylene isomer)	AMO, PLC.
*p-Xylene (90-100% of p-xylene isomer)	AMO, ATR, ENJ, HCR, PPX, SHC, SOC, STX, SUN, TOC.
2,4-Xylenesulfonic acid	UPF.
2,5-Xylenesulfonic acid	NES.
2,6-Xylenol	GE, KPT.
XYLENOLS:	
Xylenols, not classified as to boiling point	DA.
XYLIDINES:	
2,4-Xylidide (m-4-Xylidide)	DUP.
2,6-Xylidide	DUP.
Xylidide, original mixture	DUP.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Cyclic intermediates, all other	ABB, ACY, AID, ARA, ATL, BJJ, BRD, CHT, CLK, COS, CRZ, CMN, DUP, EK, EK, EKT, ESX, FER, FKE, GAF, GP, HCF, HEX, HK, HML, HST, HXL, ICI, KPT, LC, LIL, MIL, MOB, NEO, NEP, NES, OMC, OPC, PAC, PCW, PD, RII, RSA, SCC, SCM, SCN, SDC, SDW, SFS, SK, SOI, STC, SW, TCH, TIC, THA, TRC, TRN, UCC, UPJ, UPJ, UPJ, UPJ, UPM, VEL, VPC, VTC, WYT, X, X, X, X, X, X, X, X, X, X, X.

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1980

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of cyclic intermediates to the U.S. International Trade Commission for 1980 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	FMC	FMC Corp., Industrial Chemical Group
AC	American Color & Chemical Corp.	FMT	Fairmount Chemical Co., Inc.
ACS	Allied Chemical Corp., Chemical Co. Div.	FST	First Chemical Corp.
ACY	American Cyanamid Co.		
AFP	Allied Chemical Corp., Fibers & Plastics Co. Div.	GAF	GAF Group
ALD	Aldrich Chemical Co., Inc.	GE	General Electric Co., Plastics Business Operations
ALL	Alliance Chemical Corp.	GIV	Givaudan Corp.
AMB	American Bio-Synthetics Corp.	GLY	Glyco Chemicals, Inc.
AMD	Alameda Laboratories, Inc., Cyclo Chemical Co.	GNW	Greenwood Chemical Co.
AMO	Standard Oil Co. (Indiana)	GOC	Gulf Oil Corp., Gulf Oil Chemical Co.-U.S.
ARA	Araphahoe Chemicals, Inc., Sub/Syntex U.S.A., Inc.	GP	Georgia-Pacific Corp.: Houston Div. Plaquemine Div.
ARK	Armstrong World Industries, Inc.		
ARS	Arsynco, Inc.	GRS	Champlin Petroleum Co.
ARZ	Arizona Chemical Co.	GTL	Great Lakes Chemical Corp.
ASH	Ashland Oil, Inc.	GYR	Goodyear Tire & Rubber Co.
ATL	Atlantic Chemical Corp.		
ATR	Atlantic Richfield Co., Arco Chemical Co.	HCF	Hercofina
		HCR	Hercor Chemical Co.
BAS	BASF Wyandotte Corp. and Pigments Div.	HDW	Hardwicke Chemical Co.
BCC	Buffalo Color Corp.	HEX	Hexagon Laboratories, Inc.
BJL	Burdick & Jackson Laboratories, Inc.	HK	Hooker Chemical Corp.
BKM	Buckman Laboratories, Inc.	HML	Hummel Chemical Co.
BRD	Lonza, Inc.	HN	Tenneco Chemicals, Inc.
BUK	Synalloy Corp., Blackman-Uhler Chemicals Div.	HPC	Hercules, Inc.
		HSH	Harshaw Chemical Co.
CCW	Carstab Corp.	HST	American Hoechst Corp.: Industrial Chemicals Div. Petrochemicals Div.
CEL	Celanese Corp., Celanese Chemical Co.		
CGY	Ciba-Geigy Corp.	HXL	Hexcel Corp., Hexcel Chemical Products
CHL	Chemol, Inc.		
CHT	Chattem, Inc.	ICI	ICI Americas, Inc., Chemicals Specialties Co.
CLK	Clark Oil & Refining Corp.		
CNP	Nipro, Inc.	JCC	Jefferson Chemical Co., Inc.
CO	Conoco, Inc.		
CPI	Commonwealth Oil & Refining Co., Inc. Commonwealth Petrochemicals, Inc.	KF	Kay-Fries Inc., Member Dynamit Nobel Group
COS	Cosan Chemical Corp.	KLM	Kalama Chemical, Inc.
CRZ	Crown Zellenbach Corp., Chemical Products Div.	KPP	ARCO/Polymers, Inc.
CSD	Cosden Oil & Chemical Co.	KPT	Koppers Co., Inc., Organic Materials Group
CWN	Upjohn Co., Fine Chemical Div.		
CXI	Chemical Exchange Industries, Inc.	LAK	Bofors Lakeway, Inc.
		LC	Lord Corp., Hughson Chemicals Div.
DA	Diamond Shamrock Corp., D.S.C. Acquisition Co., Alabama Western Chemicals Div.	LEL	Leland Chemical Co.
DBC	Badische Co.	LEM	Napp Chemicals, Inc.
DCC	Dow Corning Corp.	LIL	Eli Lilly & Co., U.S. & Puerto Rico
DGC	Degussa Corp.		
DKA	Denka Chemical Corp.	MAL	Mallinckrodt, Inc.
DOW	Dow Chemical Co.	MCB	Borg-Warner Corp., Borg-Warner Chemicals
DUP	E. I. duPont de Nemours & Co., Inc.	MER	Merichem Co.
		MIL	Milliken & Co., Milliken Chemical Co.
EK	Eastman Kodak Co.:	MLC	Melamine Chemicals, Inc.
EKT	Tennessee Eastman Co. Div.	MNR	Monroe Chemical, Inc.
ELP	El Paso Products Co.	MOB	Mobay Chemical Co.
ENJ	Exxon Chemical Americas	MON	Monsanto Co.
ESX	Essex Chemical Corp.	MRT	Morton-Norwich Products, Inc., Morton Chemical Co. Div.
		MTO	Montrose Chemical Corp. of California
FER	Ferro Corp.:	MTP	Mount Pleasant Chemical Co.
	Ottawa Chemical Div.		
	Productol Chemical Div.	NCI	Union Camp Corp., Terpene and Aromatics Div.
FKE	Frank Enterprises, Inc.	NEO	Norda, Inc.

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
NEP	Nepera Chemical Co., Inc.	SK	SmithKline Corp., SmithKline Chemicals Div.
NES	Ruetgers Nease Chemical Co.	SKO	Getty Refining & Marketing Co.
NIL	Nilok Chemical, Inc.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
NOR	Morton-Norwich Products, Inc., Norwich Eaton	SOG	Charter International Oil Co.
NPC	Northwest Petrochemical Corp.	SOI	Specialty Organics, Inc.
OCC	Oxirane Corp. Sub. of Atlantic Richfield Co.	STC	American Hoechst Corp., Sou-Tex Works
OMC	Olin Corp.	STG	Stange Co.
OPC	Orbis Products Corp.	STP	Stepan Chemical Co.
ORO	Chevron Chemical Co.	STX	St. Croix Petrochemical Corp.
ORT	Roehr Chemicals, Inc.	SUN	Sun Company, Inc.
PAC	Pacific Anchor Chemical Corp.	SW	Sherwin-Williams Co.
PAS	Pennwalt Corp.	SWC	Corco Cyclohexane, Inc.
PCW	Pfister Chemical, Inc.	TCC	Sybron Corp., Chemical Division/Tanatex
PD	Warner-Lambert Co.	TCH	Emery Industries, Inc., Tylon Div.
PFZ	Pfizer, Inc., Pfizer Pharmaceuticals, Inc.	TEN	Cities Service Co., Copperhill Operations
PHC	Phthalchem, Inc.	TLC	Twin Lake Chemical, Inc.
PIT	Pitt-Consol Chemical Co.	TNA	Ethyl Corp.
PLC	Phillips Petroleum Co.	TOC	Tenneco Oil Co., P & M
PPG	PPG Industries, Inc.	TRC	Toms River Chemical Corp.
PPR	Phillips Puerto Rico Core, Inc.	TRD	Squibb Manufacturing, Inc., Renesa, Inc., Ersana, Inc.
PPX	Phillips Paraxylene, Inc.	TRN	Trinity Chemical Corp.
QKO	Quaker Oats Co.	TX	Texaco, Inc.
RBC	Fike Chemicals, Inc.	UCC	Union Carbide Corp.
RCI	Reichhold Chemicals, Inc.	UOC	Union Oil Co. of California
RDA	Rhone-Poulenc, Inc.	UPF	Jim Walker Resources, Inc.
RH	Rohm & Haas Co.	UPJ	Upjohn Co.
RIL	Reilly Tar & Chemical Corp.	UPM	UOP, Inc.
RPC	Millmaster Onyx Group, Refined Onyx Co. Div.	USM	Crown Mitro, Inc.
RSA	R.S.A. Corp.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
RUC	Rubicon Chemicals, Inc.	USS	USS Chemicals Div. of U.S. Steel Corp.
SAL	Salsbury Laboratories	VEL	Velsicol Chemical Corp.
SCC	Standard Chlorine of Delaware, Inc.	VGC	Virginia Chemicals, Inc.
SCM	SCM Corp., PCR Div.	VIK	Viking Chemical Co.
SCN	Schenectady Chemicals, Inc.	VPC	Mobay Chemical Corp., Dyestuff Div.
SDC	Martin-Marietta Corp., Sodyeco Div.	VTC	Verac Chemical Corp.
SDH	Hilton Davis Chemical Co. Div.	WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.
SDW	Sterling Organics Div.	WIL	American Can Co., Inolex Pharmaceutical Div.
SFA	Stauffer Chemical Co.:	WTC	Witco Chemical Corp.
SFC	Agricultural Div.	WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
SFS	Calhio Chemicals, Inc.		
SFS	Specialty Div.		
SHC	Shell Oil Co., Shell Chemical Co. Div.		

Note.--Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 197 reporting companies and company divisions for which permission to publish was not restricted.

SECTION IV -- DYES

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STATISTICAL HIGHLIGHTS

William Baker

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 fiber or fabrics; about one-sixth is used for coloring paper; and the rest is used chiefly in the production of organic pigments and in the dyeing of 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 1980 amounted to 245 million pounds, or 7.7 percent less than the 266 million pounds produced in 1979 (table 1). Sales of dyes in 1980 amounted to 227 million pounds, valued at \$791 million, compared with 241 million pounds, valued at \$797 million, in 1979. In terms of quantity, sales of dyes in 1980 were 5.8 percent less than in 1979 and in terms of value, 0.8 percent less. The average unit value of sales of all dyes in 1980 was \$3.48 per pound compared with \$3.30 per pound in 1979.

The production of two classes of dyes increased in 1980, while the remaining seven major classes registered slight to moderate declines in their production. Flourescent brightening agents increased by 12.7 percent from 33.7 million pounds in 1979 to 37.9 million in 1980; direct dyes increased by 9.2 percent from 28.6 million pounds in 1979 to 31.2 million pounds in 1980.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1980

[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	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE ¹
Grand total-----	245,348	227,488	790,664	\$3.48
ACID DYES				
Total-----	25,609	25,956	115,280	4.44
Acid yellow dyes, total-----	8,772	8,771	28,906	3.30
Acid Yellow 17-----	133	127	638	5.02
Acid Yellow 19-----	146	109	392	3.60
Acid Yellow 23-----	182	187	984	5.26
Acid Yellow 36-----	149	151	635	4.21
Acid Yellow 151-----	2,440	2,694	5,927	2.20
Acid Yellow 174-----	...	43	211	4.94
All other-----	5,722	5,460	20,119	3.68
Acid orange dyes, total-----	4,511	5,278	19,746	3.74
Acid Orange 7-----	252	258	802	3.11
Acid Orange 8-----	220	216	701	3.25
Acid Orange 10-----	134	147	527	3.59
Acid Orange 60-----	411	408	2,043	5.01
All other-----	3,494	4,249	15,673	3.69
Acid red dyes, total-----	3,840	3,516	20,985	5.97
Acid Red 1-----	203	185	696	3.76
Acid Red 4-----	22	24	128	5.34
Acid Red 57-----	147	133	838	6.30
Acid Red 73-----	101	102	574	5.65
Acid Red 88-----	46	47	232	4.95
Acid Red 114-----	...	199	1,029	5.17
Acid Red 137-----	121	132	968	7.35
Acid Red 151-----	224	217	791	3.64
Acid Red 182-----	144	185	844	4.55
Acid Red 266-----	492	366	1,769	4.84
Acid Red 337-----	935	896	6,109	6.82
All other-----	1,405	1,030	7,007	6.80
Acid violet dyes, total-----	137	146	936	6.42
Acid Violet 3-----	...	19	124	6.61
All other-----	137	127	812	6.38
Acid blue dyes, total-----	4,701	4,637	27,347	5.90
Acid Blue 40-----	1,135	1,063	5,872	5.52
All other-----	3,566	3,574	21,475	6.01
Acid green dyes-----	241	262	1,694	6.45
Acid brown dyes, total-----	954	938	4,406	4.70
Acid Brown 14-----	394	...	...	...
Acid Brown 98-----	...	143	611	4.28
All other-----	560	795	3,795	4.77
Acid black dyes, total-----	2,453	2,408	11,260	4.68
Acid Black 1-----	299	324	1,548	4.77
Acid Black 52-----	497	469	1,838	3.92
All other-----	1,657	1,615	7,874	4.88

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1980--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)				
Total-----	14,594	13,477	71,139	\$5.28
Basic yellow dyes, total-----	3,608	3,547	13,339	3.76
Basic Yellow 11-----	525	539	1,620	3.00
Basic Yellow 13-----	183	168	735	4.38
Basic Yellow 29-----	505	480	1,201	2.50
All other-----	2,395	2,360	9,783	4.15
Basic orange dyes, total-----	1,191	1,309	4,478	3.42
Basic Orange 1-----	283	363	690	1.90
Basic Orange 2-----	444	485	1,436	2.96
Basic Orange 21-----	...	368	1,691	4.59
All other-----	464	93	661	7.11
Basic red dyes, total-----	2,301	2,216	12,383	5.59
Basic Red 12-----	109	126	785	6.22
Basic Red 14-----	532	395	1,193	3.02
Basic Red 15-----	329	311	1,105	3.55
Basic Red 18-----	358	352	1,195	3.40
Basic Red 49-----	79	119	572	4.82
All other-----	894	913	7,533	8.25
Basic violet dyes, total-----	3,993	2,764	11,197	4.05
Basic Violet 1-----	2,131	1,432	3,585	2.50
Basic Violet 10-----	...	247	2,005	8.13
Basic Violet 16-----	313	239	1,226	5.13
All other-----	1,549	846	4,381	5.17
Basic blue dyes, total-----	2,522	2,680	20,073	7.49
Basic Blue 41-----	...	312	2,174	6.79
All other-----	2,522	2,368	17,899	7.56
Basic brown dyes, total-----	251	252	858	3.40
All other basic dyes-----	728	709	8,811	12.43
DIRECT DYES				
Total-----	31,217	29,802	83,298	2.80
Direct yellow dyes, total-----	13,945	13,120	29,263	2.23
Direct Yellow 4-----	1,002	893	2,094	2.35
Direct Yellow 6-----	...	314	782	2.49
Direct Yellow 11-----	4,973	4,986	4,483	0.90
Direct Yellow 12-----	...	13	107	8.23
Direct Yellow 28-----	...	37	259	6.96
Direct Yellow 44-----	...	122	492	4.04
Direct Yellow 106-----	323	337	1,219	3.61
Direct Yellow 127-----	310	371	1,458	3.93
Direct Yellow 147-----	3,156	2,730	5,108	1.87
All other-----	4,181	3,317	13,261	4.00
Direct orange dyes, total-----	1,308	1,216	4,603	3.79
Direct Orange 15-----	358	346	707	2.05
Direct Orange 39-----	135	128	464	3.62
Direct Orange 72-----	160	152	689	4.53
Direct Orange 102-----	420	386	1,613	4.18
All other-----	235	204	1,130	5.55
Direct red dyes, total-----	5,985	5,709	18,103	3.17
Direct Red 2-----	84	84	472	5.59

See footnotes at end of table

TABLE 1.--DYES U.S. PRODUCTIONS AND SALES, 1980--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
DIRECT DYES--Continued				
Direct red dyes--Continued				
Direct Red 23-----	77	79	442	\$5.60
Direct Red 24-----	130	152	841	5.53
Direct Red 72-----	290	337	1,737	5.15
Direct Red 80-----	433	412	2,075	5.04
Direct Red 81-----	1,920	1,806	3,823	2.12
Direct Red 83-----	106	125	526	4.21
Direct Red 236-----	941	691	2,052	2.97
All other-----	2,004	2,023	6,135	3.03
Direct violet dyes-----	243	228	849	3.72
Direct blue dyes, total-----	6,531	6,232	21,060	3.38
Direct Blue 1-----	115	118	460	3.88
Direct Blue 15-----	...	402	439	1.09
Direct Blue 80-----	311	282	1,028	3.65
Direct Blue 86-----	1,338	1,215	4,100	3.37
Direct Blue 120, 120:1, 120:2, and 120:3-----	93	82	598	7.31
Direct Blue 199-----	738	549	1,512	2.75
Direct Blue 218-----	806	740	2,952	3.99
All other-----	3,130	2,844	9,971	3.51
Direct green dyes-----	149	165	1,055	6.41
Direct brown dyes-----	288	262	1,393	5.31
Direct black dyes, total-----	2,768	2,870	6,972	2.43
Direct Black 22-----	1,419	1,389	1,901	1.37
All other-----	1,349	1,481	5,071	3.42
DISPERSE DYES				
Total-----	46,720	40,799	178,097	4.36
Disperse yellow dyes, total-----	5,417	5,308	19,925	3.75
Disperse Yellow 3-----	2,043	2,052	5,844	2.85
Disperse Yellow 23-----	296	377	1,115	2.95
Disperse Yellow 33-----	...	23	62	2.65
Disperse Yellow 42-----	541	563	1,992	3.54
Disperse Yellow 54-----	700	672	3,064	4.56
All other-----	1,837	1,621	7,848	4.84
Disperse orange dyes, total-----	5,163	4,422	13,257	3.00
Disperse Orange 3-----	...	60	215	3.55
Disperse Orange 25-----	469	464	1,265	2.73
Disperse Orange 29-----	...	857	2,257	2.63
Disperse Orange 44-----	...	260	1,296	4.98
All other-----	4,694	2,781	8,224	2.96
Disperse red dyes, total-----	10,633	9,064	47,694	5.26
Disperse Red 1-----	385	328	1,189	3.62
Disperse Red 17-----	223	227	764	3.36
Disperse Red 60-----	1,493	1,233	6,874	5.57
Disperse Red 65-----	200	216	761	3.51
Disperse Red 167-----	...	55	276	4.98
Disperse Red 177-----	786	594	2,419	4.08
Disperse Red 179-----	140	...	...	...
All other-----	7,406	6,411	35,411	5.52
Disperse violet dyes, total-----	928	645	3,210	4.97

See footnotes at end of table

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1980--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
DISPERSE DYES--Continued				
Disperse blue dyes, total-----	21,898	18,609	84,412	\$4.54
Disperse Blue 3-----	1,194	1,148	5,009	4.36
Disperse Blue 60-----	684	...	...	...
Disperse Blue 64-----	190	99	330	3.32
Disperse Blue 79-----	9,653	7,971	18,805	2.36
All other-----	10,177	9,391	60,268	6.42
Disperse black, brown, and green dyes, total-----	2,681	2,751	9,599	3.49
Disperse Brown 1-----	854	898	3,237	3.61
All other-----	1,827	1,853	6,362	3.43
FIBER-REACTIVE DYES				
Fiber-reactive dyes, total-----	5,731	5,484	35,994	6.56
Reactive yellow dyes-----	682	739	4,876	6.60
All other reactive dyes-----	5,049	4,745	31,118	6.56
FLUORESCENT BRIGHTENING AGENTS				
Fluorescent brightening agents, total-----	37,939	33,658	60,379	1.79
Fluorescent Brightening Agent 28-----	780	868	1,812	2.09
All other fluorescent brightening agents-----	37,159	32,790	58,567	1.79
FOOD, DRUG, AND COSMETIC COLORS				
Total-----	6,075	6,467	48,428	7.49
<i>Food, Drug, and Cosmetic Dyes</i>				
Total-----	5,648	6,040	41,399	6.85
FD&C Blue No. 1-----	133	...	...	...
FD&C Blue No. 2-----	92	...	...	...
FD&C Red No. 3-----	555	559	6,195	11.09
FD&C Red No. 40-----	2,121	2,162	16,296	7.54
FD&C Yellow No. 5-----	1,527	1,676	8,380	5.00
FD&C Yellow No. 6-----	1,206	1,220	5,575	4.57
All other food, drug and cosmetic dyes-----	14	423	4,953	11.71
<i>Drug and Cosmetic and External Drug and Cosmetic Dyes</i>				
Total-----	427	427	7,029	16.47
D&C Red No. 7-----	106	...	...	...
D&C Red No. 19-----	16	15	196	13.08
D&C Red No. 36-----	7	5	41	7.50
All other drug and cosmetic and external drug and cosmetic dyes-----	298	407	6,792	16.69
MORDANT DYES				
Total-----	410	339	1,874	5.53
SOLVENT DYES				
Total-----	10,624	7,432	28,889	3.89
Solvent yellow dyes, total-----	1,285	986	5,581	5.66
Solvent Yellow 14-----	117	136	532	3.89
All other-----	1,168	850	5,049	5.94

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1980--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT ¹ VALUE
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
SOLVENT DYES--Continued				
Solvent orange dyes-----	670	610	2,158	\$ 3.54
Solvent blue dyes-----	3,429	950	5,415	5.70
All other solvent dyes-----	5,240	4,886	15,735	3.22
VAT DYES				
Total-----	40,230	40,525	120,391	2.97
Vat yellow dyes-----	1,256	1,340	5,325	3.97
Vat orange dyes, total-----	502	750	6,498	8.66
Vat Orange 2, 12%-----	48	106	724	6.83
Vat Orange 15, 10%-----	...	72	468	6.49
All other-----	454	572	5,306	9.28
Vat red dyes-----	599	518	6,714	12.96
Vat violet dyes-----	687	613	3,149	5.14
Vat blue dyes-----	30,491	30,324	66,148	2.18
Vat green dyes-----	1,918	2,082	5,645	2.71
Vat brown dyes, total-----	2,719	3,085	17,828	5.78
Vat Brown 3, 11%-----	165	180	1,528	8.49
All other-----	2,554	2,905	16,300	5.61
Vat black dyes-----	2,058	1,813	9,084	5.01
All other dyes ² -----	26,199	23,549	46,895	1.99

¹Calculated from unrounded figures.²The data include azoic compositions, azoic coupling components, azoic diazo components (bases and salts), oxidation bases, 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 1A.--DYES: U.S. PRODUCTION AND SALES, BY CLASS OF APPLICATION, 1980

CLASS OF APPLICATION	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT ¹ VALUE
	1,000 pounds	1,000 pounds	1,000 dollars	per pound
Total-----	245,348	227,488	790,664	\$3.48
Acid-----	25,609	25,956	115,280	4.44
Basic (Classical and modified)-----	14,594	13,477	71,139	5.28
Direct-----	31,217	29,802	83,298	2.80
Disperse-----	46,720	40,799	178,097	4.36
Fiber-reactive-----	5,731	5,484	35,994	6.56
Fluorescent brightening agents-----	37,939	33,658	60,379	1.79
Food, drug, and cosmetic colors-----	6,075	6,467	48,428	7.49
Mordant-----	410	339	1,874	5.53
Solvent-----	10,624	7,432	28,889	3.89
Vat-----	40,230	40,525	120,391	2.97
All other ² -----	26,199	23,549	46,895	1.99

¹Calculated from unrounded figures.²The data include azoic compositions, azoic coupling components, azoic diazo components (bases and salts), oxidation bases, sulfur dyes, and miscellaneous dyes. Statistics for those groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980

[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 14	- - - - -	TRC.
*Acid Yellow 17	- - - - -	AC, ATL, CK, SDH, TRC.
*Acid Yellow 19	- - - - -	AC, ATL, CK, ICI.
*Acid Yellow 23	- - - - -	AC, ACY, BAS, BCC, CK, LVR, MRX, SDH, TRC, WJ.
Acid Yellow 29	- - - - -	TRC.
Acid Yellow 34	- - - - -	ATL.
*Acid Yellow 36	- - - - -	AC, ATL, DUP, TRC.
Acid Yellow 40	- - - - -	TRC.
Acid Yellow 42	- - - - -	AC, ACY.
Acid Yellow 49	- - - - -	ATL, CK, DUP, PDC, VPC.
Acid Yellow 54	- - - - -	AC, TRC.
Acid Yellow 59	- - - - -	BAS, VPC.
Acid Yellow 63	- - - - -	AC.
Acid Yellow 65	- - - - -	ATL, TRC.
Acid Yellow 73	- - - - -	SDH.
Acid Yellow 79	- - - - -	VPC.
Acid Yellow 99	- - - - -	TRC.
Acid Yellow 114	- - - - -	TRC.
Acid Yellow 127	- - - - -	TRC.
Acid Yellow 128	- - - - -	TRC.
Acid Yellow 129	- - - - -	TRC.
Acid Yellow 135	- - - - -	ICI.
*Acid Yellow 151	- - - - -	CK, DUP, TRC, VPC.
Acid Yellow 159	- - - - -	CK, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID YELLOW DYES--CONTINUED	
Acid Yellow 169-	TRC.
*Acid Yellow 174-	AC, DUP, PDC, VPC.
Acid Yellow 198-	DUP.
Acid Yellow 199-	ICI.
Acid Yellow 200-	CK, DUP.
Acid Yellow 216-	VPC.
Acid Yellow 219-	CK, TRC.
Acid Yellow 221-	BAS.
Acid yellow dyes, all other-	AC, ATL, CK, DGO, VPC.
*ACID ORANGE DYES:	
Acid Orange 5-	ACY.
*Acid Orange 7-	AC, ACY, ATL, BAS, TRC, VPC.
*Acid Orange 8-	AC, ACY, ATL, CK, TRC, VPC.
*Acid Orange 10-	AC, ACY, ATL, BAS, PDC, TRC.
Acid Orange 12-	PSC.
Acid Orange 24-	ACY, CK, TRC.
Acid Orange 47-	TRC.
Acid Orange 51-	TRC.
*Acid Orange 60-	AC, CK, DUP, TRC, VPC.
Acid Orange 64-	DUP.
Acid Orange 69-	ACY, ATL.
Acid Orange 74-	TRC.
Acid Orange 86-	TRC.
Acid Orange 116-	AC, CK.
Acid Orange 128-	CK, DUP, PDC.
Acid Orange 152-	CK, DUP.
Acid Orange 156-	CK, TRC.
Acid orange dyes, all other-	ATL, CK, TRC.
*ACID RED DYES:	
*Acid Red 1-	AC, ACY, ATL, BAS, CK, DUP, TRC.
*Acid Red 4-	AC, PDC, TRC.
Acid Red 14-	ATL, BAS.
Acid Red 18-	ATL.
Acid Red 26-	ACY.
Acid Red 27-	SDH.
Acid Red 37-	AC, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID RED DYES--CONTINUED	
*Acid Red 57-	: ATL, CK, ICI, TRC.
*Acid Red 73-	: ACY, ATL, BAS, PSC, TRC.
Acid Red 85-	: FAB.
Acid Red 87-	: SDH.
*Acid Red 88-	: ATL, BAS, PDC, TRC.
Acid Red 97-	: ATL.
Acid Red 100-	: FAB.
*Acid Red 114-	: AC, CK, TRC.
Acid Red 115-	: ATL.
Acid Red 119-	: CK.
Acid Red 134-	: TRC.
*Acid Red 137-	: ATL, BAS, DUP, TRC, VPC.
*Acid Red 151-	: AC, ACY, ATL, CK, DUP, TRC.
Acid Red 167-	: TRC.
Acid Red 174-	: AC.
*Acid Red 182-	: AC, CK, DUP, VPC.
Acid Red 186-	: AC.
Acid Red 194-	: TRC.
Acid Red 213-	: TRC.
Acid Red 226-	: BAS.
Acid Red 257-	: TRC.
*Acid Red 266-	: ATL, CK, ICI, TRC, VPC.
Acid Red 278-	: VPC.
Acid Red 299-	: AC, CK.
*Acid Red 337-	: ATL, CK, DUP, TRC, VPC.
Acid Red 350-	: VPC.
Acid Red 361-	: TRC.
Acid Red 364-	: CK, DUP.
Acid Red 384-	: DUP.
Acid Red 388-	: DUP.
Acid Red 392-	: VPC.
Acid Red 396-	: ICI.
Acid Red 408-	: AC.
Acid red dyes, all other	: AC, ATL, CK, DUP, TRC.
*ACID VIOLET DYES:	
*Acid Violet 3-	: ACY, ATL, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID VIOLET DYES--CONTINUED	
Acid Violet 7-	ATL.
Acid Violet 12	AC, ATL.
Acid Violet 17	SDH.
Acid Violet 43	HSH.
Acid Violet 49	SDH, TRC.
*ACID BLUE DYES:	
Acid Blue 7-	SDH.
Acid Blue 9-	BAS, SDH, WJ.
Acid Blue 15	BAS.
Acid Blue 25	ATL, TRC, VPC.
Acid Blue 27	ATL.
Acid Blue 29	PDC.
Acid Blue 40	ATL, CK, DUP, ICI, TRC, VPC.
Acid Blue 41	ATL.
Acid Blue 45	TRC.
Acid Blue 58	DUP.
Acid Blue 62	CK.
Acid Blue 78	TRC.
Acid Blue 80	TRC.
Acid Blue 92	ATL, FAB.
Acid Blue 113-	AC, CK, FAB.
Acid Blue 118-	AC.
Acid Blue 145-	ATL.
Acid Blue 158, 158:1, and 158:2-	AC, TRC.
Acid Blue 231-	CK.
Acid Blue 277-	TRC.
Acid Blue 298-	CK, DUP.
Acid blue dyes, all other-	AC, ATL, CK, TRC, VPC.
*ACID GREEN DYES:	
Acid Green 1	ACY, LVR.
Acid Green 3	TRC.
Acid Green 5	WJ.
Acid Green 16-	TRC.
Acid Green 20-	ATL, PDC.
Acid Green 25-	HSH, TRC.
Acid Green 35-	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID GREEN DYES--CONTINUED	
Acid Green 70	TRC.
*ACID BROWN DYES:	
*Acid Brown 14	ACY, ATL, CK, TRC.
Acid Brown 19	FAB, TRC.
Acid Brown 24	FAB.
Acid Brown 28	TRC.
Acid Brown 45	TRC.
Acid Brown 96	ACY.
Acid Brown 97	ACY, ATL, PDC.
*Acid Brown 98	ACY, ATL, CK, TRC.
Acid Brown 147	TRC.
Acid Brown 158	BAS.
Acid Brown 161	BAS.
Acid Brown 223	VPC.
Acid Brown 239	TRC.
Acid brown dyes, all other	ACY, CK, VPC.
*ACID BLACK DYES:	
*Acid Black 1	AC, ACY, ATL, BAS, CK, FAB, PDC, TRC.
Acid Black 2	ACY.
Acid Black 24	AC.
Acid Black 29	ATL.
Acid Black 41	PDC.
*Acid Black 52	AC, CK, FAB, TRC.
Acid Black 58	TRC.
Acid Black 60	TRC.
Acid Black 63	BAS.
Acid Black 92	ACY.
Acid Black 107	CK, TRC, VPC.
Acid Black 172	TRC, VPC.
Acid Black 194	BAS.
Acid black dyes, all other	CK, TRC, VPC.
AZOIC DYES AND COMPONENTS	
AZOIC COMPOSITIONS:	
AZOIC YELLOW COMPOSITIONS:	
Azoic Yellow 1	BUC.
Azoic Yellow 2	ALL.

TABLE 2.--DYES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AZOIC DYES AND COMPONENTS--CONTINUED	
AZOIC COMPOSITIONS--CONTINUED	
AZOIC ORANGE COMPOSITIONS:	
Azoic Orange 3	ALL, BUC.
AZOIC RED COMPOSITIONS:	
Azoic Red 1	ALL, BUC.
Azoic Red 2	BUC.
Azoic Red 6	ALL, BUC.
Azoic red compositions, all other	ALL, BUC.
AZOIC VIOLET COMPOSITIONS:	
Azoic violet 1	BUC.
Azoic violet compositions, all other	ALL, BUC.
AZOIC BLUE COMPOSITIONS:	
Azoic Blue 3	ALL, BUC.
AZOIC BROWN COMPOSITIONS:	
Azoic Brown 7	BUC.
Azoic Brown 9	ALL, BUC.
Azoic brown compositions, all other	BUC.
AZOIC BLACK COMPOSITIONS:	
Azoic Black 4	BUC.
AZOIC DIAZO COMPONENTS, BASES:	
Azoic Diazo Component 4, base	ALL, BUC.
Azoic Diazo Component 12, base	BUC.
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 6, salt	ALL, BUC.
Azoic Diazo Component 8, salt	ALL, BUC.
Azoic Diazo Component 9, salt	ALL, BUC.
Azoic Diazo Component 10, salt	ALL, ATL, BUC.
Azoic Diazo Component 11, salt	ALL.
Azoic Diazo Component 12, salt	ALL, BUC.
Azoic Diazo Component 13, salt	ALL, BUC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AZOIC DYES AND COMPONENTS--CONTINUED	
AZOIC DIAZO COMPONENTS, SALTS--CONTINUED	
Azoic Diazo Component 14, salt	ALL.
Azoic Diazo Component 20, salt	ATL.
Azoic Diazo Component 32, salt	ALL.
Azoic Diazo Component 34, salt	ALL.
Azoic Diazo Component 42, salt	ALL, ATL.
Azoic Diazo Component 44, salt	ATL.
Azoic Diazo Component 49, salt	ALL, BUC.
Azoic diazo components, salt, all other	ALL, ATL.
AZOIC COUPLING COMPONENTS:	
Azoic Coupling Component 2	PCM.
Azoic Coupling Component 3	BUC, PCM.
Azoic Coupling Component 7	BUC, PCM.
Azoic Coupling Component 8	PCM.
Azoic Coupling Component 11	BUC, PCM.
Azoic Coupling Component 12	PCM.
Azoic Coupling Component 14	BUC, PCM.
Azoic Coupling Component 17	PCM.
Azoic Coupling Component 18	BUC, PCM.
Azoic Coupling Component 20	BUC, PCM.
Azoic Coupling Component 21	BUC, PCM.
Azoic Coupling Component 29	BUC, PCM.
Azoic Coupling Component 34	BUC, PCM.
Azoic Coupling Component 35	PCM.
Azoic Coupling Component 43	BUC.
Azoic coupling components, all other	ATL.
BASIC DYES (CLASSICAL AND MODIFIED):	
*BASIC YELLOW DYES:	
Basic Yellow 1	DUP.
Basic Yellow 2	ACY.
*Basic Yellow 11	ATL, DUP, TRC, VPC.
*Basic Yellow 13	ATL, DUP, TRC, VPC.
Basic Yellow 15	DUP.
Basic Yellow 21	VPC.
Basic Yellow 25	BAS.
Basic Yellow 28	BAS, VPC.
*Basic Yellow 29	ATL, BAS, DUP, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)--CONTINUED	
*BASIC YELLOW DYES--CONTINUED	
Basic Yellow 37-	: ACY.
Basic Yellow 41-	: ACY.
Basic Yellow 45-	: TRC.
Basic Yellow 49-	: BAS.
Basic Yellow 53-	: DUP.
Basic Yellow 58-	: DUP, VPC.
Basic Yellow 63-	: VPC.
Basic Yellow 64-	: BAS.
Basic Yellow 77-	: BAS.
Basic Yellow 78-	: ACY.
Basic Yellow 79-	: DUP.
Basic Yellow 83-	: DUP.
Basic yellow dyes, all other	: X.
Basic yellow dyes, all other, modified	: VPC.
*BASIC ORANGE DYES:	
*Basic Orange 1-	: ACY, BAS, CK, PSC, TRC.
*Basic Orange 2-	: ACY, ATL, BAS, DUP, PSC, TRC.
*Basic Orange 21-	: ATL, DUP, TRC, VPC.
Basic Orange 26-	: DUP.
Basic Orange 28-	: VPC.
Basic Orange 31-	: ACY.
Basic orange dyes, all other	: X.
Basic orange dyes, all other, modified	: VPC.
*BASIC RED DYES:	
Basic Red 1-	: DUP.
*Basic Red 12-	: ACY, ATL, DUP.
*Basic Red 14-	: ATL, BAS, DUP, VPC.
*Basic Red 15-	: ATL, BAS, DUP.
Basic Red 17-	: DUP.
*Basic Red 18-	: ATL, BAS, DUP, VPC.
Basic Red 22-	: TRC, VPC.
Basic Red 29-	: BAS.
Basic Red 46-	: TRC.
*Basic Red 49-	: BAS, DUP, TRC, VPC.
Basic Red 51-	: BAS.
Basic Red 54-	: BAS.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)--CONTINUED	
*BASIC RED DYES--CONTINUED	
Basic Red 73	DUP.
Basic red dyes, all other	X.
Basic red dyes, all other, modified	DUP, VPC.
*BASIC VIOLET DYES:	
*Basic Violet 1	ACY, BAS, BCC, DSC.
Basic Violet 3	DSC, DUP, SDH.
Basic Violet 4	DSC.
*Basic Violet 10	ACY, BAS, DUP.
*Basic Violet 16	ATL, DUP, TRC, VPC.
Basic violet dyes, all other	BCC, X.
Basic violet dyes, all other, modified	BAS, DUP.
*BASIC BLUE DYES:	
Basic Blue 1	DSC, SDH.
Basic Blue 2	DSC.
Basic Blue 3	BAS, DUP, TRC.
Basic Blue 7	DSC, DUP, SDH.
Basic Blue 9	DUP.
Basic Blue 11	SDH.
Basic Blue 21	DUP.
Basic Blue 22	DUP.
Basic Blue 26	DSC.
Basic Blue 27	VPC.
Basic Blue 35	DUP.
*Basic Blue 41	BAS, TRC, VPC.
Basic Blue 45	VPC.
Basic Blue 47	VPC.
Basic Blue 54	BAS.
Basic Blue 60	BAS.
Basic Blue 69	VPC.
Basic Blue 75	EKT.
Basic Blue 76	BAS.
Basic Blue 77	DUP.
Basic Blue 87	DUP.
Basic Blue 94	DUP.
Basic Blue 140	VPC.
Basic blue dyes, all other	DUP, X.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC GREEN DYES:	
Basic Green 1-	DSC.
Basic Green 4-	ACY, BAS, DSC.
Basic green dyes, all other-	X.
*BASIC BROWN DYES:	
Basic Brown 1-	ACY, DUP, PSC, TRC.
Basic Brown 4-	ACY, BAS, PSC, TRC.
BASIC BLACK DYES:	
Basic black dyes, all other-	X.
Basic black dyes, all other, modified-	VPC.
DIRECT DYES:	
*DIRECT YELLOW DYES:	
*Direct Yellow 4-	AC, ACY, ATL, BAS, CK, DUP, LVR, TRC, VPC.
Direct Yellow 5-	ACY.
*Direct Yellow 6-	AC, ACY, BAS, DUP, VPC.
Direct Yellow 8-	ATL.
*Direct Yellow 11-	AC, ACY, BAS, DUP, TRC, VPC.
*Direct Yellow 12-	ACY, CK, TRC.
Direct Yellow 27-	ATI.
*Direct Yellow 28-	ATL, BAS, CK, DUP, TRC.
Direct Yellow 34-	AC, CK, TRC.
Direct Yellow 39-	CK, TRC.
*Direct Yellow 44-	AC, FAB, TRC.
Direct Yellow 51-	AC, TRC.
Direct Yellow 84-	AC.
Direct Yellow 103-	ATI.
Direct Yellow 105-	AC, CK, TRC.
*Direct Yellow 106-	AC, CK, FAB, TRC.
Direct Yellow 107-	CK, TRC.
Direct Yellow 118-	CK, TRC.
Direct Yellow 119-	DUP.
*Direct Yellow 127-	BAS, CK, DUP, TRC, VPC.
Direct Yellow 131-	DUP.
Direct Yellow 132-	TRC.
Direct Yellow 137-	DUP, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES--CONTINUED	
*DIRECT YELLOW DYES--CONTINUED	
Direct Yellow 139-	DUP.
*Direct Yellow 147-	ACY, BAS, CK, DUP, VPC.
Direct Yellow 155-	AC.
Direct yellow dyes, all other-	AC, ATL, TRC, VPC.
*DIRECT ORANGE DYES:	
Direct Orange 6-	ATL.
Direct Orange 8-	FAB.
*Direct Orange 15-	AC, ACY, BAS, DUP, TRC, VPC.
Direct Orange 26-	ATL, CK, TRC.
Direct Orange 29-	TRC.
Direct Orange 34-	ATL, DUP.
*Direct Orange 39-	AC, CK, FAB.
Direct Orange 59-	DUP.
Direct Orange 61-	TRC.
*Direct Orange 72-	AC, CK, FAB, TRC.
Direct Orange 73-	TRC.
Direct Orange 80-	ATL.
Direct Orange 102-	AC, ACY, ATL, BAS, DUP, FAB.
Direct Orange 118-	TRC.
Direct orange dyes, all other-	ATL, VPC.
*DIRECT RED DYES:	
Direct Red 1-	FAB.
*Direct Red 2-	AC, ATL, FAB.
Direct Red 4-	ATL, TRC.
Direct Red 16-	TRC.
*Direct Red 23-	AC, ACY, ATL, CK, FAB, TRC.
Direct Red 24-	AC, ATL, FAB, TRC.
Direct Red 26-	AC, ATL.
Direct Red 28-	FAB.
Direct Red 31-	ATL, TRC.
Direct Red 39-	TRC.
Direct Red 62-	ATL, TRC.
*Direct Red 72-	AC, BAS, CK, DUP, TRC.
Direct Red 73-	AC, ATL.
Direct Red 76-	ATL.
Direct Red 79-	CK, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES--CONTINUED	
*DIRECT RED DYES--CONTINUED	
*Direct Red 80-	AC, ATL, CK, FAB, TRC, VPC.
*Direct Red 81-	AC, ACY, ATL, BAS, CK, DUP, FAB, LVR, TRC, VPC.
*Direct Red 83-	AC, ATL, CK, TRC.
Direct Red 122	TRC.
Direct Red 149	ATL.
Direct Red 153	ATL.
Direct Red 209	TRC.
*Direct Red 236	AC, BAS, DUP, VPC.
Direct Red 238	DUP.
Direct Red 239	TRC.
Direct Red 254	VPC.
Direct red dyes, all other	AC, ATL, CK.
*DIRECT VIOLET DYES:	
Direct Violet 7-	ATL.
Direct Violet 9-	TRC.
Direct Violet 66	ATL.
Direct Violet 99	DUP.
*DIRECT BLUE DYES:	
*Direct Blue 1-	AC, ATL, BAS, TRC.
Direct Blue 2-	FAB.
Direct Blue 8-	ATL.
Direct Blue 14	TRC.
*Direct Blue 15	AC, BAS, DUP, TRC, VPC.
Direct Blue 25	ATL, TRC.
Direct Blue 67	ATL.
Direct Blue 71	CK.
Direct Blue 75	TRC.
Direct Blue 76	AC, CK.
*Direct Blue 80	AC, ATL, CK, FAB, TRC.
*Direct Blue 86	AC, ATL, BAS, CK, DUP, FAB, TRC, VPC.
Direct Blue 91	TRC.
Direct Blue 98	ATL, CK, FAB.
Direct Blue 100-	CK.
Direct Blue 108-	ATL.
*Direct Blue 120, 120:1, 120:2, and 120:3	AC, CK, FAB, TRC.
Direct Blue 126-	CK.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES--CONTINUED	
*DIRECT BLUE DYES--CONTINUED	
Direct Blue 151-	ATL.
Direct Blue 160-	CK, FAB, TRC.
Direct Blue 189-	TRC.
Direct Blue 191-	CK.
*Direct Blue 199-	BAS, DUP, VPC.
Direct Blue 218-	AC, CK, DUP, TRC.
Direct Blue 260-	DUP.
Direct Blue 267-	TRC.
Direct Blue 279-	DUP, VPC.
Direct blue dyes, all other-	AC, ATL, CK, FAB, TRC.
*DIRECT GREEN DYES:	
Direct Green 1-	FAB.
Direct Green 6-	FAB.
Direct Green 26-	TRC.
Direct Green 27-	TRC.
Direct Green 51-	TRC.
Direct green dyes, all other-	ATL, DUP, FAB, TRC.
*DIRECT BROWN DYES:	
Direct Brown 2-	FAB.
Direct Brown 31-	FAB.
Direct Brown 44-	FAB.
Direct Brown 74-	FAB.
Direct Brown 95-	FAB.
Direct Brown 154-	FAB.
Direct brown dyes, all other-	AC, ATL, CK, FAB.
*DIRECT BLACK DYES:	
Direct Black 19-	TRC.
*Direct Black 22-	AC, CK, TRC, VPC.
Direct Black 38-	FAB.
Direct Black 80-	AC, CK, FAB.
Direct Black 190-	AC.
Direct black dyes, all other-	AC, ATL, CK, FAB.
DISPERSE DYES:	
*DISPERSE YELLOW DYES:	
*Disperse Yellow 3-	AC, BAS, CK, DUP, TRC.
*Disperse Yellow 23-	ATL, CK, EKT, S, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE YELLOW DYES--CONTINUED	
*Disperse Yellow 33	AC, EKT, TRC.
Disperse Yellow 34	AC, EKT.
*Disperse Yellow 42	AC, DUP, SDC, TRC.
*Disperse Yellow 54	BAS, DUP, TRC, VPC.
Disperse Yellow 56	BAS.
Disperse Yellow 58	VPC.
Disperse Yellow 64	BAS, DUP, TRC.
Disperse Yellow 67	DUP, VPC.
Disperse Yellow 74	VPC.
Disperse Yellow 77	VPC.
Disperse Yellow 85	TRC.
Disperse Yellow 86	AC, EKT.
Disperse Yellow 88	EKT.
Disperse Yellow 93	VPC.
Disperse Yellow 99	EKT.
Disperse Yellow 108	EKT.
Disperse Yellow 114	HST.
Disperse Yellow 118	AC.
Disperse Yellow 125	SDC.
Disperse Yellow 126	ICI.
Disperse Yellow 137	DUP.
Disperse Yellow 138	DUP.
Disperse Yellow 198	BAS.
Disperse Yellow 200	EKT.
Disperse Yellow 208	SDC.
Disperse Yellow 219	SDC.
Disperse yellow dyes, all other	EKT, HST, VPC.
*DISPERSE ORANGE DYES:	
*Disperse Orange 3	AC, ATL, CK, TRC.
Disperse Orange 17	AC.
*Disperse Orange 25	CK, DUP, EKT, TRC, VPC.
*Disperse Orange 29	AC, BAS, CK, SDC, VPC.
Disperse Orange 30	AC, ATL, FAB, S, TRC.
Disperse Orange 31	DAS.
Disperse Orange 33	FAB.
Disperse Orange 37	AC, CK, EKT.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE ORANGE DYES--CONTINUED	
Disperse Orange 38	TRC.
Disperse Orange 41	AC, DUP.
*Disperse Orange 44	CK, DUP, TRC.
Disperse Orange 53	TRC.
Disperse Orange 55	BAS.
Disperse Orange 56	TRC.
Disperse Orange 57	EKT.
Disperse Orange 58	EKT.
Disperse Orange 62	BUC, DUP.
Disperse Orange 66	VPC.
Disperse Orange 73	BAS, DUP.
Disperse Orange 88	SDC.
Disperse Orange 89	AC.
Disperse Orange 90	AC.
Disperse Orange 94	SDC.
Disperse Orange 98	DUP.
Disperse Orange 125	DUP.
Disperse Orange 129	SDC.
Disperse Orange 136	EKT.
Disperse Orange 145	EKT.
Disperse Orange 167	BAS.
Disperse Orange 214	BAS.
Disperse orange dyes, all other	BUC.
*DISPERSE RED DYES:	
*Disperse Red 1	AC, ATL, CK, DUP, EKT, TRC.
Disperse Red 4	TRC.
Disperse Red 5	AC, ATL, CK.
Disperse Red 7	AC.
Disperse Red 13	ATL, BAS, TRC.
*Disperse Red 15	HSH, TRC.
Disperse Red 17	AC, ATL, CK, TRC.
Disperse Red 30	EKT.
Disperse Red 35	EKT.
Disperse Red 50	CK, FAB, TRC.
Disperse Red 54	BAS.
Disperse Red 55	DUP, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE RED DYES--CONTINUED	
Disperse Red 59-	BAS, DUP.
*Disperse Red 60-	AC, BAS, CK, DUP, TRC, VPC.
*Disperse Red 65-	AC, CK, EKT, FAB, TRC.
Disperse Red 72-	S.
Disperse Red 73-	BAS, FAB, S.
Disperse Red 82-	TRC, VPC.
Disperse Red 86-	EKT, TRC.
Disperse Red 88-	EKT.
Disperse Red 90-	VPC.
Disperse Red 91-	BAS.
Disperse Red 105-	VPC.
Disperse Red 106-	VPC.
Disperse Red 108-	VPC.
Disperse Red 117-	EKT.
Disperse Red 118-	BAS.
Disperse Red 128-	DUP.
Disperse Red 133-	VPC.
Disperse Red 135-	AC, CK.
Disperse Red 136-	EKT.
Disperse Red 137-	EKT.
Disperse Red 140-	AC.
Disperse Red 153-	SDC.
Disperse Red 159-	VPC.
Disperse Red 163-	EKT.
*Disperse Red 167-	BAS, CK, TRC.
Disperse Red 167:1	BAS, S.
*Disperse Red 177-	AC, CK, S, SDC, VPC.
*Disperse Red 179-	AC, BAS, S.
Disperse Red 184-	HST.
Disperse Red 193-	SDC.
Disperse Red 195-	SDC.
Disperse Red 211-	TRC.
Disperse Red 214-	BAS.
Disperse Red 217-	DUP.
Disperse Red 219-	DUP.
Disperse Red 220-	DUP.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES
MANUFACTURERS' IDENTIFICATION CODES
(ACCORDING TO LIST IN TABLE 3)

DISPERSE DYES--CONTINUED

*DISPERSE RED DYES--CONTINUED

Disperse Red 263 - - - - - BAS.
 Disperse Red 271 - - - - - DUP.
 Disperse Red 273 - - - - - BAS, 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 - - - - - CK.
 Disperse Red 333 - - - - - SDC.
 Disperse Red 338 - - - - - EKT.
 Disperse Red 339 - - - - - EKT.
 Disperse Red 340 - - - - - EKT.
 Disperse Red 341 - - - - - EKT.
 Disperse red dyes, all other - - - - - AC, BUC, EKT, TRC, VPC.

*DISPERSE VIOLET DYES:

Disperse Violet 1- - - - - AC, TRC.
 Disperse Violet 17 - - - - - VPC.
 Disperse Violet 26 - - - - - DUP.
 Disperse Violet 27 - - - - - AC, DUP.
 Disperse Violet 28 - - - - - CK, DUP, TRC.
 Disperse Violet 33 - - - - - ICI.
 Disperse Violet 36 - - - - - SDC.
 Disperse Violet 40 - - - - - VPC.
 Disperse Violet 48 - - - - - HST, VPC.
 Disperse Violet 60 - - - - - SDC.
 Disperse Violet 64 - - - - - DUP.
 Disperse Violet 81 - - - - - SDC.
 Disperse violet dyes, all other - - - - - EKT.

*DISPERSE BLUE DYES:

Disperse Blue 2- - - - - AC, EKT, FAB, HSH, TRC.
 Disperse Blue 7- - - - - AC, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE BLUE DYES--CONTINUED	
Disperse Blue 19	TRC.
Disperse Blue 27	EKT.
Disperse Blue 55	TRC.
Disperse Blue 56	VPC.
*Disperse Blue 60	BAS, DUP, TRC, VPC.
Disperse Blue 62	DUP, EKT.
*Disperse Blue 64	AC, DUP, EKT, TRC.
Disperse Blue 73	S.
Disperse Blue 77	EKT.
*Disperse Blue 79	AC, ATL, BAS, EKT, HST, S, TRC, VPC.
Disperse Blue 81	VPC.
Disperse Blue 87	BAS.
Disperse Blue 94	BAS.
Disperse Blue 95	HST.
Disperse Blue 102	EKT.
Disperse Blue 109	AC, DUP.
Disperse Blue 112	EKT.
Disperse Blue 118	EKT.
Disperse Blue 122	ICI.
Disperse Blue 125	TRC.
Disperse Blue 139	VPC.
Disperse Blue 148	BAS.
Disperse Blue 165	DUP, HST, VPC.
Disperse Blue 174	AC.
Disperse Blue 175	SDC.
Disperse Blue 177	SDC.
Disperse Blue 183	S.
Disperse Blue 192	DUP.
Disperse Blue 194	DUP.
Disperse Blue 200	DUP.
Disperse Blue 281	ICI.
Disperse Blue 283	DUP.
Disperse Blue 284	ICI.
Disperse Blue 291	SDC.
Disperse Blue 317	EKT.
Disperse Blue 333	HST.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE BLUE DYES--CONTINUED	
Disperse Blue 337-	EKT.
Disperse Blue 338-	EKT.
Disperse blue dyes, all other-	AC, BUC, CK, DUP, EKT, HST, VPC.
DISPERSE GREEN DYES:	
Disperse Green 7 -	DUP.
Disperse Green 9 -	ICI.
DISPERSE BROWN DYES:	
*Disperse Brown 1 -	AC, BUC, CK, HST, SDC, TRC.
Disperse Brown 2 -	EKT, SDC.
Disperse Brown 10-	SDC.
Disperse Brown 18-	SDC.
Disperse Brown 22-	EKT.
Disperse brown dyes, all other -	EKT.
DISPERSE BLACK DYES:	
Disperse Black 1 -	AC.
Disperse Black 9 -	AC, EKT.
Disperse Black 33-	AC.
Disperse black dyes, all other -	EKT, VPC.
FIBER-REACTIVE DYES:	
*REACTIVE YELLOW DYES:	
Reactive Yellow 3-	TRC.
Reactive Yellow 4-	ICI.
Reactive Yellow 6-	TRC.
Reactive Yellow 7-	ICI.
Reactive Yellow 15 -	HST.
Reactive Yellow 17 -	HST.
Reactive Yellow 22 -	ICI.
Reactive Yellow 24 -	ICI.
Reactive Yellow 25 -	VPC.
Reactive Yellow 27 -	VPC.
Reactive Yellow 37 -	HST.
Reactive Yellow 42 -	HST.
Reactive Yellow 57 -	HST.
Reactive Yellow 86 -	ICI.
Reactive Yellow 133-	ICI.
Reactive Yellow 135-	ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES--CONTINUED	
* REACTIVE YELLOW DYES--CONTINUED	
Reactive yellow dyes, all other--	HST, ICI.
REACTIVE ORANGE DYES:	
Reactive Orange 1-	ICI.
Reactive Orange 4-	ICI.
Reactive Orange 12	ICI.
Reactive Orange 13	ICI.
Reactive Orange 14	ICI.
Reactive Orange 16	HST.
Reactive Orange 70	TRC.
Reactive Orange 78	HST.
Reactive Orange 84	ICI.
Reactive Orange 86	ICI.
Reactive Orange 89	ICI.
Reactive orange dyes, all other--	HST.
REACTIVE RED DYES:	
Reactive Red 2	FAB, ICI.
Reactive Red 5	ICI.
Reactive Red 8	ICI.
Reactive Red 11-	ICI.
Reactive Red 29-	FAB, ICI.
Reactive Red 31-	ICI.
Reactive Red 33-	ICI.
Reactive Red 41-	VPC.
Reactive Red 43-	CK, ICI, TRC.
Reactive Red 49-	HST.
Reactive Red 58-	ICI.
Reactive Red 105	HST.
Reactive Red 120	ICI, TRC.
Reactive Red 141	ICI.
Reactive Red 180	HST.
Reactive red dyes, all other	VPC.
REACTIVE VIOLET DYES:	
Reactive Violet 5-	HST.
Reactive violet dyes, all other--	HST.
REACTIVE BLUE DYES:	
Reactive Blue 3-	ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES--CONTINUED	
REACTIVE BLUE DYES--CONTINUED	
Reactive Blue 4-	ICI.
Reactive Blue 5-	ICI.
Reactive Blue 7-	TRC.
Reactive Blue 13	ICI.
Reactive Blue 19	HST.
Reactive Blue 21	HST, VPC.
Reactive Blue 29	VPC.
Reactive Blue 38	HST.
Reactive Blue 71	ICI.
Reactive Blue 89	HST.
Reactive Blue 109-	ICI.
Reactive Blue 137-	TRC.
Reactive Blue 171-	ICI.
Reactive Blue 173-	ICI.
Reactive Blue 174-	ICI.
Reactive blue dyes, all other-	HST, ICI.
REACTIVE GREEN DYES:	
Reactive Green 19-	ICI.
Reactive green dyes, all other	HST.
REACTIVE BROWN DYES:	
Reactive Brown 10-	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 18-	VPC.
Fluorescent Brightener 22-	CGY.
Fluorescent Brightener 24-	CGY.
*Fluorescent Brightener 28-	ACY, CCM, CGY, SDH, VPC.
Fluorescent Brightener 46-	CGY.
Fluorescent Brightener 59-	CGY.
Fluorescent Brightener 61-	ACY, CCM, DGO.
Fluorescent Brightener 71-	CGY.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FLUORESCENT BRIGHTENERS--CONTINUED	
Fluorescent Brightener 126	SDH.
Fluorescent Brightener 128	SDH.
Fluorescent Brightener 130	SDH.
Fluorescent Brightener 134	SDH.
Fluorescent Brightener 135	CGY, S.
Fluorescent Brightener 148	CGY, CK.
Fluorescent Brightener 159	VPC.
Fluorescent Brightener 191	ACY.
Fluorescent Brightener 200	VPC.
Fluorescent Brightener 205	VPC.
Fluorescent brighteners,	ACY, CCM, CGY, S, VPC, X.
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-	BCC, KON, SDH, WJ.
Food, Drug, and Cosmetic Green 3	WJ.
Food, Drug, and Cosmetic Green	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, KON, WJ.
*Food, Drug, and Cosmetic Red 40-	BCC, KON, SDH, WJ.
*Food, Drug, and Cosmetic Yellow 5-	BCC, CK, KON, SDH, STG, WJ.
*Food, Drug, and Cosmetic Yellow 6-	BCC, CK, KON, SDH, STG, WJ.
DRUG AND COSMETIC DYES:	
Drug and Cosmetic Blue 1	KON.
Drug and Cosmetic Green 5-	BCC, KON.
Drug and Cosmetic Green 6-	KON.
Drug and Cosmetic Green 8-	SDH.
Drug and Cosmetic Orange 4	BCC, KON.
Drug and Cosmetic Orange 5	SDH, SNA, TMS.
Drug and Cosmetic Orange 17-	SNA.
Drug and Cosmetic Red 3-	KON.
Drug and Cosmetic Red 6-	KON, SNA, TMS.
*Drug and Cosmetic Red 7-	KON, MRX, SNA, TMS.
Drug and Cosmetic Red 8-	KON, SHA.
Drug and Cosmetic Red 9-	KON, MRX, SNA.
Drug and Cosmetic Red 10	SNA.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FOOD, DRUG, AND COSMETIC COLORS--CONTINUED	
DRUG AND COSMETIC DYES--CONTINUED	
Drug and Cosmetic Red 17	KON.
*Drug and Cosmetic Red 19	KON, MRX, SNA, TMS.
Drug and Cosmetic Red 21	SDH, SNA.
Drug and Cosmetic Red 22	SDH.
Drug and Cosmetic Red 27	MRX, SDH, TMS.
Drug and Cosmetic Red 28	SDH.
Drug and Cosmetic Red 30	KON, SNA.
Drug and Cosmetic Red 31	KON.
Drug and Cosmetic Red 33	BCC, KON.
Drug and Cosmetic Red 34	KON, SNA.
*Drug and Cosmetic Red 36	KON, SDH, SNA, TMS.
Drug and Cosmetic Red 37	BCC.
Drug and Cosmetic Violet 2	BCC.
Drug and Cosmetic Yellow 5	KON, TMS.
Drug and Cosmetic Yellow 6	KON.
Drug and Cosmetic Yellow 8	KON, SDH, TMS.
Drug and Cosmetic Yellow 10	BCC, KON, WJ.
Drug and Cosmetic Yellow 11	BCC, KON.
DRUG AND COSMETIC DYES, EXTERNAL:	
External Drug and Cosmetic Violet 2	KON.
External Drug and Cosmetic Yellow 7	KON.
MORDANT DYES:	
MORDANT YELLOW DYES:	
Mordant Yellow 1	PDC.
Mordant Yellow 8	PDC.
Mordant Yellow 16	ATL.
Mordant Yellow 20	PDC.
MORDANT ORANGE DYES:	
Mordant Orange 1	PDC.
Mordant Orange 6	TRC.
Mordant Orange 8	PDC.
MORDANT RED DYES:	
Mordant Red 7	AC, PDC.
Mordant Red 11	ACY.
MORDANT BROWN DYES:	
Mordant Brown 1	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MORDANT DYES--CONTINUED	
MORDANT BROWN DYES--CONTINUED	
Mordant Brown 18	PDC.
Mordant Brown 33	PDC.
Mordant Brown 40	PDC.
Mordant Brown 70	PDC.
MORDANT BLACK DYES:	
Mordant Black 11	AC, CK, TRC.
OXIDATION BASES:	
Oxidation base 21	PDC.
SOLVENT DYES:	
*SOLVENT YELLOW DYES:	
Solvent Yellow 3	PSC.
Solvent Yellow 13	ACY.
*Solvent Yellow 14	ACY, MRT, PSC, VPC.
Solvent Yellow 16	PSC.
Solvent Yellow 18	MRT.
Solvent Yellow 30	PSC.
Solvent Yellow 33	AC, ACY.
Solvent Yellow 40	BCC.
Solvent Yellow 42	BCC.
Solvent Yellow 43	DGO, MRT.
Solvent Yellow 47	ACY, DUP.
Solvent Yellow 56	ACY, PSC.
Solvent Yellow 71	ACY.
Solvent Yellow 72	AC, ACY.
Solvent Yellow 77	AC.
Solvent Yellow 87	ACY.
Solvent Yellow 94	SDH.
Solvent Yellow 107	MRT.
Solvent Yellow 131	DGO.
Solvent Yellow 135	DGO.
Solvent Yellow 143	MRT.
Solvent yellow dyes, all other	AC, DGO.
SOLVENT ORANGE DYES:	
Solvent Orange 2	PSC.
Solvent Orange 3	ACY, PSC.
Solvent Orange 7	ACY, PSC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT ORANGE DYES--CONTINUED	
Solvent Orange 20-	ACY.
Solvent Orange 23-	BCC.
Solvent Orange 25-	ACY, DUP.
Solvent Orange 31-	PSC.
Solvent Orange 60-	AC.
Solvent Orange 73-	MRT.
Solvent Orange 74-	MRT.
Solvent Orange 75-	MRT.
Solvent Orange 76-	MRT.
Solvent orange dyes, all other	PSC.
SOLVENT RED DYES:	
Solvent Red 1-	PSC.
Solvent Red 23-	PSC.
Solvent Red 24-	AC, ACY, ATL, PSC.
Solvent Red 26-	AC, ACY, PSC.
Solvent Red 27-	PSC.
Solvent Red 30-	PSC.
Solvent Red 33-	DUP.
Solvent Red 43-	SDH.
Solvent Red 49-	ACY, DUP.
Solvent Red 68-	BCC, MRT.
Solvent Red 74-	ATL, BCC.
Solvent Red 80-	BCC.
Solvent Red 105-	ACY.
Solvent Red 108-	ACY.
Solvent Red 111-	AC, ACY.
Solvent Red 126-	ACY.
Solvent Red 164-	MRT.
Solvent Red 165-	MRT.
Solvent Red 166-	MRT.
Solvent Red 168-	MRT.
Solvent Red 169-	MRT.
Solvent Red 173-	MRT.
Solvent Red 207-	MRT.
Solvent Red 208-	MRT.
Solvent Red 209-	MRT.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES--CONTINUED	
SOLVENT RED DYES--CONTINUED	
Solvent Red 210-	MRT.
Solvent red dyes, all other-	AC, ACY, ATL.
SOLVENT VIOLET DYES:	
Solvent Violet 8-	ACY, DSC.
Solvent Violet 9-	DSC.
Solvent Violet 13-	AC, MRT.
Solvent Violet 38-	MRT.
*SOLVENT BLUE DYES:	
Solvent Blue 3-	ACY, SW.
Solvent Blue 4-	DSC, DUP, SDH.
Solvent Blue 5-	DSC.
Solvent Blue 23-	BAS.
Solvent Blue 35-	MRT.
Solvent Blue 36-	AC, MRT.
Solvent Blue 37-	DUP.
Solvent Blue 38-	ACY, DUP, TNI.
Solvent Blue 58-	ACY.
Solvent Blue 59-	ACY.
Solvent Blue 69-	AC.
Solvent Blue 98-	MRT.
Solvent Blue 99-	MRT.
Solvent Blue 100-	MRT.
Solvent Blue 128-	MRT.
Solvent Blue 129-	MRT.
Solvent blue dyes, all other-	AC, ACY, DUP, HSH.
SOLVENT GREEN DYES:	
Solvent Green 1-	DSC.
Solvent Green 3-	HSH.
Solvent green dyes, all other-	ATL, HSH.
SOLVENT BROWN DYES:	
Solvent Brown 12-	PSC.
Solvent Brown 20-	ACY, ATL, DUP.
Solvent Brown 22-	PSC.
Solvent Brown 38-	ACY.
Solvent Brown 52-	MRT.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT BLACK DYES:	
Solvent Black 5-	ACY.
Solvent Black 7-	ACY, PSC.
Solvent Black 13	BCC.
Solvent Black 26	ACY.
Solvent Black 48	MRT.
Solvent black dyes, all other-	DUP, PSC.
SOLVENT DYES--CONTINUED	
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 14-	SDC.
Sulfur Red 10-	SDC.
SULFUR BLUE DYES:	
Leuco Sulfur Blue 7-	SDC.
Leuco sulfur Blue 9-	SDC.
Leuco Sulfur Blue 11	SDC.
Leuco Sulfur Blue 13	SDC.
Sulfur Blue 7-	ACY, SDC.
SULFUR GREEN DYES:	
Leuco Sulfur Green 2	SDC.
Leuco Sulfur Green 3	SDC.
Leuco sulfur Green 35-	SDC.
Leuco sulfur Green 36-	SDC.
SULFUR BROWN DYES:	
Leuco sulfur Brown 1:1	SDC.
Leuco Sulfur Brown 3	SDC.
Leuco Sulfur Brown 10-	SDC.
Leuco sulfur Brown 31-	SDC.
Leuco Sulfur Brown 37-	SDC.
Leuco sulfur Brown 52-	SDC.
Leuco sulfur Brown 95-	SDC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SULFUR DYES--CONTINUED	
SULFUR BROWN DYES--CONTINUED	
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 10-	ACY.
Leuco Sulfur Black 11-	SDC.
Leuco Sulfur Black 11:1-	SDC.
Leuco Sulfur Black 18-	SDC.
Solubilized Sulfur Black 1	SDC.
Sulfur Black 1	ACY, SDC.
Sulfur Black 2	SDC.
Sulfur Black 11-	SDC.
VAT DYES:	
*VAT YELLOW DYES:	
Vat Yellow 2, 8-1/2%	AC, TRC, VPC.
Vat Yellow 15, 11-1/2%	ACY.
Vat Yellow 22, 10%	VPC.
Vat Yellow 33, 15%	TRC.
Vat yellow dyes, all other	VPC.
*VAT ORANGE DYES:	
Vat Orange 1, 20%	HST, TRC, VPC.
Vat Orange 2, 12%	ACY, BAS, TRC.
Vat Orange 3, 13-1/2%	BAS, HST.
Vat Orange 4, 6%	DUP.
Vat Orange 5, 10%	HST.
Vat Orange 7, 11%	HST, TRC.
Vat Orange 9, 12%	ACY, TRC.
Vat Orange 15, 10%	ACY, TRC, VPC.
*VAT RED DYES:	
Vat Red 1, 13%	ACY, HST.
Vat Red 10, 18%	BAS.
Vat Red 13, 11%	TRC.
Vat Red 14, 10%	HST.
Vat Red 15, 10%	HST, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES--CONTINUED	
*VAT VIOLET DYES:	
Vat Violet 1, 11%	DUP, TRC.
Vat Violet 2, 20%	HST.
Vat Violet 3, 15%	HST.
Vat Violet 9, 12%	TRC.
Vat Violet 13, 6-1/4%	BAS, TRC.
Vat Violet 21-	VPC.
*VAT BLUE DYES:	
Vat Blue 1, 20%	BAS, BCC.
Vat Blue 5, 16%	SDH.
Vat Blue 6, 8-1/3%	BAS, TRC.
Vat Blue 16, 16%	BAS, TRC.
Vat Blue 18, 13%	AC, ACY, TRC.
Vat Blue 19-	BAS.
Vat Blue 20, 14%	AC, ACY, TRC.
Vat Blue 43-	SDC.
Vat Blue 66-	BAS.
Vat blue dyes, all other	BCC.
*VAT GREEN DYES:	
Vat Green 1, 6%	ACY, BAS, TRC.
Vat Green 3, 10%	ACY, BAS, TRC.
Vat Green 7-	SDC.
Vat Green 9, 12-1/2%	ACY, TRC.
Vat Green 32-	VPC.
*VAT BROWN DYES:	
Vat Brown 1, 11%	ACY, TRC, VPC.
*Vat Brown 3, 11%	AC, ACY, TRC, VPC.
Vat Brown 5, 13%	ACY, VPC.
Vat Brown 11, 12%	TRC.
Vat Brown 13, 17%	TRC.
Vat Brown 57, 12.8%	HST.
Vat Brown 380-	VPC.
Vat brown dyes, all other-	AC, ACY, TRC, VPC.
*VAT BLACK DYES:	
Vat Black 16-	BCC.
Vat Black 22, 19%	ACY, TRC.
Vat Black 25, 12-1/2%	AC, ACY, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES--CONTINUED	
VAT BLACK DYES--CONTINUED	
Vat Black 27, 12-1/2%	ACY, TRC.
Vat black dyes, all other	ACY.
MISCELLANEOUS DYES:	
Dyes, all other	ALL, DUP.

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1980

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of dyes to the U.S. International Trade Commission for 1980 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
AC	American Color & Chemical Corp.	KON	H. Kohnstamm & Co., Inc.
ACY	American Cyanamid Co.		
ALL	Alliance Chemical Corp.	LVR	C. Lever Co., Inc.
ATL	Atlantic Chemical Corp.		
		MRT	Morton Norwich Products, Inc., Morton Chemical Div.
BAS	BASF Wyandotte Corp. & Pigments Div.	MRX	Max Marx Color & Chemical Co.
BCC	Buffalo Color Corp.		
BUC	Synalloy Corp., Blackman Uhler Chemical Div.	PCW	Pfister, Inc.
		PDC	Berncolors-Poughkeepsie, Inc.
CCW	Carstab Corp.	PSC	Passaic Color & Chemical Co.
CGY	Ciba-Geigy Corp.		
CK	Crompton & Knowles Corp., Dyes & Chemical Div.	S	Sandoz, Inc., Colors & Chemicals Div.
		SDC	Martin-Marietta Corp., Sodyeco Div.
DGO	Day-Glo Color Corp.	SDH	Sterling Drug, Inc., Hilton Davis Chemical Co. Div.
DSC	Dye Specialties, Inc.		
DUP	E. I. duPont de Nemours & Co., Inc.	SNA	Sun Chemical Corp.
		STG	Stange Co.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	SW	Sherwin-Williams Co.
FAB	Fabricolor Manufacturing Corp.	TMS	Sterling Drug, Inc., Thomasset Colors Div.
		TNI	Gillette Co., Chemical Div.
HSH	Harshaw Chemical Co.	TRC	Toms River Chemical Corp.
HST	American Hoechst Corp. Industrial Chemicals Div.		
		VPC	Mobay Chemical Corp., Dyestuff Div.
ICI	ICI Americas, Inc., Chemical Specialties Co.	WJ	Warner-Jenkinson Co.

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

SECTION V -- ORGANIC PIGMENTS

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STATISTICAL HIGHLIGHTS

Bonnie Noreen and Mildred Higgs

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

Statistics on production and sales of all organic pigments in 1980 are given in table 1.¹ For a few important pigments already reported in table 1, supplemental data on sales by commercial forms are reported in table 1A. 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 1980 was 69.4 million pounds--21.4 percent less than the 88.2 million pounds produced in 1979. Total sales of organic pigments in 1980 amounted to 60.8 million pounds, valued at \$361.3 million compared with 66.9 million pounds, valued at \$377.5 million, in 1979. In terms of quantity, sales of organic pigments in 1980 were 9.1 percent smaller than in 1979; in terms of value, sales in 1980 were 4.3 percent smaller than in 1979.

Production of toners in 1980 amounted to 68.5 million pounds--21.3 percent less than the 87.1 million pounds reported in 1979. Sales in 1980 were 60.2 million pounds, valued at \$358.7 million, compared with 66.1 million pounds, valued at \$374.3 million, in 1979. Sales in 1980 were 8.9 percent smaller than those of 1979 in terms of quantity, and 4.2 percent smaller in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1980 were Pigment Yellow 12, 11.5 million pounds; Pigment Blue 15:3, beta form, 7.8 million pounds; Pigment Red 49:1; barium toner, 5.6 million pounds; Pigment Red 57:1, calcium toner, 4.6 million pounds; Pigment Red 53:1, barium toner, 3.9 million pounds; and Pigment Yellow 14, 3.0 million pounds.

Production of lakes totaled 0.8 million pounds in 1980--26.9 percent less than the 1.1 million pounds reported for 1979. Sales of lakes in 1980 amounted to 0.6 million pounds, valued at \$2.6 million. In terms of quantity, sales of lakes in 1980 were 30.0 percent less than in 1979; in terms of value, sales in 1980 were 18.7 percent smaller than in 1979.

For each of 14 selected pigments, or groups of pigments, table 1A gives data on sales by commercial forms. Pigment Yellow 14, all other diarylide yellows (with the exceptions of Pigments Yellow 12 & 14), Pigment Red 3, Pigment Red 48:2, calcium, Pigment Red 49:1, barium, Pigment Red 52:1, calcium, Pigment Blue 15:1 and 15:2, alpha forms, and Pigment Green 7 were sold principally in the dry full-strength form. Pigment Yellow 12, Pigment Red 53:1, barium, Pigment Red 57:1, calcium and Pigment Blue 15:3, beta form were sold principally in the flushed form. Pigment Blue 15, alpha form, was sold principally as aqueous dispersions.

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

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1980

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

ORGANIC PIGMENTS	PRODUCTION	SALES		
		QUANTITY	VALUE ¹	UNIT VALUE ²
	<i>1,000 pounds dry basis³</i>	<i>1,000 pounds dry basis³</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Grand total-----	69,373	60,771	361,334	\$5.95
TONERS				
Total-----	68,546	60,187	358,730	5.96
Yellow toners, total-----	19,867	16,109	79,235	4.92
Acetoacetarylide yellows:				
Pigment Yellow 1, C.I. 11 680-----	275	237	1,159	4.89
Pigment Yellow 3, C.I. 11 710-----	151	110	533	4.84
Pigment Yellow 73, C.I. 11 738-----	320	392	1,647	4.20
Pigment Yellow 74, C.I. 11 741-----	1,293	1,136	7,647	6.73
Diarylide yellows, total-----	16,612	12,940	57,938	4.84
Pigment Yellow 12, C.I. 21 090-----	11,493	8,398	33,915	4.04
Pigment Yellow 13, C.I. 21 100-----	730	620	3,332	5.37
Pigment Yellow 14, C.I. 21 095-----	2,962	2,505	10,622	4.24
Pigment Yellow 17, C.I. 21 105-----	603	531	2,826	5.33
Pigment Yellow 83, C.I. 21 108-----	700	782	6,461	8.26
All other diarylide yellows-----	124	104	782	7.52
All other-----	1,216	1,294	10,311	7.97
Orange toners, total-----	1,691	1,705	10,267	6.02
Pigment Orange 5, C.I. 12 075-----	581	590	2,629	4.45
Pigment Orange 13, C.I. 21 110-----	189	209	1,346	6.43
Pigment Orange 16, C.I. 21 160-----	517	455	2,601	5.72
Pigment Orange 34, C.I. 21 115-----	88	91	643	7.03
All other-----	316	360	3,048	8.47
Red toners, total-----	24,327	21,213	123,066	5.80
Naphthol reds, total-----	1,153	1,097	9,551	8.71
Pigment Red 2, C.I. 12 310-----	23	26	166	6.49
Pigment Red 5, C.I. 12 490-----	38	38	368	9.66
Pigment Red 17, C.I. 12 390-----	80	29	240	8.41
Pigment Red 22, C.I. 12 315-----	74	74	727	9.83
Pigment Red 23, C.I. 12 355-----	91	98	1,097	11.24
All other naphthol reds-----	847	832	6,953	8.36
Pigment Red 3, C.I. 12 120-----	1,010	1,043	5,610	5.38
Pigment Red 4, C.I. 12 085-----	153	145	619	4.26
Pigment Red 38, C.I. 21 120-----	82	119	1,151	9.65
Pigment Red 48:1, barium toner, C.I. 15 865-----	471	434	2,457	5.67
Pigment Red 48:2, calcium toner, C.I. 15 865-----	1,206	1,141	6,795	5.95
Pigment Red 48:4, manganese toner, C.I. 15 865-----	237	75	445	5.91
Pigment Red 49:1, barium toner, C.I. 15 630-----	5,590	5,137	17,057	3.32
Pigment Red 49:2, calcium toner, C.I. 15 630-----	1,091	924	4,039	4.37
Pigment Red 52:1, calcium toner, C.I. 15 860-----	1,109	1,041	6,173	5.93
Pigment Red 52:2, manganese toner, C.I. 15 860-----	467	439	2,064	4.70
Pigment Red 53:1, barium toner, C.I. 15 585-----	3,894	2,953	13,442	4.55
Pigment Red 57:1, calcium toner, C.I. 15 850-----	4,583	3,711	22,588	6.09
Pigment Red 81, PMA, C.I. 45 160-----	406	391	4,364	11.15
Pigment Red 81, PTA, C.I. 45 160-----	27	21	348	16.63
All other-----	2,848	2,542	26,363	10.37
Violet toners, total-----	2,281	1,769	27,969	15.81
Pigment Violet 1, PMA, C.I. 45 170-----	196	192	2,041	10.65
Pigment Violet 1, PTA, C.I. 45 170-----	40	35	462	13.33

See footnotes at end of table.

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

ORGANIC PIGMENTS	PRODUCTION	SALES		
		QUANTITY	VALUE ¹	UNIT ¹ VALUE ²
TONERS--Continued	1,000 pounds dry basis ³	1,000 pounds dry basis ³	1,000 dollars	Per pound
Violet toners--Continued				
Pigment Violet 3, fugitive, C.I. 42 535-----	79	81	597	\$7.36
Pigment Violet 3, PMA, C.I. 42 535-----	389	384	3,341	8.69
Pigment Violet 3, PTA, C.I. 42 535-----	17	16	229	14.04
Pigment Violet 19, C.I. 46 500-----	1,242	813	16,547	20.35
All other-----	318	248	4,752	19.16
Blue toners, total-----	17,519	16,598	94,896	5.72
Pigment Blue 15, alpha form, C.I. 74 160-----	758	869	6,008	6.91
Pigment Blue 15:1, alpha form, C.I. 74 160-----	530	612	5,303	8.66
Pigment Blue 15:2, alpha form, C.I. 74 160-----	779	759	7,171	9.45
Pigment Blue 15:3, beta form, C.I. 74 160-----	7,777	6,917	43,625	6.31
All other-----	7,675	7,441	32,789	4.41
Green toners, total-----	2,454	2,443	21,424	8.77
Pigment Green 1, PMA, C.I. 42 040-----	6	6	62	10.13
Pigment Green 7, C.I. 74 260-----	2,129	2,161	18,370	8.50
Pigment Green 36, C.I. 74 265-----	168	144	1,583	10.95
All other-----	151	132	1,409	10.67
Brown toners-----	263	204	1,335	6.54
Black toners-----	144	146	538	3.69
LAKES				
Total-----	827	584	2,604	4.46
Yellow lakes-----	28	30	123	4.04
Red lakes, total-----	411	332	1,614	4.87
Pigment Red 83, C.I. 58 000-----	46	39	351	8.88
All other-----	365	293	1,263	4.31
All other lakes-----	388	222	867	3.91

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

²Calculated from unrounded figures, except "All other."

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 C.I. (*Colour Index*) numbers shown in this report are the identifying number given in the third edition of the *Colour Index*.

The abbreviation PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

TABLE 1A.--U.S. SALES OF SELECTED DRY FULL-STRENGTH TONERS, DRY EXTENDED TONERS, DRY DISPERSIONS, AQUEOUS DISPERSIONS, AND FLUSHED COLORS, 1980

[Listed below are supplemental sales data, by commercial forms, of selected pigments that have been reported in table 1]

SELECTED PIGMENTS BY COMMERCIAL FORMS	SALES ¹		
	QUANTITY <i>1,000 pounds dry basis</i> ³	VALUE <i>1,000 dollars</i>	UNIT VALUE ² <i>Per pound</i>
Pigment Yellow 12, C.I. 21 090, total-----	8,398	33,915	\$4.04
Dry full-strength toner-----	3,113	11,881	3.82
Flushed color-----	4,032	17,574	4.36
Dry extended toner and aqueous dispersions ⁴ ⁵ -----	1,253	4,460	3.56
Pigment Yellow 14, C.I. 21 095, total-----	2,505	10,622	4.24
Dry full-strength toner-----	1,546	6,573	4.25
Aqueous dispersions ⁴ -----	915	3,809	4.16
Dry extended toner, dry dispersions, and flushed color ⁵ -----	44	240	5.35
Pigment Yellow 13, C.I. 21 100; Pigment Yellow 17, C.I. 21 105; and all other diarylide yellows, total-----	2,037	13,401	6.58
Dry full-strength toner-----	1,184	8,154	6.89
Aqueous dispersions ⁴ -----	404	2,759	6.82
Dry dispersions and flushed color ⁵ -----	449	2,488	5.55
Pigment Red 3, C.I. 12 120, total-----	1,043	5,610	5.38
Dry full-strength toner-----	717	3,717	5.18
Aqueous dispersions ⁴ -----	49	308	6.34
Dry extended toner and flushed color ⁵ -----	277	1,585	5.72
Pigment Red 48:2, calcium toner, C.I. 15 865, total-----	1,141	6,795	5.95
Dry full-strength toner-----	969	5,713	5.90
Aqueous dispersions ⁴ -----	36	272	7.65
Flushed color-----	77	406	5.29
Dry extended toner and dry dispersions ⁵ -----	59	404	6.70
Pigment Red 49:1, barium toner, C.I. 15 630, total-----	5,137	17,057	3.32
Dry full-strength toner-----	4,599	15,121	3.29
Dry extended toner, dry dispersions, aqueous dispersions ⁴ and flushed color ⁵ -----	538	1,936	3.60
Pigment Red 52:1, calcium toner, C.I. 15 860, total-----	1,041	6,173	5.93
Dry full-strength toner-----	633	3,645	5.75
Aqueous dispersions ⁴ and flushed color ⁵ -----	408	2,528	6.20
Pigment Red 53:1, barium toner, C.I. 15 585, total-----	2,953	13,442	4.55
Flushed color-----	2,034	9,425	4.63
Aqueous dispersions ⁴ -----	32	170	5.36
Dry full-strength toner and dry dispersions ⁵ -----	887	3,847	4.33
Pigment Red 57:1, calcium toner, C.I. 15 850, total-----	3,711	22,588	6.09
Dry full-strength toner-----	386	1,989	5.16
Flushed color-----	3,161	19,998	6.33
Dry extended toner and aqueous dispersions ⁴ ⁵ -----	164	601	3.64
Pigment Blue 15, alpha form, C.I. 74 160, total-----	869	6,008	6.91
Aqueous dispersions ⁴ -----	475	3,334	7.01
Dry full-strength toner, dry extended toner, and flushed color ⁵ -----	394	2,674	6.79
Pigment Blue 15:1, alpha form, C.I. 74 160, total-----	612	5,303	8.66
Dry full-strength toner-----	414	3,790	9.16
Aqueous dispersions ⁴ -----	67	635	9.42
Flushed color-----	90	527	5.86
Dry extended toner and dry dispersions ⁵ -----	41	351	8.57
Pigment Blue 15:2, alpha form, C.I. 74 160, total-----	759	7,171	9.45
Dry full-strength toner-----	550	5,080	9.24
Aqueous dispersions ⁴ -----	48	350	7.29
Dry extended toner and flushed color ⁵ -----	161	1,741	10.85

See footnotes at end of table.

TABLE 1A.--U.S. SALES OF SELECTED DRY FULL-STRENGTH TONERS, DRY EXTENDED TONERS, DRY DISPERSIONS, AQUEOUS DISPERSIONS, AND FLUSHED COLORS, 1980--CONTINUED

SELECTED PIGMENTS BY COMMERCIAL FORM	SALES ¹		
	QUANTITY	VALUE	UNIT VALUE ²
	1,000		
	pounds	1,000	Per
	dry basis ³	dollars	pound
Pigment Blue 15:3, beta form, C.I. 74 160, total-----	6,917	43,625	\$6.31
Dry full-strength toner-----	1,497	9,027	6.03
Aqueous dispersions ⁴ -----	1,461	8,335	5.71
Flushed color-----	3,913	25,947	6.63
Dry extended toner and dry dispersions ⁵ -----	46	316	6.85
Pigment Green 7, C.I. 74 260, total-----	2,161	18,370	8.50
Dry full-strength toner-----	1,128	9,926	8.80
Aqueous dispersions ⁴ -----	679	5,125	7.55
Flushed color-----	231	2,002	8.68
Dry extended toner and dry dispersions ⁵ -----	123	1,317	10.62

¹Sales quantities and values are identical in tables 1 and 1A.

²Calculated from unrounded figures.

³Quantity of the various commercial forms is given in terms of dry full-strength toner content.

⁴Includes presscake.

⁵Separate data on these commercial forms may not be published without revealing the operations of individual companies.

Note.--The C.I. (*Colour Index*) numbers shown in this report are the identifying numbers 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, 1980

[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, HRC, HSH, HST, KCM, KON, SDH, SNA.
Pigment Yellow 2	KCM.
* Pigment Yellow 3	BNS, CGY, DUP, HRC, HSH, HST, KCM, KON, SNA.
Pigment Yellow 5	CGY, KCM.
Pigment Yellow 6	CGY.
Pigment Yellow 49	ROM.
Pigment Yellow 60	KON.
Pigment Yellow 65	HSH, KON.
Pigment Yellow 73	CGY, DUP, HRC, HSH, SNA.
* Pigment Yellow 74	CGY, HRC, HSH, HST, SNA.
* Pigment Yellow 75	BAS, CGY, DUP, HRC, HSH, HST, SDH, SNA, VPC.
Pigment Yellow 97	CGY.
Pigment Yellow 98	HST.
Pigment Yellow 99	HST.
Acetoacetarylide yellows, all others	KCM.
* DIARYLIDE YELLOWS:	
* Pigment Yellow 12	AMS, APO, BAS, BOR, CGY, GLX, HRC, HSH, HST, ICC, IDC, IND, POP, ROM, SDH, SNA.
* Pigment Yellow 13	AMS, APO, BAS, CGY, GLX, HRC, HST, IDC, IND, ROM, SDH, SNA.
* Pigment Yellow 14	AMS, APO, BAS, BNS, CGY, GLX, HSH, HST, ICC, IDC, IND, ROM, SDH, SNA.
* Pigment Yellow 17	AMS, APO, BAS, CGY, GLX, HRC, HSH, HST, ICC, IDC, IND, ROM, SDH, SNA.
Pigment Yellow 55	CGY.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONER--CONTINUED	
*YELLOW TONERS --CONTINUED	
*DIARYLIDE YELLOWS--CONTINUED	
*Pigment Yellow 83-	BAS, GLX, HST, ICC, IND, SNA.
*Pigment Yellow 126	HST.
Diarylide yellows, other	HSH, ROM.
YELLOW PIGMENTS, OTHER:	
(Basic Yellow 2), fugitive	MRX.
*Pigment Yellow 62-	CGY.
*Pigment Yellow 110	CGY.
*Pigment Yellow 139	HRC.
*Pigment Yellow 150	HRC.
*Pigment yellow toners, all other	CGY.
*ORANGE TONERS:	
*Pigment Orange 1	HRC, KCM.
*Pigment Orange 2	UHL.
*Pigment Orange 5	ACI, BAS, CGY, HRC, HSH, HST, SDH, SNA.
*Pigment Orange 7	CGY.
*Pigment Orange 13-	AMS, BAS, CGY, HRC, HSH, ICC, KON, ROM, SNA.
*Pigment Orange 15-	HRC.
*Pigment Orange 16-	BNS, CGY, GLX, HRC, HSH, HST, IND, ROM, SDH, USN.
*Pigment Orange 34-	CGY, HRC, IND, ROM, SDH.
*Pigment Orange 36-	HST.
*Pigment Orange 38-	HST.
*Pigment Orange 43-	HRC, HST.
*Pigment Orange 46-	BAS.
*Pigment Orange 48-	DUP.
*Pigment Orange 49-	DUP.
*Pigment orange toners, all other	CGY, GLX, ROM.
*RED TONERS:	
*NAPHTHOL REDS:	
*Pigment Red 2-	CGY, GLX, HRC, HSH, KCM.
*Pigment Red 5-	CGY, GLX, HSH, ROM.
*Pigment Red 7-	GLX, HST.
*Pigment Red 9-	CGY, HST.
*Pigment Red 12	IND.
*Pigment Red 13	CGY, KCM.
*Pigment Red 17	ACI, BNS, CGY, ROM, SNA, UHL.
*Pigment Red 21	BNS.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

ORGANIC PIGMENTS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED		
* RED TONERS--CONTINUED		
*NAPHTHOL REDS--CONTINUED		
*Pigment Red 22		ACX, CGY, DUP, GLX, MRX, ROM, SNA.
*Pigment Red 23		ACX, CGY, DUP, GLX, HSH, IND, KCM, ROM, SDH, UHL.
Pigment Red 31		ROM, SDH.
Pigment Red 112		CGY, HST.
Pigment Red 119		HRC.
Pigment Red 146		IND.
Pigment Red 147		HSH.
Pigment Red 170		HST.
Naphthol reds, all other		
		BUK, DUP, GLX, HST, ICC, KCM, ROM, SDH, SNA.
RED PIGMENTS, OTHER:		
Pigment Red 1, (dark)		CGY, HSH, KCM.
Pigment Red 1, (light)		CGY, HSH.
*Pigment Red 3		ACX, ALE, BAS, CGY, CIK, DUP, HSH, KCM, KON, SDH, SNA.
*Pigment Red 4		ALE, AMS, BAS, CGY, KCM, KON, MRX, SDH, UHL.
*Pigment Red 6		DUP, HSH, KON.
*Pigment Red 38		HRC, HSH, HST, SNA.
Pigment Red 41		HRC.
Pigment Red 48		CGY, DUP, ICC.
*Pigment Red 48:1, (barium)		ACX, AMS, BAS, BOR, DUP, HSH, SNA, UHL.
*Pigment Red 48:2, (calcium)		ACX, AMS, BAS, DUP, HRC, HSH, MGR, SDH, SNA, UHL.
Pigment Red 48:3, (strontium)		CGY, HSH.
*Pigment Red 48:4, (manganese)		ACX, CGY, DUP, HRC, HSH.
Pigment Red 49, (sodium)		BNS, SDH.
*Pigment Red 49:1, (barium)		ACX, AMS, BAS, BNS, BOR, CIK, ICC, IDC, SDH, SNA, UHL.
*Pigment Red 49:2, (calcium)		ACX, AMS, BAS, BOR, CIK, IDC, SDH.
*Pigment Red 52:1, (calcium)		ACX, BAS, CGY, MGR, MRX, SNA, UHL.
*Pigment Red 52:2, (manganese)		ACX, BAS, CGY, HSH, UHL.
*Pigment Red 53:1, (barium)		ACX, ALE, AMS, APO, BAS, BOR, CIK, HSH, ICC, IDC, KON, MGR, MRX, SDH, SNA, UHL.
*Pigment Red 57:1, (calcium)		ACX, ALE, AMS, APO, BAS, BNS, BOR, CGY, CIK, DUP, HSH, ICC, IDC, KON, MGR, SDH, SNA, UHL.
Pigment Red 63		HSH, KON, SNA.
*Pigment Red 81, (PMA)		BAS, CGY, DUP, KON, LVR, MGR, MRX, SNA, UHL.
*Pigment Red 81, (PTA)		CGY, MGR, MRX, UHL.
Pigment Red 88		HRC.
Pigment Red 90		AMS, BOR, SDH.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ORGANIC PIGMENTS	
TONERS--CONTINUED	
*RED TONERS--CONTINUED	
RED PIGMENTS, OTHER--CONTINUED	
Pigment Red 122-	HRC, SNA.
Pigment Red 123-	BAS, HRC.
Pigment Red 149-	HST.
Pigment Red 166-	CGY.
Pigment Red 168-	HRC.
Pigment Red 179-	HRC.
Pigment Red 181-	HST.
Pigment Red 188-	HST.
Pigment Red 190-	HRC.
Pigment Red 194-	HST.
Pigment Red 202-	HRC.
Pigment Red 206-	DUP.
Pigment Red 207-	DUP.
Pigment Red 224-	HRC.
Pigment red toners, all other-	ACY, BAS, CGY, DUP, HSH.
*VIOLET TONERS:	
Pigment Violet 1, (fugitive)	KCH, UHL.
*Pigment Violet 1, (PMA)-	CGY, MGR, MRX, SNA, UHL.
*Pigment Violet 1, (PTA)-	CGY, MGR, MRX, SNA.
*Pigment Violet 3, (fugitive)	ACY, BAS, MGR, UHL.
*Pigment Violet 3, (PMA)-	BAS, DUP, KON, MGR, MRX, SDH, UHL.
*Pigment Violet 3, (PTA)-	ACY, BAS, KON, MRX.
Pigment Violet 4, (fugitive)	KCW.
*Pigment Violet 19-	DUP, HRC, SNA.
Pigment Violet 23-	BAS, HRC, HST, ROM, SNA.
Pigment Violet 29-	HRC.
Pigment Violet 31-	HRC, VPC.
Pigment Violet 39, (fugitive)	X.
Pigment Violet 39, (PMA)	X.
Pigment Violet 42-	DUP.
Pigment violet toners, all other	BUC, ROM.
*BLUE TONERS:	
Pigment Blue 1, (PMA)-	BMS, CGY, KON, MGR, MRX, SDH, UHL.
Pigment Blue 1, (PTA)-	MRX.
Pigment Blue 2, (PMA)-	LVR.
Pigment Blue 9, (PMA)-	LVR.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED		
*BLUE TONERS--CONTINUED		
Pigment Blue 10, (PMA)	- - - - -	SDH.
Pigment Blue 14, (PMA)	- - - - -	ACY, BAS, DUP, LVR, UHL.
*Pigment Blue 15, (α form)	- - - - -	ACY, BAS, CGY, DUP, HSH, SDH, TMS, USM.
*Pigment Blue 15:1, (α form)	- - - - -	ACY, BAS, CGY, DUP, HRC, HST, SDH, SNA, TMS.
*Pigment Blue 15:2, (α form)	- - - - -	ACY, BAS, CGY, DUP, HRC, SDH, SNA, TMS.
*Pigment Blue 15:3, (β form)	- - - - -	ACY, AMS, APO, BAS, BOR, BUC, CGY, CIK, CUS, DUP, HRC, ICC, IDC, IPP, MGR, POP, ROM, SDH, SNA.
Pigment Blue 15:4, (β form)	- - - - -	ACY, BAS, CGY, DUP, SNA.
Pigment Blue 19-	- - - - -	SM.
Pigment Blue 25-	- - - - -	GLX.
Pigment Blue 61-	- - - - -	BAS.
Pigment blue toners, all other	- - - - -	CGY, UHL, VPC.
*GREEN TONERS:		
*Pigment Green 1, (PMA)	- - - - -	KON, LVR, MRX, UHL.
Pigment Green 2, (fugitive)	- - - - -	UHL.
Pigment Green 2, (PMA)	- - - - -	MRX, UHL.
Pigment Green 2, (PTA)	- - - - -	ACY, KON, MRX, UHL.
Pigment Green 4, (fugitive)	- - - - -	MRX, UHL.
Pigment Green 4, (PTA)	- - - - -	ACY.
*Pigment Green 7-	- - - - -	ACY, AIG, BAS, CGY, CIK, DUP, HRC, HST, POP, SDH, SNA, TMS.
Pigment Green 8-	- - - - -	CGY, KCM.
Pigment Green 10	- - - - -	CGY, DUP.
*Pigment Green 36	- - - - -	ACY, CGY, DUP, HRC, HST, SNA, VPC.
Pigment green toners, all other	- - - - -	CGY, UHL, VPC.
*BROWN TONERS:		
Pigment Brown 1-	- - - - -	GLX.
Pigment Brown 3, (PMA)	- - - - -	KCM, KON.
Pigment Brown 5-	- - - - -	GLX, HRC, ICC, ROM.
Pigment brown toners, all other	- - - - -	CGY, SDH.
*BLACK TONERS:		
Pigment black toners, all other	- - - - -	CGY, DUP, UHL.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
LAKES	
*YELLOW LAKES:	
(Acid Yellow 1)-	KCW.
(Acid Yellow 23)-	KON, MRX.
ORANGE LAKES:	
Pigment Orange 17-	KCW, KON.
*RED LAKES:	
(Acid Red 26)-	KCW.
(Basic Red 1)-	BNS.
Pigment Red 60:1-	HSH, KON, MRX, SDH, SNA.
*Pigment Red 83-	CGY, HSH, MRX, UHL.
VIOLET LAKES:	
(Basic Violet 1)-	BNS.
(Basic Violet 4)-	BNS.
(Basic Violet 10)-	BNS.
Pigment Violet 5:1-	CGY, HRC, HSH, MRX, UHL.
BLUE LAKES:	
(Acid Blue 104)-	KCW.
(Basic Blue 7)-	BNS.
(Basic Blue 9)-	BNS.
Pigment Blue 24-	SDH.
GREEN LAKES:	
(Acid Green 3)-	KCW.
BROWN LAKES:	
Pigment brown lakes, all other	KON.

TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1980

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of organic pigments to the U.S. International Trade Commission for 1980 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.	KCW	Keystone Color Works, Inc.
ALE	Alex Chemical Co.	KON	H. Kohnstamm & Co., Inc.
ALG	Allegheny Chemical Corp.		
AMS	Ridgway Color Co.	LVR	C. Lever Co., Inc.
APO	Apollo Colors, Inc.		
		MGR	Magruder Color Co., Inc.
BAS	BASF Wyandotte Corp., Pigments Div.	MRX	Max Marx Color & Chemical Co.
BNS	Binney and Smith, Inc.		
BOR	Borden, Inc., Printing Ink Div., Pigments Div.	POP	Pope Chemical Corp.
BUC	Synalloy Corp., Blackman Uhler Chemical Div.		
		ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.
CGY	Ciba-Geigy Corp.		
CIK	Flint Ink Corp., Cal/Ink Div.		
CUS	Custom Color Works	SDH	Sterling Drug, Inc., Hilton Davis Chemical Co. Div.
DUP	E. I. duPont de Nemours & Co., Inc.	SNA	Sun Chemical Corp.
		SW	Sherwin-Williams Co.
GLX	Galaxie Chemical Corp.		
		TMS	Sterling Drug, Inc., Thomasset Colors Div.
HRC	Harmon Colors Corp.		
HSH	Harshaw Chemical Co.	UHL	Paul Uhlich & Co., Inc.
HST	American Hoechst Corp., Industrial Chemicals Div.	USM	Crown Metro, Inc.
		VPC	Mobay Chemical Corp., Dyestuff Div.
ICC	Immont Corp.		
IDC	Industrial Color, Inc.		
IND	Indol Color Co., Inc.		
IPP	International Pigment & Processing Corp.		

Note.—Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 36 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

Tedford C. Briggs

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 G salts used as intermediates in the manufacture of semi-synthetic penicillins. All quantities are given in terms of 100-percent content of the pure bulk drug.

Total U.S. production of bulk medicinal chemicals in 1980 amounted to 243.9 million pounds. Total sales of bulk medicinal chemicals in 1980 amounted to 167.2 million pounds, valued at \$1,152.8 million. Beginning in 1980, methionine and other amino acids and their salts are reported in Section XIV. Section totals are not, therefore, comparable with those of previous years.

Production of the larger groups of medicinal chemicals in 1980 was as follows: Antibiotics, 24.6 million pounds, 2.5 percent less than in 1979; anti-infective agents other than antibiotics, 29.0 million pounds, 17.9 percent less than in 1979; central nervous system depressants and stimulants, 60.0 million pounds, 0.4 percent less than in 1979; and vitamins, 42.6 million pounds, 2.7 percent more.

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 who 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.

Production of some of the more important individual products listed in the table was as follows: Choline chloride, 63.5 million pounds, 10.4 percent more than in 1979; aspirin, 33.8 million pounds, 5.8 percent more; acetaminophen, 17.2 million pounds, 5.1 percent less; penicillins (except semi-synthetic), 6.5 million pounds, 22.5 percent less; vitamin E, 7.3 million pounds, 1.0 percent more; and tetracyclines, 6.6 million pounds, 7.1 percent more.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1980

[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	SALES ¹			
	PRODUCTION ¹	QUANTITY	VALUE	UNIT VALUE ²
Grand total-----	243,876	167,231	1,152,794	\$6.89
Acyclic-----	69,279	64,625	56,844	.88
Benzenoid ³ -----	126,018	74,013	637,208	8.61
Cyclic nonbenzenoid ⁴ -----	48,579	28,593	458,742	16.04
Antibiotics, total-----	24,628	11,912	420,897	35.33
Cephalosporins-----	977	...	...	...
Penicillins, semisynthetic, total-----	1,768	448	32,246	71.98
Amoxicillin-----	323	...	...	...
Ampicillin-----	964	...	...	...
All other (semisynthetic) ⁵ -----	481	448	32,246	71.98
Penicillins (except semisynthetic), total-----	6,514	1,974	32,082	16.25
Penicillin G, potassium, for medicinal use-----	2,750	...	...	...
All other, for all uses ⁶ -----	3,764	1,974	32,082	16.25
Tetracyclines, for all uses-----	6,562	4,122	86,488	20.98
Other antibiotics, total-----	8,807	5,368	270,081	50.31
For medicinal use ⁷ -----	4,633	3,278	226,898	69.22
For nonmedicinal uses-----	4,174	2,090	43,183	20.66
Antihistamines, total-----	329	139	7,234	52.04
Antinauseants-----	75	...	...	...
All other ⁸ -----	254	139	7,234	52.04
Anti-infective agents (except antibiotics), total-----	29,019	10,848	62,420	5.75
Anthelmintics, total-----	9,330	3,826	5,894	1.54
Piperazine ⁹ -----	2,962	...	...	...
Piperazine dihydrochloride-----	1,033	978	1,556	1.59
All other ¹⁰ -----	5,335	2,848	4,338	1.52
Antiprotozoan agents, total-----	10,659	2,836	23,990	8.46
Arsenic and bismuth compounds-----	4,736	...	...	...
All other ¹¹ -----	5,923	2,836	23,990	8.46
Sulfonamides, total-----	4,841	771	10,884	14.12
Sulfamethazine-----	1,060	...	...	...
All other ¹² -----	3,781	771	10,884	14.12
Urinary antiseptics-----	218	...	...	...
Other anti-infective agents ¹³ -----	3,971	3,415	21,652	6.34
Autonomic drugs, total-----	1,483	1,137	19,782	17.40
Sympathomimetic (adrenergic) agents, total-----	1,447	1,126	17,923	15.92
Phenylpropanolamine hydrochloride-----	940	...	...	...
All other-----	507	1,126	17,923	15.92
Other autonomic drugs-----	36	11	1,859	169.00
Central depressants and stimulants, total-----	59,995	48,048	176,299	3.68
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents, total-----	52,930	...	...	...
Acetaminophen-----	17,247	...	...	...
Aspirin-----	33,750	...	...	...
All other-----	1,933	...	...	...
Anticonvulsants, hypnotics, and sedatives-----	1,242	346	4,998	14.45
Antidepressants-----	211	17	1,726	101.53
Antitussives-----	223	251	49,863	198.66
Skeletal muscle relaxants-----	421	408	4,394	10.77

See footnotes at end of table.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

MEDICINAL CHEMICALS	SALES ¹			
	PRODUCTION ¹	QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Central depressants and stimulants--Continued:				
Tranquilizers, total-----	383	...	...	...
Phenothiazine derivatives-----	80	...	...	...
All other-----	303	...	...	...
Other central depressants and stimulants ¹⁴ -----	4,585	47,026	115,318	2.45
Dermatological agents-----	3,480	3,555	4,053	1.14
Expectorants and mucolytic agents-----	2,090	1,834	11,272	6.15
Gastrointestinal agents and therapeutic nutrients, total ¹⁵ -----	66,657	61,255	38,651	.63
Choline chloride, all grades-----	63,504	59,555	31,720	.53
All other-----	3,153	1,700	6,931	4.08
Hematological agents-----	15	10	2,378	237.80
Hormones and synthetic substitutes, total-----	1,343	163	111,644	684.93
Estrogens-----	2	1	2,279	2,279.00
Synthetic hypoglycemic agents-----	1,134	...	...	...
All other ¹⁶ -----	207	162	109,365	675.09
Local anesthetics, total-----	123	56	2,221	39.66
Lidocaine-----	73	...	...	...
All other ¹⁷ -----	50	56	2,221	39.66
Renal-acting and edema-reducing agents-----	1,501	146	8,148	55.81
Smooth muscle relaxants ¹⁸ -----	163	...	...	...
Vitamins, total-----	42,577	26,535	239,923	9.04
Vitamin E-----	7,254	5,287	85,812	16.23
All other vitamins ¹⁹ -----	35,323	21,248	154,111	7.25
Miscellaneous medicinal chemicals ²⁰ -----	10,473	1,593	47,872	30.05

¹The data on production and sales are for bulk medicinal chemicals only. Methionine and other amino acids and their salts are now reported in section XIV. Section totals are not, therefore, comparable with those of previous years.

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 atom and conjugated double bonds, except the pyrimidine ring.

⁴Includes antibiotics of unknown structure.

⁵Includes sales quantity and value of amoxicillin and ampicillin.

⁶Includes sales quantity and value of penicillin G, potassium.

⁷Includes production and sales of antifungal and antitubercular antibiotics; and sales quantity and value of cephalosporins.

⁸Includes sales quantity and value of antinauseants.

⁹Includes piperazine which may have been used for purposes other than as an anthelmintic.

¹⁰Includes sales quantity and value of piperazine.

¹¹Includes sales quantity and value of arsenic and bismuth compounds.

¹²Includes sales quantity and value of sulfamethazine.

¹³Includes sales quantity and value of urinary antiseptics.

¹⁴Includes sales quantity and value of analgesics, antipyretics, nonhormonal anti-inflammatory agents, and tranquilizers. Also includes production and sales of amphetamines, general anesthetics, and respiratory and cerebral stimulants.

¹⁵Methionine and its salts are now reported in section XIV under amino acids.

¹⁶Includes sales quantity and value of synthetic hypoglycemic agents.

¹⁷Includes sales quantity and value of lidocaine.

¹⁸Includes theophylline derivatives.

¹⁹Includes production and sales of vitamin A, vitamin B, vitamin C, vitamin D, and vitamin K.

²⁰Includes production and sales of antineoplastic agents, cardiovascular agents, diagnostic agents, and unclassified medicinal chemicals. Also, includes sales quantity and value of smooth muscle relaxants.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980
 [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" SIGNIFIED 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, SK.
Cefoxitin	- - - - -	LIL, MRK.
Cephalexin	- - - - -	LIL.
Cephaloridine	- - - - -	LIL.
Cephalothin, sodium	- - - - -	LIL.
Cephapirin, sodium	- - - - -	BR.
Cephradine	- - - - -	SK, TRD.
*PENICILLINS, SEMISYNTHETIC:		
* AMOXICILLIN:		
Amoxicillin (trihydrate)	- - - - -	BEE, BOC.
Amoxicillin (anhydrous)	- - - - -	BR, MYT.
* AMPICILLIN:		
Ampicillin (anhydrous)	- - - - -	BR, MYT.
Ampicillin (trihydrate)	- - - - -	BEE, BOC, BR, TRD.
* OTHER SEMISYNTHETIC PENICILLINS:		
Ampicillin, sodium	- - - - -	BEE, BR, MYT.
Carbenicillin, disodium	- - - - -	BEE, PFZ.
Carbenicillin indanyl, sodium	- - - - -	BEE, BOC, BR, TRD.
Cloxacillin, sodium	- - - - -	BEE, BOC, BR.
Cyclacillin	- - - - -	MYT.
Dicloxacillin, sodium	- - - - -	BEE, MYT.
Epacillin	- - - - -	TRD.
Methicillin, sodium	- - - - -	BEE, BR.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED	
*PENICILLINS, SEMISYNTHETIC--CONTINUED	
*OTHER SEMISYNTHETIC PENICILLINS--CONTINUED	
Nafcillin, sodium	BRS, MYT.
Oxacillin, sodium	BEE, BOC, BRS.
Ticarcillin, disodium	BEE.
*PENICILLINS (EXCEPT SEMISYNTHETIC):	
FOR MEDICINAL USE:	
Penicillin V	BRS, LIL, PFZ.
Penicillin G, benzathine	MYT.
*Penicillin G, potassium	LIL, OMS, PFZ, MYT.
Penicillin V, potassium	BRS, LIL.
Penicillin G, procaine (medicinal grade)	LIL, PFZ, MYT.
FOR NONMEDICINAL USES:	
Penicillin G, procaine (animal feed grade)	MRK, OMS, PFZ.
*TETRACYCLINES:	
FOR MEDICINAL USE:	
Chlortetracycline (medicinal grade)	ACY.
Demeclocycline	ACY.
Doxycycline	PFZ.
Methacycline	PFZ.
Minocycline	ACY.
Oxytetracycline (medicinal grade)	PFZ.
Tetracycline	ACY, UPJ.
FOR NONMEDICINAL USES:	
Chlortetracycline (animal feed grade)	ACY, PEN, RLS.
Oxytetracycline (animal feed grade)	PFZ.
*OTHER ANTIBIOTICS:	
*FOR MEDICINAL USE:	
ANTIFUNGAL ANTIBIOTICS:	
Amphotericin B	OMS, TRD.
Candidin	PEN.
Nystatin (medicinal grade)	ACY, OMS, TRD.
ANTITUBERCULAR ANTIBIOTICS:	
Dihydrostreptomycin	PFZ.
Streptomycin (medicinal grade)	PFZ.
OTHER ANTIBIOTICS FOR MEDICINAL USE:	
Bacitracin (medicinal grade)	IMC.
Chloramphenicol	PD, RIS.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED	
*OTHER ANTIBIOTICS--CONTINUED	
*FOR MEDICINAL USE--CONTINUED	
OTHER ANTIBIOTICS FOR MEDICINAL USE--CONTINUED	
Clindamycin	UPJ.
Erythromycin	ABB, LIL, UPJ.
Erythromycin estolate	LIL.
Erythromycin stearate	UPJ.
Gentamycin	SCH.
Kanamycin	BRS.
Lincomycin (medicinal grade)	UPJ.
Neomycin (medicinal grade)	PEN, PFZ, UPJ.
Novobiocin, sodium	NRK, UPJ.
Polymyxin B	PFZ.
Spectinomycin (medicinal grade)	ARB, UPJ.
Thiostrepton	OMS.
Vancomycin	LIL.
Antibiotics, for medicinal use, all other	
*FOR NONMEDICINAL USES:	
Bacitracin (animal feed grade)	IMC.
Hygromycin B	LIL, UPJ.
Lasalocid	HOF.
Monesin	LIL, UPJ.
Neomycin (animal feed grade)	PFZ.
Novobiocin (animal feed grade)	UPJ.
Nystatin (animal feed grade)	OMS.
Spectinomycin (animal feed grade)	UPJ.
Streptomycin	PFZ.
Tylosin	LIL.
*ANTIHISTAMINES:	
*ANTINAUSEANTS:	
Cyclizine hydrochloride	BUR.
Dimenhydrinate	GAN, SRL.
Mecizine hydrochloride	PFZ.
Metoclopramide hydrochloride	X.
Trimethobenzamide hydrochloride	HOF.
*OTHER ANTIHISTAMINES:	
Azatadine maleate	SCH.
Brompheniramine maleate	HEX, SCH.
Carbinoxamine maleate	SCH.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTHISTAMINES--CONTINUED	
*OTHER ANTHISTAMINES--CONTINUED	
Chlorcyclizine hydrochloride	BUR.
Chlorpheniramine maleate	HEX, SCH, SK.
Chlorpheniramine tannate	MAL.
Cyproheptadine hydrochloride	MRK, SCH.
Dexbrompheniramine maleate	SCH.
Dimethindene maleate	CGY.
Diphenhydramine hydrochloride	PD.
Doxylamine succinate	BJL, BKC, HOF.
Methapyrilene fumarate	ABB.
Methdilazine	BJL.
Methdilazine hydrochloride	BJL.
Phenindamine tartrate	HOF.
Pheniramine maleate	HEX.
Phenyltoloxamine citrate	GAN, PD.
Pyrilamine maleate	HEX.
Pyrilamine tannate	MAL.
Pyrrbutamine phosphate	LIL.
Tripeleannamine citrate	CGY.
Tripeleannamine hydrochloride	CGY.
Triprolidine hydrochloride	AMD, BUR.
*ANTI-INFECTIVE AGENTS (EXCEPT ANTIBIOTICS):	
*ANTHELMINTICS:	
Dichlorvos	SHC.
Diethylcarbamazine citrate	ACY.
Gentian Violet	SDH.
Phenothiazine	WAG.
*Piperazine	DOM, JCC, TX, UCC.
Piperazine citrate	PCL.
*Piperazine dihydrochloride	FLM, JCC, PCL, TX, WHL.
Piperazine hexahydrate	JCC, PCL, TX.
Piperazine hydrochloride	FLM, JCC, TX.
Piperazine phosphate	JCC, PCL, TX.
Piperazine sulfate	JCC, TX.
Pyrantel pamoate	PFZ.
Pyrantel tartrate	PFZ.
Rafoxanide	MRK.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFECTION AGENTS (EXCEPT ANTIBIOTICS)--CONTINUED	
*ANTHELMINTICS--CONTINUED	
Thiabendazole	MRK.
*ANTIPROTOZOAN AGENTS:	
*ARSENIC AND BISMUTH COMPOUNDS:	
Arsanilic acid	
Bismuth subsalicylate	FLM, WHL.
Carbarsone	MAL, NOR, PEN.
Glycobiarsol	MHL.
Nitarsone	PCL, X.
Roxarsone	SAL.
Roxarsone, sodium	SAL.
*OTHER ANTIPROTOZOAN AGENTS:	
Aklomide	SAL.
Amodiaquine hydrochloride	PD.
Amprolium	MRK.
Chloroquine phosphate	SDM.
Cinchonidine	ARA.
Diodohydroxyquin	BSA.
Dinitolmide	SAL.
Ethopabate	NRK.
Furazolidone	NOR.
Hydroxychloroquine sulfate	SDM.
Iodochlorhydroxyquin	GGY.
Ipronidazole	HOF.
Metronidazole	RDA.
Nitromide	SAL.
Primaquine phosphate	SDM.
Pyrimethamine	BUR.
Ronidazole	MRK.
*SULFONAMIDES:	
Acetyl sulfisoxazole	HOF.
Mafenide acetate	SDM.
Sulfabenzamide	ACY.
Sulfacetamide, sodium	SCH.
Sulfachloropyrazine, sodium	ACY.
Sulfachloropyridazine	ACY.
Sulfadiazine	ACY.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFECTION AGENTS (EXCEPT ANTIBIOTICS)--CONTINUED	
*SULFONAMIDES--CONTINUED	
Sulfadimethoxine	HOF.
*Sulfamethazine	ACY, RLS, SAL.
Sulfamethazine, sodium	SAL.
Sulfamethizole	ACY.
Sulfamethoxazole	HOF.
Sulfanilamide	MRK.
Sulfanitran	SAL.
Sulfapyridine	ACY, LEM.
Sulfaguinoxaline	MRK.
Sulfasalazine	SAL.
Sulfathiazole, sodium	SAL.
Sulfisoxazole	HOF.
*URINARY ANTISEPTICS:	
Methenamine	PD.
Methenamine hippurate	LKL, RIK.
Methenamine mandelate	ARN, PD.
Nitrofurantoin	NOR.
Phenazopyridine hydrochloride	NEP.
*OTHER ANTI-INFECTION AGENTS:	
ANTIFUNGAL AGENTS:	
Calcium undecylenate	MON, WTL.
Sodium caprylate	LEM.
Zinc undecylenate	WTL.
ANTILEPROTIC AND ANTITUBERCULAR AGENTS:	
Aminosalicylic acid	HXL.
Sulfoxone, sodium	ABB.
MERCURY COMPOUNDS:	
Merbromin	HYN.
Nitromersol	ABB.
Thimerosal	LIL.
GENERAL ANTISEPTICS AND ANTIBACTERIAL AGENTS:	
Aminacrine hydrochloride	SDM.
Camphor, monobromated	PEN.
Carbadox	PFZ.
Cetylpyridinium chloride	HEX, HXL, LKL.
Chlorobutanol	SFS.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFEKTIVE AGENTS (EXCEPT ANTI-BIOTICS)--CONTINUED	
*OTHER ANTI-INFEKTIVE AGENTS--CONTINUED	
GENERAL ANTISEPTICS AND ANTIBACTERIAL AGENTS--CON.	
Chlorothymol	OPC.
m-Cresyl acetate	ADC.
8-Hydroxy-5-quinolinesulfonic acid	MRK.
Iodoform	DPM, MAL, PEN.
Malidixic acid	X.
Oxmetoprim	HOF.
Oxyquinoline benzoate (benoxiquine)	LEM.
Oxyquinoline sulfate	LEM.
Povidone-iodine	GAF.
Resorcinol	KPT, LEM.
Thymol iodide	MAL.
Trimethoprim	BUR, HOF.
*AUTONOMIC DRUGS:	
*SYMPATHOMIMETIC AGENTS:	
Cyclopentamine hydrochloride	LIL.
Dobutamine hydrochloride	LIL.
Dopamine hydrochloride	HEX.
Ephedrine hydrochloride	UPJ.
Isoproterenol hydrochloride	SDW.
Mephentermine	ARA.
Mephentermine sulfate	ARA.
Methoxyphenamine hydrochloride	HXL.
Naphazoline hydrochloride	CGY.
Phenylephrine	SDW.
Phenylephrine bitartrate	GAN, SDW.
Phenylephrine hydrochloride	ARS, GAN, NEP, ORT, X.
*Phenylpropanolamine hydrochloride	PD, SK.
Propylhexedrine	BUR, GAN.
Pseudoephedrine hydrochloride	GAN.
Pseudoephedrine sulfate	CGY.
Terbutaline sulfate	PFZ.
Tetrahydrozoline hydrochloride	
*OTHER AUTONOMIC DRUGS:	
PARASYMPATHOLYTIC QUATERNARY AMMONIUM COMPOUNDS	
(EXCEPT TROPANE DERIVATIVES):	
Diphenamil methylsulfate	SCH.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*AUTONOMIC DRUGS--CONTINUED	
*OTHER AUTONOMIC DRUGS--CONTINUED	
PARASYMPATHOLYTIC QUATERNARY AMMONIUM COMPOUNDS (EXCEPT TROPANE DERIVATIVES)--CONTINUED	
Glycopyrrolate	X.
Hexocyclium methylsulfate	ABB.
Isopropamide iodide	SK.
Mepenzolate bromide	LKL.
Pipenzolate bromide	LKL.
Propantelaine bromide	SRL.
Trihexethyl chlorixide	ACY.
PARASYMPATHOLYTIC TERTIARY AMINES (EXCEPT TROPANE DERIVATIVES):	
Dicyclomine hydrochloride	BKC.
Oxybutynin chloride	PD.
Oxyphenyclimine hydrochloride	PFZ.
Trihexyphenidyl hydrochloride	ACY.
PARASYMPATHOLYTIC TROPANE DERIVATIVES:	
Anisotropine methylbromide	ARA.
Benztropine mesylate	ARA.
PARASYMPATHOMIMETIC AGENTS:	
Bethanechol chloride	MRK.
Neostigmine bromide	HEX.
Neostigmine methylsulfate	HOF.
Pyridostigmine bromide	HOF.
SYMPATHOLYTIC AGENTS:	
Ergonovine maleate	LIL.
Timolol maleate	MRK.
*CENTRAL DEPRESSANTS AND STIMULANTS:	
*ANALGESICS, ANTIPYRETICS, AND NONHORMONAL ANTI- INFLAMMATORY AGENTS:	
*Acetaminophen	MAL, MON, PEN.
Aminobenzoic acid	GAN.
*Aspirin	DOM, MON, NOR, SDW.
Aurothiogluucose	MAL, SCH.
Choline salicylate	RSA.
Ethoheptazine citrate	WYT.
Fenoprofen	LIL.
Indomethacin	MRK.
Meclofenamate, sodium	PD.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*ANALGESICS, ANTIPIRETTIC, AND NONHORMONAL ANTI-INFLAMMATORY AGENTS--CONTINUED	
Meclofenamic acid	: PD.
Mefenamic acid	: PD.
Meperidine hydrochloride	: PEN, SDW, WYT.
Methadone hydrochloride	: LIL, MAL, PEN.
Morphine sulfate (pentahydrate)	: MAL, MRK, PEN.
Oxycodone hydrochloride	: EN, MAL.
Oxycodone terephthalate	: EN.
Oxymorphone hydrochloride	: EN.
Oxyphenbutazone	: CGY.
Phenacetin	: MOH.
Phenylbutazone	: CGY.
Phenyl salicylate	: DOW.
Potassium aminobenzoate	: GAN.
Potassium salicylate	: HN.
Propoxyphene hydrochloride	: GAN, LIL.
Propoxyphene napsylate	: GAN, LIL.
Salicylamide	: PEN.
Saltsalate	: PD, RIK.
Sodium aminobenzoate	: GAN.
Sodium salicylate	: HN.
Sulindac	: MRK.
Suprofen	: SDM.
Tolmetin, sodium	: SDM.
Zomepirac, sodium	: SDM.
*ANTICONSULSANTS, HYPNOTICS, AND SEDATIVES:	
ANTICONSULSANTS (EXCEPT BARBITURATES):	
Aminoglutethimide	: CGY.
Carbamazepine	: CGY.
Ethosuximide	: PD.
Ethotoin	: ABB.
Methsuximide	: PD.
Phensuximide	: PD.
Phenytoin	: PD.
Phenytoin, sodium	: PD.
Valproic acid	: ARA.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*ANTICONSULSANTS, HYPNOTICS, AND SEDATIVES--CONTINUED	
BARBITURATES:	
Amobarbital	: GAN, LIL.
Amobarbital, sodium	: GAN, LIL.
Barbital	: MAL.
Butabarbital	: GAN.
Butabarbital, sodium	: ABB, GAN.
Butalbital	: GAN.
Butalbital, sodium	: GAN.
Mephobarbital	: SDW.
Metharbital	: ABB.
Methohexital, sodium	: LIL.
Pentobarbital	: ABB, GAN, MAL.
Pentobarbital, sodium	: ABB, GAN, MAL.
Phenobarbital	: GAN.
Phenobarbital, sodium	: GAN.
Secobarbital	: GAN.
Secobarbital, sodium	: GAN.
Thiopental, sodium	: ABB.
HYPNOTICS AND SEDATIVES (EXCEPT BARBITURATES):	
Carbromal	: PD.
Ethchlorvynol	: ABB.
Glutethimide	: CGY, GAN.
Methaqualone	: X.
*ANTIDEPRESSANTS:	
Amitriptyline hydrochloride	: MRK, PD.
Desipramine hydrochloride	: CGY, LKL.
Doxepin hydrochloride	: PFZ, SK.
Imipramine hydrochloride	: CGY.
Maprotiline hydrochloride	: CGY.
Nortriptyline hydrochloride	: LIL.
*ANTITUSSIVES:	
Benzonate	: CGY.
Caramiphen edisylate	: SK.
Carbetapentane citrate	: PFZ.
Codeine	: MAL, MRK, PEN.
Dextromethorphan hydrobromide	: AMD, HOF.
Ethylmorphine hydrochloride	: MRK.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*ANTITUSSIVES--CONTINUED	
Hydrocodone bitartrate	EN, MAL, MRK.
Noscapine	MRK.
Thebaine	MAL, MRK, PEN.
*SKELETAL MUSCLE RELAXANTS:	
Carisoprodol	BKL.
Chlorphenesin carbamate	UPJ.
Cyclobenzaprine hydrochloride	MRK.
Methocarbamol	LLI, PEN.
Orphenadrine citrate	RIK.
Succinylcholine chloride	ABB, BUR.
Tubocurarine	ABB.
*TRANQUILIZERS:	
*PHENOTHIAZINE DERIVATIVES:	
Acetophenazine maleate	SCH.
Chlorpromazine hydrochloride	AMD, SK.
Fluphenazine hydrochloride	SCH.
Perphenazine	SCH.
Prochlorperazine edisylate	SK.
Prochlorperazine maleate	SK.
Promazine hydrochloride	MYT.
Promethazine hydrochloride	MYT.
Trifluoperazine hydrochloride	SK.
*OTHER TRANQUILIZERS:	
Buclicline hydrochloride	PFZ.
Chlordiazepoxide hydrochloride	SK.
Chlormezanone	SDM.
Clorazepate dipotassium	ABB.
Haloperidol	SFL.
Hydroxyzine hydrochloride	PFZ.
Hydroxyzine pamoate	LEM, PFZ.
Lorazepam	MYT.
Meprobamate	BKL.
Molindone hydrochloride	PD.
Oxazepam	MYT.
Temazepam	MYT.
Thiothixene hydrochloride	PFZ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*OTHER CENTRAL DEPRESSANTS AND STIMULANTS:	
AMPHETAMINES:	
Amphetamine	ARN, SK.
Amphetamine sulfate	ARN.
Dextroamphetamine	ARN, SK.
Dextroamphetamine sulfate	ARN, SK.
Methamphetamine hydrochloride	ARN.
GENERAL ANESTHETICS:	
Ketamine hydrochloride	PD.
RESPIRATORY AND CEREBRAL STIMULANTS:	
CAFFEINE (NATURAL AND SYNTHETIC):	
Caffeine, natural	CPR, GNF.
Caffeine, synthetic	PFZ.
OTHER RESPIRATORY AND CEREBRAL STIMULANTS:	
Benzphetamine hydrochloride	UPJ.
Caffeine, citrated	PCL.
Deanol acetamidobenzoate	RIK.
Diethylpropion hydrochloride	BKC.
Methylphenidate hydrochloride	CGY.
Nikethamide	GGY.
Phendimetrazine tartrate	GAN.
Phentermine	HEX.
*DERMATOLOGICAL AGENTS:	
Allantoin	HFT.
Aluminum phenolsulfonate	SAL.
Ammonium phenolsulfonate	SAL.
Bismuth subgallate	MAL.
Podophyllum resin	PEN.
Salicylic acid	DOM, MON.
Sodium phenolsulfonate	SAL.
Zinc phenolsulfonate	MAL, SAL.
*EXPECTORANTS AND MUCOLYTIC AGENTS:	
Ethylenediamine dihydroiodide	DEW, NES, WAG, WHL.
Guaiacol	PEN.
Guaifenesin	GAN, HEX, LLI, PEN.
Iodinated glycerol	X.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*EXPECTORANTS AND MUCOLYTIC AGENTS--CONTINUED	
Potassium guaiacolsulfonate	HN.
*GASTROINTESTINAL AGENTS AND THERAPEUTIC NUTRIENTS:	
GASTROINTESTINAL AGENTS:	
*CHOLINE CHLORIDE (ALL GRADES):	
Choline chloride (animal feed grade)	DA, HFT, IMC, TMH.
Choline chloride (medicinal grade)	HFT.
*OTHER GASTROINTESTINAL AGENTS:	
Bile acids, oxidized	WIL.
Calcium polycarbophil	LLI.
Dehydrocholic acid	WIL.
Docusate, calcium	ACY.
Docusate, potassium	ACT.
Docusate, sodium	ACY.
Iron bile salts	LLI, WIL.
Magnesium citrate	MAL.
Ox bile extract	ABB, WIL.
Phenolphthalein	SCH.
Sodium tartrate	MAL.
THERAPEUTIC NUTRIENTS:	
Apomorphine hydrochloride (hemihydrate)	MRK.
Betaine base	HFT.
Betaine hydrochloride	HFT.
Choline bicarbonate	IMC.
Choline bitartrate	HFT.
Choline citrate	HFT.
Choline dihydrogen citrate	HFT.
Cimetidine	SK.
Cimetidine hydrochloride	SK.
Colestipol hydrochloride	UPJ.
Copper gluconate	PFZ.
Manganese gluconate	PFZ.
Potassium gluconate	PFZ.
Sitosterols	UPJ.
Zinc gluconate	PFN, PFZ.
*HEMATOLOGICAL AGENTS:	
Ammonium heparin	ABB, RIK, SPR, WIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*HEMATOLOGICAL AGENTS--CONTINUED	
Anisindione	SCH.
Cellulose, oxidized	EKT.
Dextran	PHR.
Dicumarol	ABB.
Diphenadione	UPJ.
Lithium heparin	ABB, RIK, SPR, WILL.
Sodium heparin	ABB, RIK, SPR, WILL.
Warfarin	SDM.
*HORMONES AND SYNTHETIC SUBSTITUTES:	
ANABOLIC AGENTS AND ANDROGENS:	
Fluoxymesterone	UPJ.
Methyltestosterone	SRL, UPJ.
Testosterone	SRL, UPJ.
Testosterone cypionate	UPJ.
Testosterone propionate	SRL, UPJ.
Zeranol	IMC.
CORTICOSTEROIDS:	
Beclomethasone	SCH.
Betamethasone	SCH.
Betamethasone dipropionate	SCH.
Betamethasone sodium phosphate	SCH.
Betamethasone valerate	SCH.
Cortisone acetate	UPJ.
Dexamethasone	MRK, SCH.
Dexamethasone sodium phosphate	MRK.
Diflorasone diacetate	UPJ.
Fludrocortisone acetate	UPJ.
Fluorometholone	UPJ.
Fluprednisolone acetate	UPJ.
Halcinonide	TRD.
Hydrocortisone	UPJ.
Hydrocortisone acetate	UPJ.
Medrysone	UPJ.
Meprednisone acetate	SCH.
Methylprednisolone	UPJ.
Prednisolone	MRK, UPJ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*HORMONES AND SYNTHETIC SUBSTITUTES--CONTINUED	
CORTICOSTEROIDS--CONTINUED	
Prednisolone acetate	UPJ.
Prednisone	UPJ.
Triamcinolone	TRD, X.
Triamcinolone acetonide	TRD.
Corticosteroids, all other	X.
ESTROGENS AND PROGESTOGENS:	
*ESTROGENS:	
Chlortrianiisene	LKL.
Diethylstilbestrol diphosphate	ARA.
Estradiol benzoate	SRL.
Estrogens, conjugated	ORG.
Estrogens, esterified	ORG.
Estrogens, all other	ORG.
PROGESTOGENS:	
Dinoprostone	UPJ.
Ethisterone	SRL, UPJ.
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.
THYROID HORMONE AND ANTIHYROID AGENTS:	
Levothyroxine, sodium	BAX.
Thiouracil	ACY.
Thyroglobulin	NEP.
Thyroid	LIL.
OTHER HORMONES AND SYNTHETIC SUBSTITUTES:	
Calcitonin	ARP.
Corticotropin	ARP, ORG.
Glucagon	LIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*HORMONES AND SYNTHETIC SUBSTITUTES--CONTINUED	
*OTHER HORMONES AND SYNTHETIC SUBSTITUTES--CONTINUED	
Insulin	ARP, LIL.
*LOCAL ANESTHETICS:	
Benzocaine	PD.
Butamben	ABB.
Butamben picrate	ABB.
Chloroprocaine hydrochloride	ARR.
Cocaine	MRK.
Dibucaine	CGY.
Dibucaine hydrochloride	CGY.
Dyclonine hydrochloride	BJL.
Lidocaine	AST, LEM, SDM.
Lidocaine hydrochloride	SDM.
Mepivacaine	LEM.
Mepivacaine hydrochloride	SDM.
Oxethazaine	ARR, WYT.
Piperocaine hydrochloride	LIL.
Pramoxine hydrochloride	ABB.
Procaine hydrochloride	PD.
Tetracaine hydrochloride	SDM.
*RENAL-ACTING AND EDEMA-REDUCING AGENTS:	
BENZOTHIAZINE DERIVATIVES:	
Benzthiazide	PFZ.
Chlorothiazide	MRK.
Hydrochlorothiazide	ABB, CGY, MRK.
Methyclothiazide	ABB.
Polythiazide	PFZ.
Trichloromethiazide	SCH.
OTHER RENAL-ACTING AND EDEMA-REDUCING AGENTS:	
Acetazolamide	ACY.
Amiloride hydrochloride	MRK.
Dichlorophenamide	MRK.
Ethacrynic acid	MRK.
Probenecid	MRK.
Spironolactone	SRI.
Sulfapyrazone	CGY.
Triamterene	SK.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*SMOOTH MUSCLE RELAXANTS:	
Aminophylline	GAN, SRL.
Cinnamethrine hydrochloride	SDM.
Flavoxate hydrochloride	SK.
Oxtriphylline	NEP.
Papaverine hydrochloride	LIL.
Theophylline sodium glycinate	CHT.
*VITAMINS:	
VITAMIN A:	
Beta carotene (provitamin A)	HOF.
Tretinoin (vitamin A acid)	EK.
Vitamin A acetate (animal feed grade)	HOF.
Vitamin A acetate (medicinal grade)	HOF.
Vitamin A alcohol	HOF.
Vitamin A palmitate (animal feed grade)	HOF.
Vitamin A palmitate (medicinal grade)	HOF.
Vitamin A propionate	HOF.
VITAMIN B-COMPLEX:	
NIACIN AND DERIVATIVES:	
Niacin (animal feed grade)	NEP.
Niacinamide (medicinal grade)	NEP, RIL.
Niacinamide (animal feed grade)	NEP, RIL.
Niacinamide hydroiodide	DPM.
PANTOTHENIC ACID DERIVATIVES:	
d-Calcium pantothenate (animal feed grade)	DA, DAT.
d-Calcium pantothenate (medicinal grade)	DAT.
dl-Calcium pantothenate (animal feed grade)	HFT.
dl-Calcium pantothenate - calcium chloride complex	HFT.
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.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*VITAMINS--CONTINUED	
VITAMIN B-COMPLEX--CONTINUED	
OTHER B-COMPLEX VITAMINS--CONTINUED	
Inositol	STA.
Pyridoxine	HOF.
Riboflavin (animal feed grade)	HOF, MRK.
Riboflavin (medicinal grade)	HOF, MRK.
Riboflavin-5-phosphate, sodium	HOF.
Thiamine hydrochloride	HOF.
Thiamine mononitrate	HOF.
VITAMIN C:	
Ascorbic acid	HOF, PFZ.
Sodium ascorbate	HOF, PFZ.
VITAMIN D:	
Cholecalciferol (vitamin D ₃)	DA, VTM.
7-Dehydrocholesterol (provitamin D ₃)	DA.
Ergocalciferol (vitamin D ₂)	VTM.
*VITAMIN E:	
DL-ALPHA TOCOPHERYL ACETATE (ALL GRADES):	
dl- α Tocopheryl acetate (animal feed grade)	BAS, DA, HOF.
dl- α Tocopheryl acetate (medicinal grade)	BAS, HOF.
OTHER VITAMIN E:	
d- α Tocopherol	EKT, HOF, SCP.
d- α Tocopheryl acetate	EKT, SCP.
d- α Tocopheryl acid succinate	EKT, SCP.
VITAMIN K:	
MENADIONE SODIUM BISULFITE:	
Menadione sodium bisulfite (anhydrous)	ABB, HET.
OTHER VITAMIN K:	
Menadione	ABB.
*MISCELLANEOUS MEDICINAL CHEMICALS:	
ANTINEOPLASTIC AGENTS:	
Azathioprine	BUR.
Cytarabine	UPJ.
Mercaptopurine	BUR.
Streptozocin	PFN, UPJ.
Thioguanine (hemihydrate)	BUR.
Vinblastine sulfate	ILL.
Vincristine sulfate	ILL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*MISCELLANEOUS MEDICINAL CHEMICALS--CONTINUED	
CARDIOVASCULAR AGENTS:	
ANTIHYPERTENSIVE AGENTS:	
Diazoxide - - - - -	SCH.
Hydralazine hydrochloride - - - - -	CGY.
Mebutamate - - - - -	BKL.
Methyldopa - - - - -	MRK.
Metoprolol tartrate - - - - -	CGY.
Nadolol - - - - -	TRD.
Prazosin hydrochloride - - - - -	PFZ.
Rauwolfia serpentina - - - - -	PEN.
Reserpine - - - - -	PEN.
BIOFLAVONOIDS:	
Hesperidin - - - - -	SKG.
Lemon bioflavonoid complex - - - - -	SKG.
Naringin - - - - -	SKG.
Orange-lemon flavonate - - - - -	SKG.
VASODILATORS:	
Amyl nitrite - - - - -	BUR.
Dioxyline phosphate - - - - -	LIL.
Oxprenolol hydrochloride - - - - -	CGY.
OTHER CARDIOVASCULAR AGENTS:	
Disopyramide phosphate - - - - -	SRL.
Procainamide hydrochloride - - - - -	OMS, PD.
DIAGNOSTIC AGENTS:	
ROENTGENOGRAPHIC CONTRAST MEDIA:	
Diatrizoate, meglumine - - - - -	OMS, SDW.
Diatrizoate, sodium - - - - -	OMS, SDW.
Iodipamide, meglumine - - - - -	OMS.
Iopanoic acid - - - - -	SDW.
Iothalamate, meglumine - - - - -	MAL.
Iothalamate, sodium - - - - -	MAL.
Meglumine - - - - -	SDM.
Tyropanoate, sodium - - - - -	SDM.
OTHER DIAGNOSTIC AGENTS:	
Betazole hydrochloride (gastric secretion indicator) - - - - -	MAL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MEDICINAL CHEMICALS	
*MISCELLANEOUS MEDICINAL CHEMICALS--CONTINUED	
DIAGNOSTIC AGENTS--CONTINUED	
OTHER DIAGNOSTIC AGENTS--CONTINUED	
Metyrapone (pituitary function test)	CGY.
Xylose (intestinal malabsorption test)	PFK.
UNCLASSIFIED MEDICINAL CHEMICALS:	
Clomiphene citrate	LKL.
Medicinal chemicals, all other	LIL.

TABLE 3.--MEDICINALS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1980

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of medicinal chemicals to the U.S. International Trade Commission for 1980 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ABB	: Abbott Laboratories	MAL	: Mallinckrodt, Inc.
ACY	: American Cyanamid Co.	MON	: Monsanto Co.
ADC	: Anderson Development Co.	MRK	: Merck & Co., Inc.
AMD	: Alameda Laboratories, Inc., Cyclo Chemical : Div.	NEP	: Nepera Chemical Co., Inc.
ARA	: Arapahoe Chemicals, Inc., Sub/Syntex U.S.A., : Inc.	NES	: Ruetgers-Nease Chemical Co.
ARN	: Arenol Chemical Corp.	NOR	: Morton-Norwich Products, Inc., Norwich Eaton : Pharmaceutical Div.
ARP	: Armour Pharmaceutical Co.	OMS	: E.R. Squibb & Sons, Inc.
ARS	: Arsyno, Inc.	OPC	: Orbis Products Corp.
AST	: Astra Pharmaceutical Products, Inc.	ORG	: Organics, Inc./Lagrange Labs. Inc.
BAS	: BASF Wyandotte Corp.	ORT	: Roehr Chemicals, Inc.
BAX	: Baxter Travenol Laboratories, Inc.	PCL	: Polychemical Laboratories, Inc.
BEE	: Beecham, Inc., Beecham Laboratories Div.	PD	: Warner-Lambert Co.
BJL	: Burdick & Jackson Laboratories, Inc.	PEN	: CPC International, Inc., Penick Corp.
BKC	: J.T. Baker Chemical Co.	PFN	: Pfanstiehl Laboratories, Inc.
BKL	: Millmaster Onyx Group, Millmaster Chemical : Co. Div.	PFZ	: Pfizer, Inc. & Pfizer Pharmaceuticals, Inc.
BOC	: Biocraft Laboratories, Inc.	PHR	: Pharmachem Corp.
BRS	: Bristol-Myers Co.	RDA	: Rhone-Poulenc, Inc.
BUR	: Burroughs-Wellcome Co.	RIK	: Riker Laboratories, Inc., Sub. of 3M Co.
CGY	: Ciba-Geigy Corp.	RIL	: Reilly Tar & Chemical Corp.
CHT	: Chattem Corp.	RLS	: Rachele Laboratories, Inc.
CPR	: Certified Processing Corp.	RSA	: R.S.A. Corp.
DA	: Diamond Shamrock Corp.	SAL	: Salsbury Laboratories
DAT	: Daitom, Inc.	SCH	: Schering Corp.
DOW	: Dow Chemical Co.	SCP	: Henkel Corp.
DPW	: Deepwater Chemical Co., Ltd.	SDH	: Sterling Drug Corp.: : Hilton Davis Chemical Co. Div.
EK	: Eastman Kodak Co.:	SDW	: Sterling Organics Div.
EKT	: Tennessee Eastman Co. Div.	SFS	: Stauffer Chemical Co., Specialty Div.
EN	: Endo Laboratories, Inc.	SHC	: Shell Oil Co., Shell Chemical Co. Div.
FLM	: Fleming Laboratories, Inc.	SK	: SmithKline Corp., SmithKline Chemicals Div.
GAF	: GAF Corp.	SKG	: Sunkist Growers, Inc.
GAN	: Gane's Chemicals, Inc.	SPR	: Scientific Protein Laboratories, Inc.
GNF	: General Foods Corp., Maxwell House Coffee Div.	SRL	: G.D. Searl & Co., Searle Chemicals Inc.
HET	: Heterochemical Corp.	STA	: A.E. Staley Manufacturing Co.
HEX	: Hexagon Laboratories, Inc.	TMH	: Thompson-Hayward Chemical Co.
HFT	: Syntex Agribusiness, Inc.	TRD	: Squibb Manufacturing, Inc., Renesa, Inc., : Ersana, Inc.
HN	: Tenneco Chemicals, Inc.	TX	: Texaco Chemical Co.
HOF	: Hoffmann-LaRoche, Inc.	UCC	: Union Carbide Corp.
HXL	: Hexcel Corp., Hexcel Chemical Products	UPJ	: Upjohn Co.
HYN	: Hynson, Westcott & Dunning, Inc.	VTM	: Vitamins, Inc.
IMC	: International Minerals & Chemical Corp.	WAG	: West Agro-Chemical, Inc.
JCC	: Jefferson Chemical Co., Inc.	WHL	: Whitmoyer Laboratories, Inc.
KPT	: Koppers Co., Inc., Organic Materials Group	WIL	: American Can Co., Inolex Pharmaceutical Div.
LEM	: Napp Chemicals, Inc.	WTL	: Pennwalt Corp., Lucidol Div.
LIL	: Eli Lilly & Co., U.S. and Puerto Rico	WYT	: Wyeth Laboratories, Inc., Wyeth Laboratories : Div. of American Home Products Corp.
LKL	: Richard-Merrell, Inc., Merrell-National : Laboratories Div.		
LLI	: Lee Laboratories, Inc.		

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

STATISTICAL HIGHLIGHTS

Eric Land

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 1980 amounted to 174.7 million pounds. Sales of these materials in 1980 amounted to 129.0 million pounds, valued at \$253.5 million, compared with 135.1 million pounds, valued at \$236.5 million, in 1979. 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 1980 declined by 10.2 percent from the level in 1979; while the quantity of sales decreased by 4.5 percent.

Production of cyclic flavor and perfume materials in 1980 amounted to 97.8 million pounds; sales amounted to 73.8 million pounds, valued at \$156.8 million. Individual publishable chemicals in the cyclic group produced in the greatest volume in 1980 were anethole, α -terpineol, and benzyl acetate.

U.S. output of acyclic flavor and perfume materials in 1980 amounted to 76.9 million pounds; sales of these materials amounted to 55.2 million pounds, valued at \$96.7 million. Monosodium glutamate was by far the most important of the acyclic chemicals in 1980, although the data are not publishable. Other important acyclic compounds included linalyl alcohol, citronellol, and linalyl acetate.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1980

[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 separately all flavor and perfume materials for which data on production and/or sales were reported and identifies the manufacturer 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-----	174,702	128,998	253,520	\$1.97
CYCLIC				
Total-----	97,791	73,760	156,794	2.13
<i>Benzenoid and Naphthalenoid</i>				
Total-----	82,838	64,013	117,087	1.83
4-Allyl-2-methoxyphenol (Eugenol)-----	333	268	1,140	4.26
4-Allyl-2-methoxyphenol acetate-----	4	3	23	8.58
Benzophenone ² -----	881	966	1,828	1.89
Benzyl acetate-----	1,402	2,125	2,953	1.39
Benzyl propionate-----	27	25	54	2.18
Cinnamyl acetate-----	33	11	75	6.55
Isobutyl phenylacetate-----	30	27	80	2.93
Isophentyl salicylate-----	...	856	1,262	1.47
2-Methoxy-4-propenylphenol (Isoeugenol)-----	69	64	393	6.15
p-Methylanisole-----	33	32	86	2.66
α-Methylbenzyl acetate-----	130	123	325	2.63
Phenethyl isobutyrate-----	7	6	30	5.11
2-Phenethyl phenylacetate-----	29	19	100	5.41
3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	51	44	215	4.93
p-Propenylanisole (Anethole)-----	2,887	2,301	7,848	3.41
All other benzenoid and naphthalenoid materials-----	76,922	57,143	100,675	1.76
<i>Terpenoid, Heterocyclic, and Alicyclic</i>				
Total-----	14,953	9,747	39,707	4.07
Cedryl acetate-----	245	169	668	3.95
Dihydrondicyclopentadienyl acetate-----	139	119	187	1.57
Dihydrondicyclopentadienyl propionate-----	...	168	274	1.63
Guaiacwood acetate-----	65	54	212	3.90
Ionones-----	143	95	770	8.12
Isobornyl propionate-----	...	6	16	2.65
dl-Menthol, synthetic-----	580	...	...	...
Methyl acetate-----	10	...	...	...
Methylionone (α- and β-)-----	738	568	4,157	7.32
α-Terpineol-----	2,743	2,486	1,749	.70
α-Terpinyol acetate-----	1,053	889	1,063	1.19
Vitivenyl acetate-----	26	19	818	44.09
All other terpenoid, heterocyclic, and alicyclic materials-----	9,211	5,174	29,793	5.63
ACYCLIC				
Total-----	76,911	55,238	96,726	1.75
Allyl heptanoate-----	5	4	24	6.40
Citronellyl acetate-----	85	...	...	...
3,7-Dimethyl-cis-2,6-octadien-1-ol acetate (Neryl acetate)-----	24	26	118	4.61

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	per pound
ACYCLIC--Continued				
3,7-Dimethyl-1,6-octadien-3-ol (Linalool; Linalyl alcohol)-----	2,613	1,933	4,631	2.40
3,7-Dimethyl-1,6-octadien-3-ol acetate (Linalyl acetate)-----	1,114	975	3,301	3.39
3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	2,506	1,419	6,323	4.46
Ethyl heptanoate-----	8	8	31	3.74
Ethyl hexanoate (Ethyl caproate)-----	14	12	44	3.80
Ethyl isovalerate-----	13	...	...	...
Ethyl propionate-----	75	82	130	1.59
Geranyl acetate-----	195	168	776	4.62
Geranyl formate-----	24	23	158	6.94
2-Hexenal-----	3	3	66	21.82
Isopentyl acetate-----	307	296	305	1.03
Isopentyl butyrate-----	112	91	160	1.74
Isopentyl isovalerate-----	26	16	61	3.74
N-Octyl acetate-----	1	1	8	8.47
Rhodinol-----	10	...	...	...
All other acyclic materials-----	69,776	50,181	80,590	1.61

¹Calculated from the unrounded figures.

²Includes significant quantities having other end uses.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980

[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:	
Acetaldehyde, diphenethyl acetal (Phenylethyl acetal)	: GIV.
2'-Acetonaphthone (β -Methyl naphthyl ketone)	: GIV.
1-Acetoxy-2-sec-butyl-1-ethylcyclohexane	: GIV.
p-Allylanisole	: SCM, X.
Allyl anthranilate	: RT.
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)	: CI.
*4-Allyl-2-methoxyphenol (Eugenol)	: BDS, CI, ELN, FB, GIV, IFF, PEN, UNG.
*4-Allyl-2-methoxyphenol acetate (Eugenol acetate)	: BDS, CI, ELN, GIV, IFF.
4-Allyl-1,2-(methylenedioxy)-benzene (Safrole)	: FB.
Allyl phenoxycetate	: GIV.
α -Amyl cinnamic aldehyde	: IFF.
tert-Amyl cymene	: PFM.
p-Anisaldehyde	: OPG, UPM.
Anisole (Methoxybenzene) (Methyl phenyl ether)	: ELN, OPG.
Anisyl acetate	: RT.
Anisyl butyrate	: RT.
Anisyl caproate	: PFM.
Aurantiol	: GIV.
Benzaldehyde glyceryl acetal	: CUN, MEO, PD, UPM.
*Benzophenone	: GIV, MOH, MEO, OPG, SBC, TNA, UPM.
*Benzyl acetate	: CIN, MON, PFZ, VEL.
Benzyl benzoate	: ELN, FB.
Benzyl butyrate	: FB.
Benzyl cinnamate	: FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER*, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
Benzyl ether	UPM.
Benzyl formate	ELN, GIV.
Benzyl isobutyrate	ELN.
Benzyl isopentyl ether	GIV.
Benzyl isovalerate	ELN, FB.
Benzyl laurate	GIV.
1-(Benzylloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether)	GIV.
Benzyl phenylacetate	ELN, GIV.
*Benzyl propionate	ELN, FB, OPC.
Benzyl salicylate	FB, MON.
4-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone (Musk ketone)	GIV.
6-tert-Butyl-3-methyl-2,4-dinitroanisole (Musk ambrette)	GIV.
p-tert-Butyl- α -methylhydrocinnamalehyde	GIV, UPM.
1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzene (Musk tibetene)	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)	GIV.
Carvacrol	GIV.
Cinnamaldehyde	CI, FB, UPM.
Cinnamic aldehyde dimethyl acetal	CI.
*Cinnamyl acetate	ELN, FB, GIV.
Cinnamyl alcohol	FB, UPM.
Cinnamyl anthranilate	FEL, GIV, RT.
Cinnamyl butyrate	FB.
Cinnamyl cinnamate	FB.
Cinnamyl propionate	FB, GIV.
Cinnamyl tiglate	FB.
Coumarin	RDA.
Cumyl acetate	IFF.
Cumyl alcohol	IFF.
Cumyl formate	IFF.
trans-Decahydro- β -naphthol	IFF.
2-4-Dibromo-6-nitro-m-cresyl methyl ether	GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
1,2-Dimethoxy-4-propenylbenzene (4-Propenyl- veratrole)	FB, GIV.
Dimethyl benzene ethanol acetate	IFF.
3,7-Dimethyl-2,6-octadienyl phenylacetate (Geranyl phenylacetate)	GIV, SBC.
α,α -Dimethylphenethyl acetate	IFF.
α,α -Dimethylphenethyl alcohol	IFF.
α,α -Dimethylphenethyl butyrate	IFF.
Dimethyl phenylethyl carbinol	IFF.
Dimethyl phenylethyl carbonyl acetate	IFF.
Diphenylmethane (Benzylbenzene)	PD, UPM.
1,3-Diphenyl-2-propanone (Dibenzylketone)	GIV.
p-Ethoxybenzaldehyde	GIV.
2-Ethoxynaphthalene	GIV.
Ethyl anthranilate	FB.
Ethyl benzoate	ELN.
Ethyl cinnamate	ELN, GIV.
Ethyl- α,β -epoxy- β -methylhydrocinnamate	ELN.
2-Ethyl hexyl salicylate	FEL, NFO.
Ethyl phenylacetate	GIV.
Ethyl phenylglycidate	GIV.
Ethyl salicylate	FB.
Geranyl benzoate	GIV.
Hexyl benzoate	PFW, SBC.
α -Hexylcinnamaldehyde	CI, IFF.
Hydratropaldehyde	GIV, IFF.
Hydratropaldehyde, dimethyl acetal	GIV, IFF.
Hydrocinamic acid	ELN.
Hydrocoumarin	GIV, UPM.
Hydroxycitronellal methyl anthranilate	FB, GIV.
4-Hydroxy-3-ethoxybenzaldehyde (Ethylvanillin)	MON, RDA.
4-Hydroxy-3-methoxybenzaldehyde [Vanillin] (4-Hydroxy-3-methoxyphenyl)-2-butanone (Vanillylacetone)	MON.
Indole	GIV.
Isoamyl phenylacetate	GIV.
Isobutyl benzoate	ELN, FB.
	ELN, SBC.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
P-Isobutyl- α -methylhydrocinnamaldehyde (Rhodial)	: RDA.
*Isobutyl phenylacetate	: ELN, FB, OPC.
Isobutylquinoline	: IFF.
Isobutyl salicylate	: FB.
Isohexenyl tetrahydrobenzaldehyde (Myrac aldehyde)	: IFF.
Isopentyl benzoate	: GIV.
*Isopentyl salicylate	: FB, MON, UPM.
Isopropylbenzaldehyde (Cumaldehyde)	: GIV.
P-Isopropyl- α -methylhydrocinnamaldehyde (Cyclamen- aldehyde)	: RDA.
P-Isopropyl- α -methylhydrocinnamyl alcohol	: GIV.
1-Limonene	: SCM.
Linalyl anthranilate	: BDS, FMT.
Linalyl benzoate	: GIV, HOF.
Linalyl cinnamate	: HOF.
P-Mentha-1,8-diene (Limonene)	: SKG.
Menthyl anthranilate	: PFW.
4'-Methoxyacetophenone	: UPM.
P-Methoxybenzyl alcohol (Anisyl alcohol)	: ELN, GIV, OPC, UPM.
O-Methoxy cinnamic aldehyde	: CI, FB.
2-Methoxynaphthalene	: GIV.
1-p-Methoxyphenyl penten-1-one-3 (α -Methyl- anisalacetone)	: GIV.
*2-Methoxy-4-propenylphenol (Isoeugenol)	: CI, ELN, GIV, IFF, NEO.
2-Methoxy-4-propenylphenol, acetate	: CI.
4'-Methylacetophenone	: CMN.
*p-Methylanisole	: GIV, OPC, SM.
Methyl anthranilate	: FB, SM, UNG.
Methyl benzoate	: HN, HPC, PFW, SBC.
* α -Methylbenzyl acetate (Styralyl acetate)	: CI, GIV, IFF.
α -Methylcinnamaldehyde	: CI, FB.
Methyl cinnamate	: FB.
6-Methylcoumarin	: GIV.
p-Methyl ethyl phenyl glycidate	: PFW.
p-Methylhydratropaldehyde	: GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
1-Methyl-isoheptyl-hexahydro benzaldehyde	: GIV.
Methyl N-methylanthranilate	: SW.
Methyl phenylacetate	: ELN, GIV.
Methyl salicylate	: HN, MON.
Musk 89	: IFF.
α-Pentylcinnamaldehyde	: CI, FB.
Phenethyl acetate	: IFF, OPC.
Phenethyl alcohol	: IFF, OPC.
Phenethyl benzoate	: IFF.
Phenethyl formate	: IFF.
*Phenethyl isobutyrate	: ELN, IFF.
Phenethyl isovalerate	: ELN, GIV, IFF.
Phenethyl methacrylate	: ELN, FB, GIV.
*2-Phenethyl phenylacetate	: BDS, CI, ELN, GIV, IFF.
Phenethyl propionate	: ELN, GIV, OPC.
Phenethyl salicylate	: NEO, OPC.
2-Phenoxyethyl isobutyrate	: ELN, OPC.
Phenoxyethyl propionate	: IFF.
Phenylacetaldehyde	: GIV.
Phenylacetaldehyde, dimethyl acetal	: ELN, GIV.
Phenylacetic acid	: GIV.
Phenylacetic acid, isopentyl ester	: GIV.
α-Phenylanisole	: GIV.
4-Phenyl-3-buten-2-one	: FB.
Phenylethyl anthranilate	: RI.
Phenylethyl benzoate	: OPC.
Phenylethyl 2-methyl butyrate	: SCM.
Phenylethyl tiglate	: FB.
*3-Phenyl-1-propanol (Hydrocinnamic alcohol)	: ELN, FB, GIV.
3-Phenylpropyl acetate	: ELN, GIV.
3-Phenylpropyl cinnamate	: FB.
Phenyl propyl pyrriaine acetate	: IFF.
Piperonal (Heliotropin)	: AMB.
*p-Propenylanisole (Anethole)	: ARZ, FB, HPC, MCI, SCM.
4-Propenyl-1,2-dimethoxybenzene (Methyl isoeugenol)	: CI.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--CONTINUED	
p-Propylanisol (Dihydroanethole)	FB, GIV.
N-Propyl phenyl ethyl alcohol	GIV.
SWEETENERS, SYNTHETIC:	
Cyclohexanesulfamic acid, calcium salt	ABB.
Cyclohexanesulfamic acid, sodium salt	ABB.
Saccharin (1,2-Benzisothiazolin-3-one, 1,1-dioxide)	SM.
Saccharin, sodium salt	SM.
p-Tolualdehyde	FB, GIV.
p-Tolylacetamide	GIV.
p-Tolyl acetate	ELN.
p-Tolylphenylacetate	GIV.
α-(Trichloromethyl)benzyl acetate (Rosetone)	NEO.
Trimethylcyclohexyl salicylate	ARS.
all other Benzenoid or naphthalenoid chemicals	AIC, IFF, OPC.
TERPENOID, HETEROCYCLIC, AND ALICYCLIC:	
Acetyl-n-butyl (2,3-Hexanedione)	FB.
Acetyl cedrene (Vertoflex)	BDS.
Acetyl isovaleryl (5-Methyl-2,3-hexanedione)	FB.
Acetyl propionyl (2,3-Pentanedione)	FB.
Allo-ocimene	GIV, IFF, X.
Allyl cyclohexyl Propionate	GIV.
Amyris acetate	BDS, GIV.
Beta methyl ionone coevr	IFF.
Bornyl isovalerate	FB, RT.
p-tert-Butylcyclohexyl acetate (Verbenax)	CI, IFF.
p-tert-Butylcyclohexanone	IFF.
2-sec-Butylcyclohexanone	GIV.
Cadinene	FB.
Carvone oxide	NEO, OPC.
β-Caryophyllene	CI, FB, GIV, SCM.
Caryophyllene acetate	CI.
Cedrene	NEO.
α-Cedrene epoxide (Andrane)	IFF.
Cedrenol	BDS, ELN, IFF.
Cedrol	BDS, ELN, GIV, IFF, NEO.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED	
*Cedryl acetate	BDS, ELM, IFF, NEO, UNG.
Cedryl formate	IFF.
Cyclohexyl acetate	FB, RT.
Cyclohexyl butyrate	RT.
2-Cyclohexylcyclohexanone	GIV.
Cyclohexyl isovalerate	RT.
*Dihydronordicyclopentadienyl acetate (Cyclacet)	BDS, CI, IFF, OPC.
Dihydronordicyclopentadienyl isobutyrate	IFF.
*Dihydronordicyclopentadienyl propionate (Cyclaprop)	CI, IFF, OPC.
Dihydro terpineol	NCI.
Dihydroterpinyl acetate	GIV, NCI, SCM.
Ethyl furoate	RT.
Furfural acetone	RT.
Furfural acrolein	RT.
Galaxolide (1,3,4,6,7,8-Hexahydro-4,6,7,8,8-hexamethyl-cyclopenta-2-benzopyran)	IFF.
*Guaiacwood acetate	ELM, FB, GIV, NEO, UNG.
Guaiene	FB.
Hexadecanolide	AIC.
Dl-hydro-iso-jasmone	FB.
3-Hydroxy-2-ethyl-4-pyrone (Ethylmatol)	PFZ.
4-(4-Hydroxy-4-methyl pentyl)-3-cyclohexene-10-carboxaldehyde (Lyral)	IFF.
3-Hydroxy-2-methyl-4-pyrone (Maltol)	PFZ.
4-Hydroxynonanonic acid, 7-lactone (7-Nonalactone)	GIV.
4-Hydroxyundecanoic acid, 7-lactone (7-Undecalactone)	FB.
*Ionone(α- and β-)	GIV, HOF, NCI.
*α-Ionone	GIV, IFF.
*β-Ionone	HOF.
Isoamyl furoate	RT.
Isobornyl acetate	RDA.
*Isobornyl propionate	ELM, GIV, OPC.
Isocamphyl cyclohexanols	GIV.
Isojasmone	FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED	
Isomenthone	GIV.
2-Isopropylcyclohexanol	GIV.
Jasmal	IFF.
Lavandin, acetylated	GIV, UNG.
p-Mentha-1,3-diene (α -Terpinene)	SCM.
p-Mentha-1,4-diene (7-Terpinene)	SCM.
p-Mentha-6,8-dien-2-ol (Laevo carveol)	FB, NEO, PFM.
p-Mentha-6,8-dien-2-one (Dextro-carvone)	FB, NEO.
1-p-Mentha-6,8-dien-2-yl acetate (laevo-carvyl acetate)	FB.
p-Menth-8-en-3-ol (Isopulegol)	GIV.
p-Menth-1-en-3-one (Piperitone)	GIV.
p-Menth-4-(8)-en-3-one (Pulegone)	GIV.
1-l-p-Menthen-6-yl-1-propanone	GIV.
d-Menthol	SCM.
*dl-Menthol, synthetic	GIV, HAR, NCI, SCM.
l-Menthol, synthetic	HAR, SCM.
l-Menthone	SCM.
*Menthyl acetate	BDS, FB, GIV.
l-Menthyl acetate	SCM.
Methyl furoate	RT.
*Methylionone(α - and β -)	GIV, IFF, NCI, NEO.
7-Methylionone	GIV, NCI, NEO.
6-Methyl- α -ionone	BDS, GIV.
Nopol	NCI.
Nopyl acetate	FEL, NCI.
3-Pentyl tetrahydro-4-pyridine	IFF.
Rose oxide	FB.
α -Santalol	GIV.
α -Santalyl acetate	GIV.
Sassafras oil, hydrogenated	GIV.
Terpineol(α - and β -)	GIV.
* α -Terpineol	HPC, NCI, SCM.
* α -Terpinyl acetate	IFF, NCI, NEO, SCM.
α -Terpinyl propionate	ELN, GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS
 MANUFACTURERS' IDENTIFICATION CODES
 (ACCORDING TO LIST IN TABLE 3)

CYCLIC--CONTINUED

TERPENOID, HETEROCYCLIC, AND ALICYCLIC--CONTINUED

[4,4',4'',4''']-Tetraaminophthalocyaninato(2-)]-
 copper - - - - - HPC.
 Tetrahydrofurfuryl propionate - - - - - PFM.
 3,3-Trimethyl cyclohexanol (m-Homomenthol) - - - - - ARS, NEO.
 1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-
 3-one (Allyl- α -ionone) - - - - - IFF.
 Vetivenol - - - - - GIV.
 *Vetivenyl acetate - - - - - BDS, FB, GIV, IFF.
 All other terpenoid, heterocyclic, or alicyclic flavor
 and perfume chemicals - - - - - OPC, RT, SCM, VIK.

ACYCLIC

Allyl heptanoate - - - - - ELM, FB, RT.
 Allyl hexanoate - - - - - 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 butyrate - - - - - FB.
 Butyl butyryl lactate - - - - - BJJ, ELM, RT.
 Butyl undecylenate - - - - - CI, FB, GIV.
 Citral dimethyl acetal - - - - - CI, GIV, IFF.
 Citral A and B mixture - - - - - NCI, SCM.
 Citronellallic acid - - - - - PFM.
 *Citronellallic acetate - - - - - ELM, GIV, IFF, NCI.
 Citronellallic butyrate - - - - - ELM, GIV.
 Citronellallic formate - - - - - ELM, IFF.
 Citronellallic isobutyrate - - - - - ELM, GIV, IFF.
 Citronellallic nitrile - - - - - CI.
 Citronellallic oxycetalddehyde - - - - - IFF.
 Citronellallic propionate - - - - - GIV, IFF.
 Crude acetate mixture (Linalyl, neryl, geranyl acetates,
 main components) - - - - - X.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Decanal (Capraldehyde)	CI.
Decyl acetate	GIV.
Diethyl acetal	FB.
Diethyl glutarate	PFW.
Diethyl sebacate	ELN.
Diethyl succinate	ELN.
d-Dihydrocarveol	SCM.
Dihydrocarvone	SCM.
Dihydrolinalool	SCM.
Dihydro myrcenol	IFF.
2,6 Dimethyl-5-hepten-1-al	GIV.
Dimethyl hexanediol	X.
Dimethyl hexynediol	X.
3,7-Dimethyl-2,3,6-nonadienenitrile	GIV.
3,7-Dimethyl-trans-2,6-octadienal (Citral A geraniol)	FB, FEL, GIV.
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)-alcohol	ELN, FB, FEL, GIV, IFF, NCI, SCM.
*3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	ELN, FB, FEL, GIV, IFF, NCI, SCM.
*3,7-Dimethyl-cis-2,6-octadienol, acetate	ELN, FB, FEL, GIV, IFF, NCI, SCM.
acetate)	CI, ELN, FB, GIV, IFF, NCI.
*3,7-Dimethyl-1,6-octadien-3-ol,acetate	ELN, FB, GIV, NCI, SCM.
acetate)	ELN, HOF.
isobutyrate)	ELN, GIV, HOF.
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate	SCM.
propionate)	GIV, NCI, SCM.
Dimethyloctanal	HOF, IFF, SCM.
3,7-Dimethyloctanol-1 [Tetrahydrogeraniol]	IFF.
3,7-Dimethyl-3-octanol	FB, SCM.
Dimethyloctanyl acetate	ELN, FB, GIV, IFF, NCI, SCM.
3,7-Dimethyl-6-octen-1-al (Citronellal)	
*3,7-Dimethyl-6-octen-1-ol (Citronellol)	GIV.
3,7-Dimethyl-7-octenol 70pct,6-octenol isomer 30pct-	
Dimyrcetol	IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Ethyl butyrate	: FB, NM.
Ethyl caprate	: ELN, FB.
Ethyl crotonate	: RT.
Ethyl formate	: FB.
*Ethyl heptanoate	: ELN, FB, FEL, RT.
Ethyl heptenone	: HOF.
*Ethyl hexanoate	: ELN, FB, NM.
Ethyl isobutyrate	: FB.
*Ethyl isovalerate	: ELN, FB, PFW.
Ethyl laurate	: ELN, FB.
Ethyl levulinat	: PFW.
Ethyl linalool (3,7-Dimethyl-1,6-nonadien-3-ol)-	: HOF.
Ethyl linalyl acetate (3,7-Dimethyl-1,6-nonadien-	
3-ol, acetate)	: HOF.
Ethyl-2-methyl butyrate	: PFW, SCM.
Ethyl-2-methyl pentanoate	: PFW.
Ethyl myristate	: ELN, RT.
Ethyl nonanoate	: ELN, FB.
Ethyl octanoate	: ELN, FB.
Ethyl oxyhydrate	: RT.
*Ethyl propionate	: FB, NM, UPM.
Ethyl valerate	: ELN.
*Geranyl acetate	: CI, ELN, FEL, GIV, IFF, NCI, PFW, SCM.
Geranyl butyrate	: ELN, GIV.
Geranyl crotonate	: FB.
*Geranyl formate	: BDS, ELN, GIV.
Geranyl isobutyrate	: IFF.
Geranyl isovalerate	: FB.
Geranyl nitriole (Citralva)	: CI, IFF.
Geranyl propionate	: ELN, FB.
Geranyl tiglate	: FB.
Glutamic acid, monosodium salt (Monosodium glutamate)	: SFF.
Heptanolide	: FB.
n-Hexanal	: SCM.
*2-Hexenal	: FB, GIV, OPC, SCM.
cis-3-Hexen-1-ol	: AIC, GIV, SM.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Hexenol	FB, SCM.
cis-3-Hexen-1-yl acetate	BDS, GIV.
cis-3-Hexenyl butyrate	SCM.
Hexyl caproate	FB.
3-Hexynol	HOF.
3-Hydroxy-2-butanone (Acetoin)	FMT.
Hydroxycitronellol	SCM.
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	GIV, IFF, SCM.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal)	GIV.
Hydroxy-2-propanone (Acetol)	FB.
Isoamyl caproate	FB.
Isoamyl geranate	FB.
Isoamyl propionate	FB.
Isobutyl acetate	FB.
Isobutyl butyrate	FB.
Isodihydro lavandulol	FB.
Isodihydro lavandulylacetate	FB.
Isodihydro lavandulylaldehyde	FB.
Isononyl acetate	OPC.
*Isopentyl acetate (Isoamyl acetate)	FB, NM, PFM, UPM.
*Isopentyl butyrate	FB, GIV, NM, PFM, UPM.
Isopentyl formate	EDN, FB, RT.
*Isopentyl isovalerate	ELN, FB, PFM.
Lauraldehyde	FB, GIV.
Linyl formate	HOF.
α-Methyl butyric acid	PFM.
Methyl butynol	X.
Methyl crotonate	RT.
Methyl heptadienone	HOF.
3-Methyl-5-heptanone oxime	GIV.
Methyl isobutyrate	PFM.
Methyl isovalerate	FB.
Methyl mercaptopropylamine	PFM.
3-Methyl-2-[and 3]nonene nitrile	GIV.

ACYCLIC--CONTINUED

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Methyl-2-nonenolate	GIV, PFM.
Methyl-octyl aldehyde	CI.
Methylol methyl hexyl ketone	GIV.
4-Methyl pentanoic acid	PFM.
Methyl pentylol	X.
Methyl propionate	FB.
2-Methylundecanal	CI, GIV.
Myrcenyl acetate	IFF.
Myristaldehyde	GIV.
Nonanal	GIV.
1,3-Nonanediol acetate	CI, GIV.
Nonanol	GIV.
β-Nonanone	HOF.
Nonyl acetate	CI, ELM, GIV.
Ocimenyl acetate	IFF.
Octanal	CI, GIV, IFF.
3-Octanol	SCM.
3-Octanone (Ethyl amyl ketone)	GIV.
*N-Octyl acetate	ELN, GIV, SCM.
N-Octyl alcohol	GIV.
n-Propyl n-butyrate	PFM.
Pseudo linalyl acetate (Neobergamate)	IFF.
*Rhodinol	BDS, FB, FEL, GIV, IFF.
Rhodinyol acetate	GIV, IFF.
Tepyl acetate	ELN.
Tetrahydro allo-ocimene	IFF.
Tetrahydro pseudoionone	CI.
Undecanal	GIV, IFF.
9-Undecenal	GIV, PD.
All other acyclic flavor and perfume materials	AIC, ARS, BDS, FB, FMT, IFF, OPC, PFM, SBC, SCM, UPM, X.

ACYCLIC--CONTINUED

TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1980

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 1980 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	NCI	Union Camp Corp., Terpene and Aromatics Div.
AIC	Albany International	NEO	Norda, Inc.
AMB	American Bio-Synthetics Corp.	NW	Northwestern Chemical Co.
ARS	Arsynco, Inc.		
ARZ	Arizona Chemical Co.	OPC	Orbis Products Group.
BDS	Biddle Sawyer	PD	Warner-Lambert Co.
BJL	Burdick & Jackson Laboratories, Inc.	PEN	CPC International, Inc., Penick Div.
		PFW	Hercules, Inc., PFW Div.
CI	Chem-Fleur, Inc.	PFZ	Pfizer, Inc.,
CIN	Stockhausen, Inc.		
CWN	Upjohn Co., Fine Chemical Div.	RDA	Rhone-Poulenc, Inc.
		RSA	R.S.A. Corp.
ELN	Elan Chemical Co.	RT	Ritter International
FB	Fritzsche Dodge & Olcott, Inc.	SBC	Scher Chemicals, Inc.
FEL	Felton International, Inc.	SCM	SCM Corp., Organic Chemicals Div.
FMT	Fairmount Chemical Co., Inc.	SFF	Stauffer Chemical Co., Food Ingredients Div.
		SKG	Sunkist Growers, Inc.
GIV	Givaudan Corp.	SW	Sherwin-Williams Co.
HAR	Haarmann & Reimer Corp.	TNA	Ethyl Corp.
HN	Tenneco Chemicals, Inc.		
HOF	Hoffmann-LaRoche, Inc.	UNG	Ungerer & Co.
HPC	Hercules, Inc.	UPM	UOP, Inc.
IFF	International Flavors & Fragrances, Inc.	VEL	Velsicol Chemical Corp.
		VIK	Viking Chemical Co.
MON	Monsanto Co.		

Note.—Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 43 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

Edward J. Taylor

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 semi-finished 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 1980 are given in table 1. U.S. production of plastics and resin materials in 1980 totaled 38,186 million pounds, or 8.8 percent less than the 41,871 million pounds produced in 1979. Sales in 1980 totaled 33,550 million pounds, valued at \$16,011 million, compared with 36,834 million pounds, valued at \$15,380 million, in 1979.

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 7,064 million pounds in 1980, compared with 7,902 million pounds in 1979. Production of the most important products in 1980 included phenolic resins (1,745 million pounds) amino (or urea and melamine) resins (1,497 million pounds), polyester resins, unsaturated (952 million pounds) and alkyd resins (703 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 thermoplastics materials totaled 31,122 million pounds in 1980 (or 81.5 percent of the total output for 1980), compared with 33,969 million pounds in 1979. Production of the most important products in 1980 included polyethylene (11,720 million pounds), vinyl resins (6,717 million pounds), and styrene type materials (5,540 million pounds).

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1980

[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-----	38,185,990	33,550,427	16,011,168	\$0.48
Plastics and resin materials, benzenoid ³ -----	11,753,214	9,606,419	6,316,455	.66
Plastics and resin materials, nonbenzenoid-----	26,432,776	23,944,008	9,694,713	.40
THERMOSETTING RESINS				
Total-----	7,064,244	5,649,561	2,974,203	.53
Alkyd resins, total-----	702,799	392,377	262,141	.67
Phthalic anhydride type-----	555,988	322,582	210,670	.65
Polybasic acid type-----	72,357	28,101	22,052	.78
Styrenated-alkyds or copolymer alkyds-----	22,279	16,203	13,550	.84
Vinyl toluene alkyds-----	25,317	22,648	13,468	.59
Other copolymer alkyds-----	26,858	2,843	2,401	.84
Dicyandiamide resins-----	1,963	1,927	1,911	.99
Epoxy resins: ^{4 5}				
Unmodified-----	323,440	275,605	289,256	1.05
Advanced-----	(120,022)	(81,196)	(103,106)	1.27
Furfuryl type resins-----	24,630	24,692	16,004	.65
Melamine-formaldehyde resins (an amino resin)-----	186,030	159,182	115,393	.72
Phenolic and other tar acid resins-----	1,744,928	1,347,061	586,272	.44
Polyester resins, unsaturated ⁶ -----	952,469	839,966	501,881	.60
Polyether and polyester polyols for urethanes ⁷ -----	1,381,824	1,097,697	568,699	.52
Polyurethane elastomers and plastics products, total--	253,544	201,096	258,901	1.29
Elastomers ⁸ -----	121,428	107,013	166,688	1.56
Plastics-----	132,116	94,083	92,213	.98
Silicone resins-----	12,381	8,392	35,803	4.27
Urea-formaldehyde resins (an amino resin)-----	1,310,880	1,180,945	220,231	.19
Other thermosetting resins ⁹ -----	169,356	120,621	117,711	.98
THERMOPLASTIC RESINS				
Total-----	31,121,746	27,900,866	13,036,965	.47
Acrylic resins, total ¹⁰ -----	1,028,154	...	...	...
Polymethyl methacrylate-----	447,081	354,996	302,795	.85
Thermosetting acrylics-----	18,213	7,482	5,641	.75
Other acrylics-----	562,860	...	...	...
Engineering plastics ¹¹ -----	580,210	451,492	638,014	1.41
Petroleum hydrocarbon resins-----	264,486	253,090	98,861	.39
Polyamide resins, total-----	315,089	262,963	350,331	1.33
Nylon type ^{11 12} -----	269,052	221,080	304,373	1.38
Non-nylon type-----	46,037	41,883	45,958	1.10
Polyester resins, saturated, total ^{10 13} -----	607,705	448,006	321,037	.72
Polyethylene terephthalate (PET)-----	519,176	367,572	233,612	.64
Polybutylene terephthalate (PBT) and other poly- esters, saturated-----	88,529	80,434	87,425	1.09

See footnotes at end of table.

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1980--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
THERMOPLASTIC RESINS--Continued				
Polyethylene resins, total-----	11,719,893	10,895,371	4,335,270	\$0.40
Specific gravity 0.940 and below-----	7,188,724	6,719,149	2,795,944	.42
Specific gravity over 0.940-----	4,531,169	4,176,222	1,539,326	.37
Polypropylene resins-----	3,698,987	3,298,552	1,076,357	.33
Polyterpene resins-----	41,037	35,731	23,830	.67
Polytetrafluoroethylene (PTFE) resins ¹⁴ -----	21,591	...	...	...
Rosin modifications-----	182,144	176,567	81,663	.46
Styrene plastics materials, total-----	5,540,065	5,178,727	2,824,020	.55
Acrylonitrile-butadiene-styrene terpolymer (ABS) resins-----	981,068	957,842	616,521	.64
Straight polystyrene-----	2,264,773	2,053,226	946,116	.46
Rubber modified polystyrene-----	1,183,366	1,210,822	653,079	.54
Styrene-butadiene latexes-----	417,995	393,401	207,335	.53
All other styrene latexes-----	126,690	124,945	57,640	.46
All other styrene plastics materials ¹⁵ -----	566,173	438,491	343,329	.78
Vinyl resins, total ¹⁶ -----	6,716,737	5,747,038	2,100,867	.37
Polyvinyl acetate ¹⁷ -----	668,343	650,867	278,865	.43
Polyvinyl alcohol ¹⁸ -----	156,092	130,300	110,870	.85
Polyvinyl chloride and copolymers-----	5,485,371	4,639,059	1,486,096	.32
Polyvinylidene chloride latex resins-----	26,027	26,448	18,829	.71
Vinyl acetate-acrylate copolymers-----	160,348	135,316	40,283	.30
Other vinyl and vinylidene resins-----	220,556	165,048	165,924	1.01
All other thermoplastics resins ¹⁹ -----	405,648	790,851	878,279	1.11

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 benzenoid plastics and resin materials as defined in part 1 of schedule 4 of the Tariff Schedules of the United States; also includes urethane type elastomers which are not defined in part 1 of schedule 4 of the TSUS.

⁴Includes 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.

⁵Data shown for advanced epoxy resins are that part of the unmodified epoxy resins which is further processed; therefore, the totals in parentheses are not included in the grand total.

⁶Polyester 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.

⁷In 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.

⁸The 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.

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

¹⁰Does not include production or sales for fiber use.

¹¹Engineering 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.

Footnotes--Continued

¹²Statistics for nylon 6 and nylon 6/6 which are used in plastic applications (e.g., molding, etc.) are included here.

¹³Statistics 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.

¹⁴PTFE production and sales data were not shown in the 1979 report. They are shown below:

<u>Production</u>	<u>Quantity</u>	<u>Sales</u>	<u>Unit Value</u>
<i>1,000</i>	<i>1,000</i>	<i>Value</i>	<i>Per</i>
<i>pounds</i>	<i>pounds</i>	<i>1,000</i>	<i>Per</i>
		<i>dollars</i>	<i>pound</i>
24,861	21,451	96,017	\$4.48

¹⁵Includes data for styrene-acrylonitrile copolymer (SAN) resins, α -methyl styrene polymers, methyl methacrylate-butadiene-styrene (MBS) resins, and all other styrene copolymers.

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

¹⁷Data for polyvinyl acetate produced and sold in latex form includes the weight of any protective colloids which are used as emulsions 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.

¹⁸Production and sales do not include polyvinyl alcohol used as a reactive intermediate for polyvinyl butyral or other vinyl resins.

¹⁹Includes certain acrylic resins (sales only), cellulose plastics, chlorinated polyolefins, coumarone-indene resins, fluorocarbon resins (except PTFE production), polybutylene type resins, polyphenyl aromatic ester resins, and other thermoplastics 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 instruction 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, 1980

[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. COMPANY IDENTIFICATION CODES WHICH ARE FOLLOWED BY AN "(E)" ARE SO LABELED BECAUSE THE COMPANY FAILED TO SUPPLY THE U.S. INTERNATIONAL TRADE COMMISSION WITH THEIR DATA IN SUFFICIENT TIME FOR ITS INCLUSION IN THIS REPORT. THE COMPANY IS PRESUMED TO HAVE CONTINUED PRODUCTION OF THE COMPOUND IN QUESTION IN 1980 AND THE VOLUME OF PRODUCTION AND SALES HAS BEEN ESTIMATED BY THE USITC STAFF MEMBERS.]

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
PLASTICS AND RESIN MATERIALS	
THERMOSETTING RESINS	
Acetone-formaldehyde resins--	ACY, AMR, GP.
*ALKYL RESINS:	
*Phthalic anhydride type alkyd resins	ACO, APT, ASH, AZS, BAK, BAL, BEN, BLC, BRU, CEL, CGL, CJO, CPV, CRC, DEG, DRC, EW, FAR, FCD, FJI, FOC, FRE, GEI, GRV, HAN, ICF, IMC, IOC, JOB, KMC(E), KMP, KPT, LIC, MCC, MID, MNP, NPV, OBC, PER, PPG, PRT, RCI, REL, RH, SCM, SDH, SKT, SM, STT, SW, USS, X.
*Polybasic acid type alkyd resins	ACY, BEN, CEL, CGL, CJO, DEG, DSO, DUP, EW, FAR, FJI, FOC, GEI, GRV, HAN, ICF, IMC, MCC, PPG, RCI, REL, RH, SCM, SCN, SKT, SM, STT, SW.
*styrenated-alkyds, or copolymer alkyds	ACY, BLC, CGL, CJO, CPV, DSO, EW, FRE, GEI, GRV, HAN, IMC, JOB, KMC(E), KPT, MCC, MNP, MRT, OBC, REL, SCM, SKT, SM, STT, SW.
*viny1 toluene alkyds	BLC, CSD, FAR, FJI, FRE, GEI, HAN, IMC, JOB, MCC, MNP, OBC, PRT, REL, SMC, SM, STT.
*Alkyd copolymers, all other-	DEG, DSO, FRE, GEI, IMC, LIC, MCC, OBC, PKP, PPG, SCM, SM, SW, X.
AMINO RESINS:	
*Melamine-formaldehyde resins	ACY, AMR, AUX, BOR, CBD, CEL, CGL, CPV, DAN, DGO, DRC, DUP, GE, GRV, HAN, ICO, KPT, LIC, MNP, MON, OCF, PKP, PLS, PMC, PPG, PPL, PST, QCP, RCI, REL, RH, SCM, SM, SNW, STC, WPG, WRD.
*Urea-formaldehyde resins	AMP, CPV, DAN, DSO, DUP, FAR, GAF, GOC, GP, GRV, HAN, HNC, ICO, IRI, KPT, MMM, MON, NCJ, NTC, PC, PKP, PMC, PPG, PPL, PST, RCI, REL, RPC, SAC, SCM, SM, SNW, SOR, SW, SYT, USM, USO, VAL, VPC, X, X.
Amino resins, all other	BAK.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS--CONTINUED	
* Dicyandiamide resins	APX, AUX, CMP, ECC, IOC, RPC, S, STC, VPC.
* EPOXY RESINS:	
* Epoxy resins advanced-	ASH, AZS, BEN, CEL, CGY, CJO, CNI, DSO, EM, GE, GRV, ICF, LIC, MCC, MID, MNM, MRT, OCF, PKP, PPG, PRT, RCI, SCM, SCN, SM, STT, WLN.
* Epoxy resins unmodified-	ADC, CEL, CGY, DA, DOM, ICF, JOB, NCI, PPG, RCI, SHC, SM, UCC, X.
* Furfuryl type resins	ACR, CLU, CRC, GP, HVG, IMC, MCP, STC, UNO, WRD.
Glyoxal-formaldehyde resins-	AUX, USM, USO, VAL, WPG.
* Phenolic and other tar acid resins	ABS, ACR, AMR, ASH, BAK, BLC, BME, BOR, BSC, CBD, CBM, CGL, CLK, CLU, DA, DSO, EM, FAR, FOM, GE, GEI, GOC, GP, GRG, HAG, HER, HKD, HPC, HVG, ICF, IMC, INL, IRI, KPT, MCA, MID, MNM, MNP, MON, NCI, NCJ, MCP, OBC, OCF, PAI, PLS, PPL, PSL, PYZ, RAB, RCI, RGC, RH, RPC, SIM, SKT, SPL, STC, UCC, USR, VPC, VSV, MCA, WRD, X.
Polybutadiene resins	ATR, CCS, CNI, LC, SCN.
* POLYESTER RESINS, UNSATURATED, AND ALLYL RESINS:	
Allyl resins	FMP, PKP, PPG, SNM.
Diallyl isophthalate	FMP.
* Polyester resins, unsaturated-	ACO, ACY, ADC, APH, APT, ASH, AZS, CEL, CGL, CPV, DOM, DRC, DSO, EM, FCD, FMP, FRE, GEI, GRG, HPC, ICI, IPC, KPT, LIC, MCC, MNP, MRT, NTL, OCF, PPG, PPL, RCI, RH, SCM, SCN, SHC, SIC, SLC, SM, SW, UCC, USS.
* Polyether and polyester polyols for urethanes-	ARK, BAS, CGL, CHC, CPV, DOM, FAR, FRE, ICI, INP, JCC, MMH, MOB, MRT, OCF, OMC, PPG, RCI, RUB, SKT, TX, UCC, UNO, UPJ, WTC.
* POLYURETHANE ELASTOMER AND PLASTIC PRODUCTS:	
* Polyurethane elastomers-	ACY, ADC, ARO, BAS, BFG, CJO, CNI, CMW, DA, DNS, DUP, EPI, FRE, GRD, HXL, INP, MMH, MOB, MRT, PLN, PPG, PRC, RUB, SLC, TKL, UPJ, USR, WTC.
* Polyurethane resins-	APT, ASH, BAS, CGL, CPV, DSO, DUP, EEP, EM, FAR, GEI, HVC, ICI, INP, JOB, LC, MCC, MID, NTL, OMC, PEL, PVI, QUN, RCI, SCM, SCN, SW, UPJ, USM, USR, WTC.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS--CONTINUED	
*Silicone resins--	CGL, CJO, DCC, JOB, LIC, PEL, PRT, RCI, SCM, SM, SPD.
*Thermosetting resins, all other--	ACR, ACY, APX, BAS, CPV, DEG, DSO, LIC, MCC, MOB, OBC, PPG, PRT, REL, RTC, S, SCM, SM SW, SYT.
THERMOPLASTIC RESINS	
*ACRYLIC RESINS:	
Ethyl acrylate butyl acrylate copolymer--	QUN.
*Polymethyl methacrylate--	CTP, CYR, DUP, ICF, IOC, JOB, MRT, PKL, PPG, PVI, RH, RPC, SAR, SNM, USS, X.
*Thermosetting acrylics--	CEL, CPV, DSO, GRV, ICF, LC, MNP, SCM.
*Acrylic resins, all other--	ACV, AZS, CHP, DRB, DRC, DSO, DUP, EFH, FLH, GLC, GRD, GRV, ICF, IOC, JMS, LIC, PPG, PVI, RAS, RH, SAR, SCM, SCP, SM, STC, SW, TX, UCC, UOC, VAL, VPC.
CELLULOSE PLASTICS AND RESINS:	
Cellulose nitrate--	CRC, X.
Ethyl cellulose--	X.
Cellulose plastics, all other--	DOM, DSO, EKT.
Coumarone-indene resins--	DUP, HPC, NEV, VEL, ZGL.
*ENGINEERING PLASTICS:	
Acetal resins--	CEL, DUP, SYT.
Polycarbonate resins--	DSO, GE, ICF, MOB, STT.
Polyimides and amide-imide polymers--	AHO, DUP, EW, GEI, MON, PDI.
Polyphenylene oxide type resins--	GE.
Polyphenylene sulfide resins--	PLC.
Poly sulfone resins--	UCC.
FLUOROCARBON RESINS:	
*Polytetrafluoroethylene (PTFE)--	APP, DUP, ICI.
Polyvinylidene fluoride resin--	PAS.
Fluorocarbon resins, all other--	APP, DUP.
*Petroleum hydrocarbon resins--	BLC, EKX, ENJ, GYR, HPC, ICF, MCC, NEV, PRT, RCI, SCM, VEL, ZGL.
*POLYAMIDE RESINS:	
*Non-nylon type, polyamide resins--	AMR, AZS, CBY, COO, EFH, EMR, HPC, MCC, NCI, OBC, PAC, S, SCP, SM, SNM, STC, USM.
*Nylon type, polyamide resins--	APP, AZS, BCM, CEL, CTR, DGO, DUP, FAF, HST, MON, RSN, SCP, USM, X.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTIC RESINS--CONTINUED	
Polybutylene type resins	ENJ, SHC.
*POLYESTER RESINS, SATURATED:	
*Polybutylene terephthalate(PBT)-	EKT, GAF, GE, MID, USM.
*Polyethylene terephthalate(PET)-	APP, COO, DUP, EKT, GEI, GYR, ICI, MMM, MRT, SCM, SNW, USM.
*Polyester resins, saturated, all other	DGO, DUP, EKT, HYC, ICI, RUB, SM.
*POLYETHYLENE AND COPOLYMERS RESINS:	
*Specific gravity over 0.940-	APP, AMO, CBN, CPX, DOW, DUP, GOC, HPC, KPP, MON, PLC, SHC, SLT, STT, UCC, USI.
*Specific gravity of 0.94 and below	APP, CBN, CPX, DOW, DUP, EKX, ENJ, GOC, KPP, NWP, PLC, RCC, SM, SNW, UCC, USI, X.
Polyphenyl aromatic ester resins	HPC.
* Polypropylene polymer and copolymer resins	AMO, EKX, ENJ, GOC, HPC, KPP, NWP, PLC, RCC, SHC, SLT, US.
* Polyterpene resins	ARZ, CBY, HPC, SCN.
* ROSIN MODIFICATIONS:	
Modified rosin (Unesterified)	ARZ, CJO, CRC, DPP, HPC, NCI, ZGL.
Modified rosin esters-	BAK, CBY, DPP, EM, FCD, FRP, GRV, HPC, ICF, MCC, NCI, PAI, RCI, SDH, SKT, STC, SW, ZGL.
Rosin esters, unmodified (Ester gums)	ARZ, CBY, DPP, FAR, FRP, HPC, MCC, NCI, RCI, SKT, STC.
* STYRENE TYPE PLASTICS MATERIALS:	
* Acrylonitrile-butadiene-styrene (ABS) Terpolymer resins	BFG, CSD, DOM, GOR, GRD, GYR, MCB, MON, SM, USS.
α-Methyl styrene polymers-	AMO, JNS.
Styrene-acrylonitrile copolymer resins (SAN)	BAS, BFG, CSD, DOM, MON, SKT, SM.
* POLYSTYRENE:	
* Rubber modified polystyrene	DOM, GOC, GOR, MON, PIR, SHC, SM, USS.
* Straight polystyrene	AEP, AMO, BAS, CSD, DOM, GAF, GOC, GOR, HGC, HST, IOC, KPP, MMM, MON, PIR, RCD, SHC, SM, TXS, USS.
* STYRENE LATEXES:	
* Styrene-butadiene latexes-	BOR, DOM, GNT, GRD, GYR, UOC, USS.
* All other styrene latexes-	ADC, CRC, DOW, DSO, GNT, GRD, HRP, MON, PIR, PVI, UCC, UOC, USS.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
PLASTICS AND RESIN MATERIALS	
THERMOPLASTIC RESINS--CONTINUED	
*OTHER STYRENE COPOLYMERS:	
Methyl methacrylate-butadiene styrene (MBS) resins	CYR, GRD, MCB.
*Styrene copolymers, all other-	ARZ, BFG, CCS, DA, DOM, DSO, DUP, GYR, HPC, IOC, JNS, MON, MRT, PLC, RCD, RH, SCM, SW.
*VINYL RESINS:	
*Polyvinyl acetate resins	ALP, AZS, BAL, BEN, BLS, BOR, CEL, CRC, DAN, FAR, FLH, FLN, GLC, GRD, IMC, IOC, JOB, KMP, MCC, MON, NSC, RCI, RPC, SCO, SM, UCC, UOC, X.
*Polyvinyl alcohol resins	AP, DUP, MON.
Polyvinyl butyral resins	DUP, MON.
*Polyvinyl chloride and copolymer resins-	AP, BFG, BOR, CNT, CO, DA, GNT, GP, GRA, HRP, HN, KYS, PNT, RCO, RUB, SFP, SHT, TNA, TRA, UCC.
Polyvinyl formal resin	BFG, MON.
*Vinyl acetate-acrylate copolymers-	CEL, DSO, FJI, FIN, NCJ, NPV, OBC, RAS, SCM, SPC, UCC.
POLYVINYLIDENE CHLORIDE RESINS:	
*Latex type polyvinylidene chloride resins-	DOM, GRD, MRT, UOC, USS.
*Vinyl resins, all other	DOM, DUP, EW, RH, UCC.
*Thermoplastic resins, all other	ARA, EKX, MON, MRT, NPV, RPC, SM, STT, SW, TXS, X.

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1980

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 1980 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 Group	COO	The Terrell Corp.
ACR	CPC International, Inc., Acme Resin Corp.	CPV	Cook Paint & Varnish Co.
ACO	Adco Chemical Co.	CPX	Chemplex Co.
ACY	American Cyanamid Co.	CRC	California Resin & Chemical Co., Inc.
ADC	Anderson Development Co.	CSD	Cosden Oil & Chemical Co.
AEP	A & E Plastik Pak Co., Inc., A & E Plastics	CTP	Continental Polymers, Inc.
AFP	Allied Chemical Corp., Fibers & Plastics Co.	CTR	Custom Resins Div. of Bemis Co., Inc.
AIP	Air Products & Chemicals, Inc.	CWN	Upjohn Co., Fine Chemical Div.
AMO	Standard Oil Co. (Indiana)	CYR	CY/RO Industries, Inc.
AMR	Pacific Resins & Chemical, Inc.	DA	Diamond Shamrock Corp.
APH	The Alpha Corp.	DAN	Dan River, Inc., Chemical Products Div.
APT	Whittaker Corp., Whittaket Coatings & Chemicals, Mol Rez Resins	DCC	Dow Corning Corp.
APX	Apex Chemical Co., Inc.	DEG	Degan Oil & Chemical Co.
ARA	Araphoe Chemicals, Inc., Sub/Syntex U.S.A., Inc.	DGO	Day-Glo Color Corp.
ARK	Armstrong World Industries, Inc.	DNS	Dennis Chemical Co.
ARO	Arnco	DOW	Dow Chemical Co.
ARZ	Arizona Chemical Co.	DPP	Dixie Pine Chemicals, Inc.
ASH	Ashland Oil, Inc.	DRB	The Derby Co., Inc.
ATR	Atlantic Richfield Co., Arco Chemical Co.	DRC	Dock Resins Corp.
AUX	Auralux Corp.	DSO	DeSoto, Inc.
AZS	AZS Corp.: AZ Products Co. Div. AZS Chemical Co. Div.	DUP	E.I. duPont de Nemours & Co., Inc.
BAK	Baker International-Magna Corp.	ECC	Eastern Color & Chemical Co.
BAL	Dutch Boy, Inc., Consumers Group, Sherwin-Williams Co.	EEP	Eaton Corp., Engineered Polymer Products Div.
BAS	BASF Wyandotte Corp.	EFH	E.F. Houghton & Co.
BCM	Belding Cortecellic Industries	EMR	Eastman Kodak Co.: Tennessee Eastman Co. Div.
BEN	Bennett's	EKK	Texas Eastman Co. Div.
BFG	B.F. Goodrich Co., B.F. Goodrich Chemical Group	ENJ	Emery Industries, Inc.
BLC	Ball Chemical Co.	ENJ	Exxon Chemical Co. Americas
BLS	Life Savers, Inc.	EPI	Eagle Pitcher Industries, Inc., Ohio Rubber Co. Div.
BME	Bendix Corp., Friction Materials Div.	EW	Westinghouse Electric Corp., Insulating Materials Div.
BOR	Borden Co., Borden Chemical Co. Div.	FAR	Syncon Resins, Inc.
BRU	M.A. Bruder & Sons, Inc.	FCD	Synres Chemical Corp.
BSC	Brand-S Corp., Cascade Resins, Inc., Div.	FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.
BUC	Synalloy Corp., Blackman Uhler Chemical	FJI	Foy-Johnson, Inc.
CBD	Chembond Corp.	FLH	H.B. Fuller Co., Polymer Div.
CBM	Kesco	FLN	Frankling Chemical Industries
CBN	Cities Service Co., Petrochemicals Div.	FMP	FMC Corp., Industrial Chemical Div.
CBY	Crosby Chemicals, Inc.	FOC	Handschy Industries, Inc., Farac Oil & Chemical Co. Div.
CCS	Colorado Chemical Specialties, Inc.	FOM	Formica Corp., Sub. of American Cyanamid Co.
CEL	Celanese Corp., Celanese Plastics & Specialties Co.	FRE	Freeman Chemical Corp.
CGL	Cargill, Inc.	FRF	Firestone Tire & Rubber Co., Firestone Synthetic Fibers Co.
CGY	Ciba-Geigy Corp., Resins Dept.	FRP	FRP Company
CHC	Carpenter Chemical Co.	GAF	GAF Corp.
CHP	C.H. Patrick & Co., Inc.	GE	General Electric Co.
CJO	CJ Osborn Chemicals, Inc.	GEI	Laminated & Insulating Materials Business Dept.
CLK	Clark Oil & Refining Corp.	GLC	General Latex & Chemical Corp.
CLU	Core-Lube, Inc.	GNT	General Tire & Rubber Co., Chemical Div.
CMP	Commercial Products Co., Inc.	GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
CNI	Frye Copysystems, Conap Div.	GOR	Carl Gordon Industries, Inc.
CNT	Certainteed Corp.		
CO	Conoco, Inc.		

SYNTHETIC ORGANIC CHEMICALS, 1980

170 TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
GP	Georgia-Pacific Corp.: Plaquemine Div. Resins Operations	NCI	Union Camp Corp., Chemical Products Div.
GRA	Great American Chemical Corp.	NCJ	National Casein of New Jersey
GRD	W.R. Grace & Co., Polymers & Chemicals Div.	NCP	Niles Chemical Paint Co., Kordell Industries Div.
GRG	P.D. George Co.	NEV	Neville Chemical Co.
GRV	Guardman Chemicals, Inc.	NPV	Norris Paint & Varnish Co.
GYR	Goodyear Tire & Rubber Co.	NSC	National Starch & Chemical Corp.
HAG	Hill and Griffith Co., Mar-Cam Sub.	NTC	National Casein Co.
HAN	Hanna Chemical Coating Corp.	NTL	NL Industries, Inc.
HER	Heresite-Saekaphen, Inc.	NWP	Northern Petrochemical Co.
HGC	Huntsman-Goodsons Chemical Corp. Hooker Chemicals Corp.: Hooker Chemicals & Plastics Corp.:	OBC	O'Brien Corp.
HKD	Durez Div.	OCF	Owens-Corning Fiberglas Corp.
HKP	Plastics Div.	OMC	Olin Corp.
HN	Tenneco Chemicals, Inc.	PAC	Pacific Anchor Chemical Corp.
HNC	H & N Chemical Co.	PAI	Polymer Applications, Inc.
HPC	Hercules, Inc.	PAS	Pennwalt Corp.
HST	American Hoechst Corp.	PC	Proctor Chemical Co.
HVG	Ametek, Inc., Haveg Div.	PDI	Phelps Dodge Industries, Inc., Phelps Dodge Magnet Wire Co. Div.
HXL	Hexcel Corp., Hexcel Products	PEL	Pelron Corp.
HYC	Decter Corp., Hysol Div.	PER	Perry & Derrick Co., Inc.
ICF	Inmont Corp.	PKL	Plaskolite, Inc.
ICI	ICI Americas, Inc.: Chemical Specialties Co. Films Div.	PKP	Plaskon Products, Inc.
IMC	International Minerals & Chemicals Corp.: Foundry Products McWorter Resins	PLC	Phillips Petroleum Co.
INL	Inland Steel Co., Island Steel Container Co. Div.	PLN	Disogrin Industries Corp.
INP	Synair Corp.	PLR	Polysar, Inc., Polysar Latex Div.
IOC	Sybron Corp., Synbron Chemical	PLS	Plastics Engineering Co.
IPC	Interplastic Corp.	PMC	Plastics Manufacturing Co.
IRI	Ironsides Co.	PNT	Pantasote, Inc., Film/Compound Div.
JCC	Jefferson Chemical Co., Inc.	PPG	PPG Industries, Inc.
JNS	S.C. Johnson & Son, Inc.	PPL	Pioneer Plastics Div. of LOF Plastics, Inc.
JOB	Jones-Blair Co.	PRC	Products Research & Chemical Corp.
JSC	Synbron Corp., Synbron Chemical Div.	PRT	Pratt & Lambert, Inc.
KMC	Komac Paint, Inc.	PSL	Plaslok Corp.
KMP	Kelly-Moore Paint Co., Inc.	PST	Perstorp, Inc.
KPP	ARCO/Polymers, Inc.	PVI	Polyvinyl Chemical Industries
KPT	Koppers Co., Inc., Organic Materials Group	PYZ	Polyrez Co., Inc.
KYS	Keysor Corp.	QCP	Quaker Chemical Corp.
LC	Lord Corp., Hughson Chemicals Div.	QUN	K.J. Quinn & Co., Inc.
LIC	Lilly Industrial Coatings, Inc.	RAB	Raybestos Manhattan, Inc., Raybestos Friction Materials Co.
MCA	Masonite Corp., Alpine Div.	RAS	Raffi and Swanson, Inc.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	RCC	Rexene Co.
MCC	McCloskey Varnish Co.	RCD	Richardson Co., Polymeric Systems Div.
MCC	McCloskey Varnish Co. of Northwest	RCI	Reichhold Chemicals Inc.
MCC	McCloskey Varnish Co. of the West	RCO	Rico Chemical Corp.
MID	Dexter Corp., Midland Div.	REL	Reliance Universal, Inc., Louisville Resins Operations
MMM	Minnesota Mining & Manufacturing Co.	RGC	Rogers Corp.
MNP	The Valspar Corp.	RH	Rohm & Haas Co.
MOB	Mobay Chemical Co.	RPC	Millmaster Onyx Group, Refined Onyx Co. Div.
MON	Monsanto Corp.	RSN	Rilsan Corp.
MRT	Morton Norwich Products, Inc., Morton Chemical Co. Div.	RTC	Riegel Textile Corp., H.I.T. Chemicals Div.
		RUB	Hooker Chemicals Corp., Hooker Chemicals & Plastics Corp., Ruco Div.
		S	Sandoz, Inc., Colors & Chemicals Div.
		SAC	Southeastern Adhesives Co.
		SAR	Leski, Inc.
		SCM	SCM Corp., Gliddem Coatings & Resins Div.
		SCN	Schenectady Chemicals, Inc.

TABLE 3.--PLASTIC AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
SCO	Scholler, Inc.	TX	Texaco, Inc.
SCP	Henkel Corp.	TXS	Texstyrene Plastics, Inc.
SDH	Sterling Drug, Inc., Hilton Davis Chemical Co. Div.	UCC	Union Carbide Corp.
SFP	Stauffer Chemical Co., Plastics Div.	UNO	United-Erie, Inc.
SHC	Shell Oil Co., Shell Chemical Co., Div.	UOC	Union Oil Co. of California
SHT	Shintech, Inc.	UPJ	Upjohn Co.
SIC	Vistron Corp., Silmar Div.	USI	National Distillers & Chemical Corp.: U.S. Industrial Chemicals Co.:
SIM	Simpson Timber Co., Chemicals Div.		National Petro Chemical Corp.
SKT	Textron Inc., Spencer Kellogg Div.	USM	Crown Mitro, Inc.
SLC	Soluol Chemical Co., Inc.	USM	Emhart Corp., Bostik U.S. Division
SLT	Soltex Polymer Corp.	USO	U.S. Oil Co.
SM	Mobil Oil Corp.:	USR	Uniroyal, Inc., Uniroyal Chemical Div.
	Mobil Chemical Co.:	USS	USS Chemicals Div., U.S. Steel Corp.
	Chemical Coatings Div.		
	Petrochemical Div.	VAL	Valchem Div. of United Merchants & Manufacturers, Inc.
SNW	Sun Chemical Corp., Chemicals Div.	VEL	Velsicol Chemical Corp.
SOR	M. W. Manufacturers, Southern Resin Div.	VPC	Mobay Chemical Corp., Dyestuff Div.
SPC	Insilco Corp., Sinclair Paint Co. Div.	VSV	Valentine Sugars, Inc., Valite Div.
SPD	General Electric Co., Silicone Products Dept.		
SPL	Spaulding Fibre Co., Inc., Industrial Plastics Div.	WCA	West Coast Adhesives Co.
STC	American Joechst Corp., Sou-Tex Works	WLN	Wilmington Chemical Corp.
STT	Standard T Chemical, Inc.	WPG	West Point-Pepperill, Inc., Griffitex Chemical Co. Sub.
SW	Sherwin-Williams Co.	WRD	Weyerhaeuser Co.
STY	Synthron, Inc.	WTC	Witco Chemical Corp.
TKL	Thiokol Corp.	ZGL	Carolina Processing Corp.
TNA	Ethyl Corp. and Polymer Div.		
TRA	Talleryrand Chemicals, Inc.		

Note.--Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 271 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

Sharon K. Thompson

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, blowing agents, and peptizers. Data on production and sales of rubber-processing chemicals in 1980 are give in table 1.¹

Production of rubber-processing chemicals as a group in 1980 amounted to 291 million pounds, or 26.2 percent less than the 395 million pounds in 1979. Sales of rubber-processing chemicals in 1980 amounted to 194 million pounds, valued at \$296 million, compared wtih 280 million pounds, valued at \$345 million, in 1979.

The production of cyclic rubber-processing chemicals in 1980 amounted to 258 million pounds, or 23.7 percent less than the 339 million pounds in 1979. Sales in 1980 were 168 million pounds, valued at \$270 million, compared with 234 million pounds, valued at \$316 million, in 1979. Of the total production of cyclic rubber-processing chemicals in 1980, antioxidants, antiozonants, and stabilizers accounted for 56.6 percent and accelerators, activators, and vulcanizing agents for 32.1 percent. Production of antioxidants, antiozonants, and stabilizers, which amounted to 146 million pounds in 1980, included 93 million pounds of amino compounds and 53 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants, antiozonants, and stabilizers in 1980 amounted to 58 million pounds, valued at \$114 million; sales of phenolic and phosphite antioxidant, antiozonants, and stabilizers, were 38 million pounds, valued at \$53 million.

Production of acyclic rubber-processing chemicals in 1980 amounted to 33 million pounds, or 40.9 percent less than the 56 million pounds reported for 1979. Sales in 1980 totaled 26 million pounds, valued at \$26 million, compared with 46 million pounds, valued at \$29 million in 1979. Dithiocarbamic acid derivatives accounted for 27.9 percent of sales (based on quantity) of acyclic rubber-processing chemicals in 1980.

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

TABLE 1.--RUBBER-PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1980

[Listed below are all rubber-processing chemical 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 separately 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
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	291,430	193,925	295,952	\$1.53
CYCLIC				
Total-----	258,300	167,854	269,905	1.61
Accelerators, activators, and vulcanizing agents, total-----	82,833	55,851	83,574	1.50
Aldehyde-amine reaction products-----	833	870	1,809	2.08
Thiazole derivatives, total-----	74,162	46,179	62,547	1.35
2,2'-Dithiobis(benzothiazole)-----	13,390	7,166	7,854	1.10
2-Mercaptobenzothiazole, zinc salt-----	1,264	1,366	1,661	1.22
All other thiazole derivatives-----	59,508	37,647	53,032	1.41
All other accelerators, activators, and vulcanizing agents ^{2 3} -----	7,838	8,802	19,218	2.18
Antioxidants, antiozonants, and stabilizers, total----	146,207	95,547	166,963	1.75
Amino compounds, total-----	93,178	58,034	113,900	1.96
Octyldiphenylamine-----	7,314	6,984	8,935	1.28
Substituted p-phenylenediamines total-----	54,490	33,962	80,250	2.36
N',N'-Bis(1,4-dimethylpentyl)-p-phenylenedi- amine-----	4,983	4,359	8,156	1.87
Other substituted p-phenylenediamines-----	49,507	29,603	72,094	2.44
All other amino compounds ⁴ -----	31,374	17,088	24,715	1.45
Phenolic and phosphite compounds, total-----	53,029	37,513	53,063	1.41
Nonylphenyl, phosphites, mixed-----	13,747	10,011	6,732	.67
Phenolic compounds:				
Polyphenolics (including bisphenols)-----	9,067	8,816	25,345	2.87
Phenol, alkylated-----	...	2,699	4,723	1.75
Phenol, styrenated-----	921	832	717	.86
All other phenolic and phosphite compounds-----	29,294	15,155	15,546	1.03
Retarder: N-Nitrosodiphenylamine-----	405	398	707	1.78
All other cyclic rubber-processing chemicals ⁵ -----	28,855	16,058	18,661	1.16
ACYCLIC				
Total-----	33,130	26,071	26,047	1.00
Dithiocarbamic acid derivatives, total ³ -----	8,519	7,292	11,949	1.64
Dimethyldithiocarbamic acid, zinc salt-----	2,461	3,258	3,892	1.19
All other dithiocarbamic acid derivatives ⁶ -----	6,058	4,034	8,057	2.00
Thiurams, xanthates and sulfides-----	2,668	1,348	2,335	1.73
All other acyclic rubber-processing chemicals ⁷ -----	21,943	17,431	11,763	.67

¹Calculated from unrounded figures.

²Includes guanidines, dithiocarbamites, and other uses not separately shown.

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 report on "Pesticides and Related Products."

⁴Includes aldehyde- and acetone-amine reactions products.

⁵Includes blowing agents, peptizers, and other uses not separately shown.

⁶Includes diethyldithiocarbamic acid, zinc salt.

⁷Includes "other" conditioning and lubricating agents, polymerization regulators, shortstops, and other uses not separately shown.

TABLE 2.--RUBBER PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980

[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. COMPANY IDENTIFICATION CODES WHICH ARE FOLLOWED BY AN "(E)" ARE SO LABELED BECAUSE THE COMPANY FAILED TO SUPPLY THE U.S. INTERNATIONAL TRADE COMMISSION WITH THEIR DATA IN SUFFICIENT TIME FOR ITS INCLUSION IN THIS REPORT. THE COMPANY IS PRESUMED TO HAVE CONTINUED PRODUCTION OF THE COMPOUND IN QUESTION IN 1980 AND THE VOLUME OF PRODUCTION AND SALES HAS BEEN ESTIMATED BY THE USITC STAFF MEMBERS.]

		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
RUBBER PROCESSING CHEMICALS		
CYCLIC		
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:		
*ALDEHYDE-AMINE REACTION PRODUCTS:		
n-Butyraldehyde-aniline condensate	- - - - -	DUP, RCD.
Heptaldehyde-aniline condensate	- - - - -	USR.
Triethyltrimethylenetriamine	- - - - -	USR.
Aldehyde-amine reaction products, cyclic, other	- - - - -	DUP, RBC.
DITHIOCARBAMIC ACID DERIVATIVES:		
Dibenzylidithiocarbamic acid, sodium salt	- - - - -	USR.
Dibenzylidithiocarbamic acid, zinc salt	- - - - -	USR.
Piperidinecarbothioic acid, piperidinium potassium salts, mixed	- - - - -	DUP.
GUANIDINES:		
Dicatelchol borate, di-o-tolylguanidine salt	- - - - -	DUP.
1,3-Diphenylguanidine	- - - - -	ACY.
1,3-Di-o-tolylguanidine	- - - - -	ACY.
*THIAZOLE DERIVATIVES:		
N-tert-Butyl-2-benzothiazolesulfonamide	- - - - -	BFG, MON, USR.
N-Cyclohexyl-2-benzothiazolesulfenamide	- - - - -	ACY, BFG, MON, USR.
N,N-Diisopropyl-2-benzothiazolesulfenamide	- - - - -	ACY.
2,5-Dimercapto-1,3,4-thiadiazole	- - - - -	VNC.
*2,2'-Dithiobis (Benzothiazole)	- - - - -	ACY, BFG, GYR, MON, USR.
2-Mercaptobenzothiazole	- - - - -	ACY, BFG, GYR, MON, USR.
2-Mercaptobenzothiazole, copper salt	- - - - -	ACY.
2-Mercaptobenzothiazole, zinc chloride	- - - - -	DUP.
2-Mercaptobenzothiazole, zinc salt	- - - - -	ACY, GYR, USR.
4-Morpholinyl 2-benzothiazyl disulfide	- - - - -	BFG, GYR.

TABLE 2.--RUBBER PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED,
IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

RUBBER PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS--CON.	
*THIAZOLE DERIVATIVES--Continued	
N-oxyl-2-benzothiazolesulfenamide	ACY, USR.
Thiazole derivatives, cyclic, other	USR, VNC.
*ALL OTHER CYCLIC ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
Bis(morpholinothiocarbonyl) disulfide	ACY.
Dibenzylamine	HXL.
Di-N,N'-pentamethylenethiuram tetrasulfide	DUP, VNC.
4,4'-Dithiodimorpholine	MON.
2-Imidazolidenethione (1,3-Ethylene-2-thiourea)	RBC.
m-Phenylenedibismaleimide	DUP.
Poly-p-dinitrosobenzene	DUP.
Tetramethylthiuram disulfide	DUP.
Tetramethylthiuram tetrasulfide	GYR.
Accelerators, activators, and vulcanizing agents, cyclic, other	DUP.
*ANTIOXIDANTS, ANTI-OZONANTS, AND STABILIZERS:	
*AMINO ANTI-OXIDANTS, ANTI-OZONANTS, AND STABILIZERS:	
ALDEHYDE AND ACETONE-AMINE REACTION PRODUCTS:	
Butyraldehyde-aniline condensate	DUP.
Diphenylamine-acetone aldehyde	USR.
Diphenylamine-acetone condensate	ACY, BFG, USR.
Aldehyde and acetone-amine reaction products, cyclic, other	USR.
*SUBSTITUTED P-PHENYLENEDIAMINES:	
Alkylaryl-p-phenylamine-diamines	MON.
*N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	MON, UPM, USR.
N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylene- diamine	UPM.
N,N'-Bis(1-methylheptyl)-p-phenylenediamine	BFG, UPM.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine	USR.
Diarylenediamines, mixed	GYR.
N-(1,3-Dimethylbutyl)-N-phenyl-p-phenylene diamine	GYR, UPM, USR.
N,N'-Di-2-naphthyl-p-phenylenediamine	BFG.
N,N'-Diphenyl-p-phenylenediamine	BFG, USR.
N-Isopropyl-N'-phenyl-p-phenylenediamine	USR.

TABLE 2.--RUBBER PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

RUBBER PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS--CONTINUED	
*SUBSTITUTED P-PHENYLENEDIAMINES--CONTINUED	
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine	UFM.
N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine	USR.
*p-Phenylenediamines, substituted, other--	UFM.
OTHER AMINO ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS:	
p-Anilinophenol--	BFG, SDC.
1,2-Dihydro-6-dodecyl-2,2,4-trimethylquinoline	MON.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline	MON.
1,2-Dihydro-2,2,4-trimethylquinoline	BFG, MON.
Diphenylamine-styrenated	GYR.
Diphenylamine, substituted	USR.
Nonyldiphenylamine mixture (Mono-, di-, and tri)-	USR.
*Octyldiphenylamine	ACY, BFG, NPI(E), UST.
Octyldiphenylamine, alkylated	BFG.
P-(p-Toluenesulfonamido)diphenylamine	USR.
*PHENOLIC AND PHOSPHITE ANTIOXIDANTS AND STABILIZERS:	
PHOSPHITES:	
Alkylaryl phosphites mixed	MCB, X.
*Nonylphenyl phosphites, mixed	MCB, NPI(E), USR, X.
Polymeric phosphites	MCB, NPI(E).
Polyphenolic phosphite, 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.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)	ACY.
2,2'-Methylenebis[6-(1-methylcyclohexyl)-p-cresol]	ACY, ICI.
4,4'-Thiobis(6-tert-butyl-m-cresol)	MON.
Thiobisphenol, alkylated	USR.
1,1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl)butane	ICI.
Polyphenolics (Including bisphenols), other	BFG.

TABLE 2.--RUBBER PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--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--Continued	
ALL OTHER PHENOLIC ANTIOXIDANTS AND STABILIZERS:	
o-Cresol, alkylated	PIT.
Phenol, alkylated	ACY, BFG, GYR, NEV, RCI.
Phenol, hindered	DUP, USR.
Phenol, styrenated, mixtures	GYR, NEV, USR.
N-Stearoyl-p-aminophenol	HXL.
ALL OTHER ANTIOXIDANTS, ANTIOZONANTS AND STABILIZERS:	
N-Phenyl-N'-(1,3-dimethylbutyl)-p-phenylenediamine	GYR.
BLOWING AGENTS:	
Dinitrosopentamethylene terephthalamide	NPI(E).
p,p'-Oxybis(benzenesulfonhydrazide)	USR.
p-Toluenesulfonylsemicarbazide	USR.
Blowing agents, cyclic, all other	USR.
PEPTIZERS:	
2',2''',4'-Dithiobis(benzanilide)	ACY.
Dixylol disulfides, mixed	PIT.
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.
N-(2-Methyl-2-nitropropyl)-4-nitrosoaniline	MON.
*Nitrosodiphenylamine (Retarder)	BFG, GYR, USR.
Rubber processing chemicals, cyclic, all other	KPI.
ACYCLIC	
ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
*DITHIOCARBAMIC ACID DERIVATES:	
Dibutylthiocarbamic acid, nickel salt	DUP, USR.
Dibutylthiocarbamic acid, sodium salt	DUP, USR, VNC.
Dibutylthiocarbamic acid, zinc salt	VNC.
Diethylthiocarbamic acid, cadmium salt and bis-(diethylthiocarbamoyl)disulfide, mixture	VNC.
Diethylthiocarbamic acid, sodium salt	ALC, VNC.
Diethylthiocarbamic acid, tellurium salt	VNC.
Diethylthiocarbamic acid, zinc salt	ALC, GYR.
Dimethylammonium-dimethylthiocarbamate	ALC.
Dimethylthiocarbamic acid, bismuth salt	VNC.

TABLE 2.--RUBBER PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

RUBBER PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS -- CON.	
*DITHIOCARBAMIC ACID DERIVATIVES--CONTINUED	
Dimethyldithiocarbamic acid, copper salt	VNC.
Dimethyldithiocarbamic acid, lead salt	VNC.
Dimethyldithiocarbamic acid, selenium salt	VNC.
Dimethyldithiocarbamic acid, sodium salt and sodium polysulfide	BFG.
*Dimethyldithiocarbamic acid, zinc salt	ALC, FMN, GYR, USR, VNC.
Dithiocarbamic acid derivatives, acyclic, other	DUP, EK.
THURAMS:	
Bis(diethylthiocarbamoyl)disulfide	GYR.
Bis(dimethylthiocarbamoyl) disulfide	GYR, VNC.
Bis(dimethylthiocarbamoyl) sulfide	GYR, USR.
N,N'-Dioctadecyl-N,N'-diisopropyl thiuram disulfide	USR.
XANTHATES AND SULFIDES:	
Di-n-butylxantho disulfide	USR.
Diisopropylxantho disulfide	BFG.
Zinc diisopropyl xanthate	VNC.
ALL OTHER ACYCLIC ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS:	
p-Aminocyclohexylmethane carbonate	DUP.
n-Butyraldehyde-butylamine condensate	DUP.
Ethylenediamine carbamate	DUP.
Methacrylic acid, zinc salt	USR.
Accelerators, activators, and vulcanizing agents, acyclic, other	RBC.
CONDITIONING AND LUBRICATING AGENTS:	
Alkyl alcohols, mixed	DUP.
Mono- and dialkyl phosphate ammonium salts, mixed	DUP.
Sodium alkyl sulfates	DUP.
POLYMERIZATION REGULATORS:	
Alkyl mercaptans, mixed	PLC.
n Dodecyl mercaptans	PAS, PLC.
tert-Hexadecyl mercaptan	PLC.
t-Nonyl mercaptan	PLC.
n-Octyl mercaptan	PAS, PLC.
tert-Octyl mercaptan	PAS, PLC.
Tetradecyl mercaptan	PLC.

TABLE 2.--RUBBER PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED,
IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
RUBBER PROCESSING CHEMICALS	
ACYCLIC--CONTINUED	
SHORTSTOPS:	
Dimethyldithiocarbamic acid, potassium salt	: ALC, USR.
Dimethyldithiocarbamic acid, sodium salt	: ALC, USR, VNC.
ALL OTHER ACYCLIC RUBBER-PROCESSING CHEMICALS:	
3,7-Dioctylphenothiazine	: USR.
Waxes and paraffinic products	: DUP, RCI.
Zinc laurate (Activator, physical property improver and processing auxiliary)	: USR.
Rubber-processing chemicals, acyclic, all other	: VNC.

TABLE 3.--RUBBER-PROCESSING CHEMICALS: DIRECTORY OF MANUFACTURERS, 1980

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 1980 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
ACL	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.	NPI	Stepan Chemical Co., Polychem Dept.
EK	Eastman Kodak Co.	PAS	Pennwalt Corp.
FMN	FMC Corp., Agricultural Chemical Div.	PIT	Pitt-Consol Chemical Co.
GYR	Goodyear Tire & Rubber Co.	PLC	Phillips Petroleum Co.
HXY	Hexcel, Inc., Hexcel Chemical Products	RBC	Fike Chemicals, Inc.
ICI	ICI Americas Inc., Chemical Specialties Co.	RCD	Richardson Co.
KPI	Kenrich Petrichemicals, Inc.	RCI	Reichhold Chemicals, Inc.
		UPM	UOP, Inc.
		USR	Uniroyal, Inc., Uniroyal Chemical Div.
		VNC	Vanderbilt Chemical Corp.

Note.—Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 28 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

Sharon K. Thompson

Total synthetic rubber production and sales in 1980 are estimated to have been as follows:

Production, thousands of pounds	4,770,000
Sales(shipments), thousands of pounds	3,258,000
Sales(shipments), thousands of dollars	2,280,000
Unit value of sales	\$0.70

Data on the individual types of synthetic rubber are unavailable as of this writing. This is the result of a decision made in early 1981 to adapt the statistics collected by the Bureau of the Census¹ for our use rather than collect our own data, in accordance with the Office of Management and Budget program to reduce the paperwork burden on industry. This decision was supported by the leading trade associations of the rubber industry.

When the detailed Census statistics become available, they will be incorporated in this report.

¹Rubber: Production, Consumption, and Stocks (Series MA-30A).

SECTION XI -- PLASTICIZERS

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STATISTICAL HIGHLIGHTS

J. Lawrence Johnson

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 1,784 million pounds in 1980 a decrease of 16.3 percent from the 2,133 million pounds reported for 1979. Sales of plasticizers totaled 1,574 million pounds, valued at \$858 million, in 1980, compared with 1,814 million pounds, valued at \$826 million, in 1979.

Production of cyclic plasticizers in 1980, which consisted chiefly of the esters of phthalic anhydride, phosphoric acid, and trimellitic acid, amounted to 1,389 million pounds, a decrease of 17.8 percent from the 1,690 million pounds reported for 1979. Sales of cyclic plasticizers in 1980 totaled 1,220 million pounds, valued at \$608 million, compared with 1,421 million pounds, valued at \$576 million, in 1979. The most important cyclic plasticizers were the dioctyl phthalates, with production of 273 million pounds, in 1980.

Production of acyclic plasticizers in 1980 totaled 396 million pounds, a decrease of 10.6 percent from the 442 million pounds reported for 1979. Sales of acyclic plasticizers totaled 354 million pounds, valued at \$250 million, in 1980 compared with 393 million pounds, valued at \$250 million, in 1979. Epoxidized soya oils were the most important acyclic plasticizer in 1980 with production of 87 million pounds.

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1980

[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 separately all plasticizer chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

PLASTICIZERS	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE ²
Grand total-----	1,784,440	1,573,588	858,390	\$0.55
Benzenoid ³ -----	1,519,429	1,323,773	687,287	.52
Nonbenzenoid-----	265,011	249,815	171,103	.68
CYCLIC				
Total-----	1,388,935	1,219,999	608,372	.50
Phosphoric acid esters ⁴ -----	86,799	77,136	68,344	.89
Phthalic anhydride esters, total-----	1,054,097	1,059,173	487,652	.46
Dibutyl phthalates (including diisobutyl phthalates)-----	18,098	18,723	8,666	.46
Diethyl phthalate-----	20,939	17,082	18,240	1.07
Diisodecyl phthalate ⁵ -----	121,840	121,550	54,854	.45
Dimethyl phthalate-----	7,043	7,777	4,250	.55
Dioctyl phthalates, total ⁵ -----	273,089	280,271	122,061	.44
Di(2-Ethylhexyl) phthalate-----	257,185	268,749	117,261	.44
All other dioctyl phthalates-----	15,904	11,522	4,800	.42
Di-tridecyl phthalate-----	25,547	...	...	...
All other phthalic anhydride esters-----	587,541	613,770	279,581	.46
Triisooctyl trimellitate-----	3,614	4,447	3,353	.75
Tri-n-octyl n-decyl trimellitate-----	2,000	...	...	...
Triooctyl trimellitate-----	12,654	10,676	7,744	.73
All other cyclic plasticizers ⁶ -----	229,771	68,567	41,279	.60
ACYCLIC				
Total-----	395,505	353,589	250,018	.71
Adipic acid esters, total-----	69,489	64,894	41,375	.64
Di(2-ethylhexyl) adipate-----	32,054	30,447	18,601	.61
Diisodecyl adipate-----	1,095	1,200	847	.71
Diisopropyl adipate-----	1,038	1,142	951	.83
Di-tridecyl adipate-----	...	4,151	3,404	.82
All other adipic acid esters-----	35,302	27,954	17,572	.63
Complex linear polyesters and polymeric plasticizers, total-----	45,134	41,283	35,375	.86
Adipic acid type-----	20,087	17,522	15,430	.88
All other-----	25,047	23,761	19,945	.84
Epoxidized esters, total-----	107,737	109,026	59,037	.54
Epoxidized linseed oils-----	5,263	5,592	4,481	.80
Epoxidized soya oils-----	87,222	88,502	45,483	.51
All other epoxidized esters-----	15,252	14,932	9,073	.61
Isopropyl myristate-----	3,005	2,987	3,466	1.16
Oleic acid esters, total-----	12,364	13,029	7,054	.54
Butyl oleate-----	1,202	1,400	786	.56
n-Propyl oleate-----	464	167	57	.34
All other oleic acid esters-----	10,698	11,462	6,211	.54

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1980

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1980--CONTINUED

PLASTICIZERS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
	1,000	1,000	1,000	Per
ACYCLIC--Continued	pounds	pounds	dollars	pound
Palmitic acid esters, total -----	6,643	5,777	4,501	\$0.78
Isopropyl palmitate-----	4,220	4,425	3,286	.74
All other palmitic acid esters-----	2,423	1,352	1,215	.90
Stearic acid esters, total-----	11,517	10,864	7,054	.65
n-Butyl stearate-----	7,224	6,734	3,621	.54
Isobutyl stearate-----	1,234	1,227	827	.67
All other stearic acid esters-----	3,059	2,903	2,606	.90
Triethylene glycol di(caprylate-caprate)-----	1,515	1,520	1,358	.89
Triethylene glycol di(2-ethyl hexanoate)-----	...	583	369	.69
All other acyclic plasticizers ⁷ -----	138,101	103,626	90,429	.87

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 of 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, 1980, 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 except isopropyl myristate, pelargonic acid esters, ricinoleic and acetylricinoleic acid esters, glyceryl and glycol esters, phosphoric acid esters, sebacic acid esters and other acyclic plasticizers.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980
 [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)
Diethylene glycol dibenzoate	VEL.
Dipropandiol dibenzoate (Dipropylene glycol di-benzoate)	VEL.
N-Ethyl-p-toluenesulfonamide	MON, NES.
Isopropylidenediphenoxypropanol-*	DOM.
*PHOSPHORIC ACID ESTERS:	
Cresyl diphenyl phosphate	FMP, SFS.
Dibutyl phenyl phosphate	MON.
Diphenyl octyl phosphate	MON.
Tricresyl phosphate	FMP, SFS.
Triphenyl phosphate	EK, MON.
Phosphoric acid esters, all other-	MON, SFS.
*PHTHALIC ANHYDRIDE ESTERS:	
Alkyl benzyl phthalates	MON.
Bis(2-ethylhexyl)terephthalate	EKT.
Butyl benzyl phthalate	MON.
Butyl cyclohexyl phthalate	CPS.
Butyl octyl phthalates	BAS, RCI, TEK, USS.
Butyl phthalyl butyl glyxolate	MON, PFZ.
Di(2-butoxyethyl) phthalate	HAL.
Di(2-butyl phthalate (Including diisobutyl phthalate)	BAS, EKT, HCC, RCI, SHX, USS, WTH.
Dicyclohexyl phthalate	PFZ.
Diethyl isophthalate	PFZ.
*Diethyl phthalate	EKT, KF, MON, PFZ.
*Diisodecyl phthalate	BAS, ENJ, HCC, HN, RCI, TEK, USS.
Diisohexyl phthalate	EMJ.
Diisononyl phthalate	CO, ENJ, USS.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*PHTHALIC ANHYDRIDE ESTERS--Continued	
Di(2-methoxyethyl) phthalate	EKT.
Dimethyl isophthalate	PFZ.
*Dimethyl phthalate	EKT, KF, MON, PFZ.
*DIOCTYL PHTHALATES:	
*Di(2-ethylhexyl) phthalate	BAS, BFG, CO, EKT, HCC, HN, RCI, TEK, USS.
Diiso-octyl phthalate	RCI, TEK, USS.
Di-n-octyl phthalate	EK.
Diocetyl phthalates, all other	WTH.
Diphenyl phthalate	MON.
Di-tridecyl phthalate	ENJ, HCC, HN, RCI, SM, TEK, USS.
Diundecyl phthalate	MON.
Hexyl n-decyl phthalate	CO, HN, TEK.
Hexyl iso-octyl phthalate	PFZ.
n-Octyl n-decyl phthalate	RCI, USS.
Phthalic anhydride esters, all other	BAS, HCC, HDM, HN, MON.
Polyethylene glycol dibenzoate	VEL.
Tetrahydrofurfuryl oleate	EMR.
Toluenesulfonamide o-, p-mixtures	MID, MON.
TRIMELLITIC ACID ESTERS:	
Tri(2-ethylhexyl) trimellitate	HCC, TEK.
Triisodecyl trimellitate	PFZ.
Triisononyl trimellitate	ENJ.
Triisooctyl trimellitate	ENJ, HN, RCI, RUB, USS.
*Tri-n-octyl n-decyl trimellitate	PFZ, RCI, RUB, TEK.
*Triocetyl trimellitate	EKT, HN, RCI, RUB, USS, WTH.
all other Trimellitic acid esters	ENJ, HAL, HCC, HDM, MON, PFZ, TEK, USS, X.
*Cyclic plasticizers, all other	HDM, HN, MOH, NEV, WTH.
ACYCLIC	
*ADIPIC ACID ESTERS:	
Di(2-(2-butoxyethoxy)ethyl) adipate	EKT, HAL, RCI, TKL.
*Di(2-ethylhexyl) adipate	BAS, HAL, HCC, HN, MON, PFZ, RCI, RH, RUB, TEK, USS, WM, WTH.

TABLE 2.--PLASTICIZERS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ADIPIC ACID ESTERS--Continued	
Diisobutyl adipate	HAL, HCC.
*Diisodecyl adipate	HAL, HCC, RCI, SM, USS.
Diisooctyl adipate	HAL, HCC, RCI, RH.
*Diisopropyl adipate	SBC, VND, MM, WTH.
Di-n-octyl adipate	DA.
*Di-tridecyl adipate	EMR, HCC, SM.
n-Hexyl n-decyl adipate	TEK.
n-Octyl n-decyl adipate	MON, RCI, RH, USS.
*Adipic acid esters, all others	ARC, EKT, HAL, HCC, HUM, MON, WTC, WTH.
AZELAIC ACID ESTERS:	
Di(2-ethylhexyl) azelate	EKT, EMR, HAL, RCI.
Diiso-octyl azelate	EMR.
Azelaic acid esters, all others	EMR, HAL, PFZ.
CITRIC AND ACETYLCITRIC ACID ESTERS:	
Tributyl acetyl citrate	PFZ.
Triethyl acetyl citrate	PFZ.
Triethyl citrate	PFZ.
Citric and acetylcitric acid esters, all other	PFZ.
*COMPLEX LINEAR POLYESTERS AND POLYMERIC PLASTICIZERS:	
Adipic acid type complex linear polyesters and polymeric plasticizers	DUP, HAL, RH, SHX, TEK, WTH.
Complex linear polyesters and polymeric plasticizers, all other	ARZ, DA, EKT, EKX, EMR, HCC, HPC, MON, PFZ, RCI, RH, VND, WTH.
Di(2-(2-butoxyethoxy)ethyl) methane	TKL.
Diiso-octyl diglycolate	CCA.
*EPOXIDIZED ESTERS:	
Butyl epoxystearates	UCC.
*Epoxidized linseed oils	SHX, SMT, VIK, WTC, X.
*Epoxidized soya oils	FMP, RH, SHX, UCC, VIK, WTC, X.
Epoxy oleates, mixed	RH.
2-Ethylhexyl epoxytallates	UCC.
Octyl epoxystearates	WTC.
Octyl epoxytallates	RH, WTC.
Epoxidized esters, all other	UCC, VIK.
Glycerol tripropionate	EKT.
Lauric acid esters	HAL.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1980--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
MYRISTIC ACID ESTERS:	
*Isopropyl myristate	ARC, SHX, TCH, WM, WTH.
Myristyl ethoxy myristate	SCP.
*OLEIC ACID ESTERS:	
*Butyl oleate	CHL, GRO, HAL, WTH.
Decyl oleate	SBC, SCP, VND.
Glyceryl trioleate (Triolein)	EMR, GRO, PVO, TCH.
Isobutyl oleate	DA.
Methyl oleate	ARC, EMR, GRO, TCH.
*n-Propyl oleate	CHL, CHP, EMR, TCH.
Oleic acid esters, all other	EMR, HAL.
*PALMITIC ACID ESTERS:	
2-Ethylhexyl palmitate	VND, WTH.
Isobutyl palmitate	ARC, WM.
Iso-octyl palmitate	ARC.
*Isopropyl palmitate	ARC, WM, WTH.
2-Methoxyethyl palmitate	EKT.
*Palmitic acid esters, all other	EKT, SBC, SCP.
PELARGONIC ACID ESTERS:	
Glycol pelargonate	EMR.
Isodecyl pelargonate	EMR.
PHOSPHORIC ACID ESTERS:	
Tri(2-butoxyethyl) phosphate	FMP.
Triethyl phosphate	EKT.
Trioctyl phosphate	HN.
RICINOLEIC AND ACETYLRICINOLEIC ACID ESTERS:	
n-Butyl acetylricinoleate	NIL.
Butyl ricinoleate	NIL.
Glyceryl tri(acetylricinoleate)	NIL.
Methyl ricinoleate	NIL.
Ricinoleic and acetylricinoleic acid esters, all other	NIL, RH.
SEBACIC ACID ESTERS:	
Dibutoxyethyl sebacate	HAL.
Dibutyl sebacate	EKT.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1930--CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
SEBACIC ACID ESTERS--Continued	
Di(2-ethylhexyl) sebacate	HCC, RH.
Sebacic acid esters, all other	HAL.
*STEARIC ACID ESTERS:	
Butoxyethyl stearate	ARC.
*n-Butyl stearate	ARC, CHL, EMR, GRO, SCP, SHX, TCH, WM, WTH.
2-Ethylhexyl stearate	SCP.
Glyceryl triacetetyl stearate	NIL.
Hexadecyl stearate	ARC.
*Isobutyl stearate	ARC, DA, WM, WTH.
Isopropyl stearate	SBC, TCH, WTH.
Methyl pentachlorostearate	VDM.
*Stearic acid esters, all other	DA, GRO, SBC, SCP, TCH, VND, WM, X.
Sucrose acetate isobutyrate	EKT.
Tetraethylene glycol di(2-ethylhexanoate)	HAL.
*Triethylene glycol di(caprylate-caprate)	HAL, PVO, WM.
Triethylene glycol di(2-ethylbutyrate)	UCC.
*Triethylene glycol di(2-ethylhexanoate)	EKT, HAL, PVO.
2,2,4-trimethyl-1,3-pentanediol diisobutyrate	EKK.
*Acyclic plasticizers, all other	EMR, HAL, HPC, PVO, SM, TCH, UCC, WM.

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1980

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of plasticizers to the U.S. International Trade Commission for 1980 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ARC	Armak Co., Industrial Chemical Div.	NES	Ruetgers-Nease Chemical Co.
ARZ	Arizona Chemical Co.	NEV	Neville Chemical Co.
BAS	BASF Wyandotte Corp.	NTL	NL Industries, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	PFZ	Pfizer, Inc.
CCA	Interstab Chemicals, Inc.	PVO	PVO International, Inc.
CHL	Chemol, Inc.	RCI	Reichhold Chemicals, Inc.
CO	Conoco, Inc.	RH	Rohm & Haas Co.
CPS	CPS Chemical Co.	RUB	Hooker Chemicals Corp., Hooker Chemicals & Plastics Corp., Ruco Div.
DA	Diamond Shamrock Corp.	SBC	Scher Chemicals, Inc.
DOW	Dow Chemical Co.	SCP	Henkel, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.	SFS	Stauffer Chemical Co., Specialty Div.
EK	Eastman Kodak Co.:	SHX	Sherex Chemical Co., Inc.
EKT	Tennessee Eastman Co. Div.	SM	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.
EKX	Texas Eastman Co. Div.	SWT	Estech Specialty Chemicals Corp.
EMR	Emery Industries, Inc.	TCH	Emery Industries, Inc., Tylon Div.
ENJ	Exxon Chemical Americas	TEK	Teknor Apex Co.
FMP	FMC Corp., Industrial Chemical Group	TKL	Thiokol Chemical Corp.
GRO	A. Gross & Co., Millmaster Onyx Group, Kewanee Industries, Inc.	UCC	Union Carbide Corp.
HAL	C. P. Hall Co.	USS	USS Chemicals Div. of U.S. Steel Corp.
HCC	Hatco Chemical Corp.	VDM	Van De Mark Chemical Co., Inc.
HDW	Hardwicke Chemical Co.	VEL	Velsicol Chemical Corp.
HN	Tenneco Chemicals, Inc.	VIK	Viking Chemical Co.
HPC	Hercules, Inc.	VND	Van Dyk & Co., Inc.
HUM	Kraft, Inc., Humko Sheffield Chemical	WM	American Can Co., Inolex Chemical Div.
KF	Kay-Fries Inc., Member Dynamit Nobel Group	WTC	Witco Chemical Corp.
MID	Dexter Corp., Midland Div.	WTH	Union Camp Corp.
MON	Monsanto Co.		

Note.—Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 55 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

Eric Land

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 ingredient 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 1980 amounted to 4,853 million pounds, or 1.9 percent less than the 4,948 million pounds reported for 1979. Sales of bulk surface-active agents in 1980 amounted to 2,928 million pounds, valued at \$1,296 million, compared with sales in 1979 of 2,859 million pounds, valued at \$1,143 million. In terms of quantity, sales in 1980 were 13.4 percent greater than in 1979.

Production of anionic surface-active agents in 1980 amounted to 3,196 million pounds, or 65.9 percent of the total surfactant output reported for 1980. Sales of anionics in 1980 amounted to 1,597 million pounds valued at \$475 million.

Production of cationic surface-active agents in 1980 amounted to 311 million pounds, 5.8 percent more than the 294 million pounds reported in 1979. Production of nonionic surface-active agents amounted to 1,320 million pounds in 1980, 10.5 percent less than the 1,475 million pounds reported in 1979. Sales of cationic surface-active agents in 1980 increased by 10.6 percent in terms of quantity and increased 12.6 percent in terms of value over 1979. Sales of nonionics in 1980 declined by 5.2 percent, in terms of quantity, but increased by 13.3 percent in terms of value over 1979.

The difference between production and sales reflects inventory changes and captive consumption of soaps and 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.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1980

[Listed below are all 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	SALES ²			
	PRODUCTION ¹	QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	4,852,684	2,927,504	1,296,260	\$0.44
Benzenoid ⁴ -----	1,154,101	616,824	339,708	.55
Nonbenzenoid ⁵ -----	3,698,583	2,310,680	956,552	.41
<i>AMPHOTERIC</i>				
Total-----	25,709	24,637	23,472	.95
Acyclic amphoteric surface-active agents-----	7,289	6,343	7,232	1.14
Cyclic amphoteric surface-active agents-----	18,420	18,294	16,240	.89
<i>ANIONIC</i>				
Total-----	3,195,904	1,596,733	474,613	.30
Carboxylic acids (and salts thereof), total-----	846,840	144,265	67,025	.46
Amine salts of fatty, rosin, and tall oil acids----	1,873	696	906	1.30
Carboxylic acids having amide, ester, or ether linkages-----	3,746	3,083	4,518	1.47
Coconut oil acids, potassium salt-----	10,017	1,235	1,228	.99
Coconut oil acids, sodium salt-----	162,689	1,948	823	.42
Stearic acid, potassium salt-----	356	...	...	...
Tall oil acids, potassium salt-----	9,419	2,790	1,411	.51
Tall oil acids, sodium salt-----	1,132	1,108	293	.26
Tallow acids, sodium salt-----	376,984	16,449	4,952	.30
All other carboxylic acids (and salts thereof)-----	280,624	116,956	52,894	.45
Phosphoric and polyphosphoric acid esters (and salts thereof), total-----	37,492	27,824	21,696	.78
Alcohols and phenols, alkoxylated and phosphated, total-----	21,760	20,262	14,057	.69
Mixed linear alcohols, ethoxylated and phos- phated-----	3,141	2,551	2,203	.86
Nonylphenol, ethoxylated and phosphated-----	11,507	10,489	5,113	.49
Phenol, ethoxylated and phosphated-----	2,130	2,098	2,143	1.02
Polyhydric alcohol, ethoxylated and phosphated---	65	74	102	1.37
Tridecyl alcohol, ethoxylated and phosphated-----	478	297	325	1.10
All other-----	4,439	4,753	4,171	.87
All other phosphoric and polyphosphoric acid esters (and salts thereof), total-----	15,732	7,562	7,639	1.01
2-Ethylhexyl phosphate, sodium salt-----	332	289	313	1.09
Mixed alkyl phosphate-----	2,882	...	...	...
All other-----	12,518	7,273	7,326	1.01
Sulfonic acids (and salts thereof), total-----	1,721,978	1,207,467	250,476	.21
Alkylbenzenesulfonates, total-----	648,596	194,051	95,544	.49
Dodecylbenzenesulfonic acid-----	226,490	107,195	48,344	.45
Dodecylbenzenesulfonic acid, calcium salt-----	13,504	11,645	10,623	.91
Dodecylbenzenesulfonic acid, isopropylamine salt---	3,450	3,399	2,549	.75
Dodecylbenzenesulfonic acid, sodium salt-----	269,966	51,647	19,906	.39
Dodecylbenzenesulfonic acid, triethanolamine salt-----	5,835	5,535	3,083	.56
Tridecylbenzenesulfonic acid, sodium salt-----	112,490	...	...	...
All other-----	16,861	14,630	11,039	.75

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
<i>ANIONIC--Continued</i>				
Sulfonic acids (and salts thereof)--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Benzene-, cumene-, toluene-, and xylenesulfonates, total-----	74,946	56,986	22,001	\$0.39
Xylenesulfonic acid, ammonium salt-----	16,451	16,035	5,207	.32
Xylenesulfonic acid, sodium salt-----	33,535	23,028	9,843	.43
All other-----	24,960	17,923	6,951	.39
Ligninsulfonates, total-----	879,969	880,527	63,761	.07
Ligninsulfonic acid, calcium salt-----	620,890	625,386	25,316	.04
Ligninsulfonic acid, iron salt-----	1,903	1,755	321	.18
Ligninsulfonic acid, sodium salt-----	101,983	99,356	16,943	.17
All other-----	155,193	154,030	21,181	.14
Naphthalenesulfonates-----	21,360	18,182	12,077	.66
Sulfonic acids having amide linkages, total-----	5,821	4,349	5,068	1.17
Sulfosuccinamic acid derivatives-----	3,267	2,175	1,906	.88
Taurine derivatives-----	2,554	2,174	3,162	1.45
Sulfonic acids having ester or ether linkages, total-----	69,594	31,873	39,648	1.24
Sulfosuccinic acid esters, total-----	24,686	19,771	20,489	1.04
Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt-----	19,545	15,120	17,182	1.14
All other-----	5,141	4,651	3,307	.71
Other sulfonic acids having ester or ether linkages-----	44,908	12,102	19,159	1.58
All other sulfonic acids (and salts thereof)-----	21,692	21,499	12,377	.58
Sulfuric acid esters (and salts thereof), total-----	521,116	184,393	124,066	.67
Acids, amides, and esters, sulfated, total-----	23,363	18,792	10,620	.57
Butyl oleate, sulfated, sodium salt-----	1,054	1,012	460	.45
Isopropyl oleate, sulfated, sodium salt-----	38	...	...	...
Tall oil sulfated, sodium salt-----	3,203	2,255	631	.28
All other-----	19,068	15,525	9,529	.61
Alcohols, sulfated, total-----	240,182	54,788	55,980	1.02
Dodecyl sulfate, ammonium salt-----	8,283	7,302	7,276	1.00
Dodecyl sulfate, magnesium salt-----	214	172	256	1.49
Dodecyl sulfate, sodium salt-----	18,048	17,138	17,841	1.04
Dodecyl sulfate, triethanolamine salt-----	9,399	5,267	5,374	1.02
2-Ethylhexyl sulfate, sodium salt-----	1,966	1,911	1,629	.85
Mixed linear alcohols, sulfated, sodium salt-----	53,819	5,721	5,684	.99
Octyl sulfate, sodium salt-----	274	198	281	1.42
All other-----	148,179	17,079	17,639	1.03
Castor oil, sulfated, sodium salt-----	5,282	4,411	2,480	.56
Cod oil, sulfated, sodium salt-----	1,644	1,606	418	.26
Ethers, sulfated, total-----	244,655	102,244	53,882	.53
Alkylphenols, ethoxylated and sulfated-----	5,568	5,001	5,379	1.08
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt-----	4,209	4,141	2,185	.53
Dodecyl alcohol, ethoxylated and sulfated, sodium salt-----	15,339	13,240	11,793	.89
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt-----	85,753	51,075	19,319	.38
Mixed linear alcohols, ethoxylated and sulfated, sodium salt-----	...	27,792	14,343	.52
All other-----	133,786	995	863	.87
Herring oil, sulfated, sodium salt-----	1,861	...	...	...
Neat's foot oil, sulfated, sodium salt-----	1,351	...	...	...
Tallow sulfated, sodium salt-----	2,778	2,552	686	.27
Other anionic surface-active agents ⁶ -----	68,478	32,784	11,350	.35

See footnotes at end of table.

XII -- SURFACE-ACTIVE AGENTS

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TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
<i>CATIONIC</i>	<i>1,000</i> <i>pounds</i>	<i>1,000</i> <i>pounds</i>	<i>1,000</i> <i>dollars</i>	<i>Per</i> <i>pound</i>
Total-----	310,716	237,548	199,590	\$0.84
Amine oxides and oxygen-containing amines (except those having amide linkages), total-----	75,589	26,232	22,926	.87
Acyclic, total-----	65,858	18,763	15,510	.83
(Coconut oil alkyl)amine, ethoxylated-----	2,030	1,409	1,430	1.01
(Mixed alkyl)amine, ethoxylated-----	1,540	...	...	...
(Soybean oil alkyl)amine, ethoxylated-----	656	...	...	...
(Tallow alkyl)amine, ethoxylated-----	2,392	2,344	1,698	.72
All other-----	59,240	15,010	12,382	.82
Cyclic (including imidazoline and oxazoline derivatives), total-----	9,731	7,469	7,416	.99
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline-----	402	380	469	1.23
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline-----	130	124	143	1.15
All other-----	9,199	6,965	6,804	.98
Amines and amine oxides having amide linkages, total-----	39,624	29,587	22,547	.76
Stearic acid-diethylenetriamine condensate-----	150	150	271	1.82
Tall oil acids-diethylenetriamine condensate-----	9,670	9,739	4,441	.46
Tall oil acids polyalkylenepolyamine condensate-----	12,632	11,940	8,402	.70
All other-----	17,172	7,758	9,433	1.22
Amines, not containing oxygen (and salts thereof), total-----	79,326	72,789	64,930	.89
Diamines, polyamines, and amine salts, total-----	23,944	21,687	18,699	.86
Imidazoline derivatives-----	869	849	1,404	1.65
N-(9-Octadecenyl)trimethylenediamine-----	...	1,404	1,534	1.09
N-(Tallow alkyl)trimethylenediamine-----	3,427	3,633	2,557	.70
All other-----	19,648	15,801	13,204	.84
Primary monoamines, total-----	24,600	24,709	19,323	.78
(Hydrogenated tallow alkyl)amine-----	3,670	2,731	2,073	.76
9-Octadecenylamine-----	5,458	5,686	4,588	.81
(Tallow alkyl)amine-----	8,086	10,352	6,390	.62
All other-----	7,386	5,940	6,272	1.06
Secondary and tertiary monoamines, total-----	30,782	26,393	26,908	1.02
N,N-Dimethylhexadecylamine-----	547	609	659	1.08
N,N-Dimethyloctadecylamine-----	1,203	1,228	1,386	1.13
All other-----	29,032	24,556	24,863	1.01
Quaternary ammonium salts, not containing oxygen, total-----	95,703	91,534	72,781	.80
Acyclic, total-----	71,751	69,187	45,052	.65
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	53,723	51,949	27,096	.52
Trimethyl(tallow alkyl)amminium chloride-----	1,157	1,188	1,083	.91
All other-----	16,871	16,050	16,873	1.05
Benzenoid, total-----	23,952	22,347	27,729	1.24
Benzyltrimethyl(mixed alkyl)ammonium chloride-----	7,120	7,010	8,484	1.21
Benzyltrimethyloctadecylammonium chloride-----	1,209	822	1,558	1.89
Benzyltrimethylammonium chloride-----	3,230	3,310	1,719	.52
All other-----	12,393	11,205	15,968	1.43
Other cationic surface-active agents ⁷ -----	20,474	17,406	16,406	.94
<i>NONIONIC</i>				
Total-----	1,320,355	1,068,586	598,585	.56

See footnotes at end of table.

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TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
<i>NONIONIC--Continued</i>				
Carboxylic acid amides, total-----	62,393	50,139	39,650	\$0.79
Diethanolamine condensates (amine/acid ratio=2/1), total-----	20,028	16,194	12,487	.76
Capric acid-----	121	120	116	.97
Coconut oil acids-----	10,066	8,061	5,910	.73
Coconut oil and tallow acids-----	1,511	1,381	1,016	.74
Linoleic acids-----	244	241	277	1.15
Oleic acid-----	575	523	361	.69
Stearic acid-----	428	215	77	.36
Tall oil acids-----	100	100	68	.68
All other-----	6,983	5,553	4,662	.84
Diethanolamine condensates (other amine/acid ratios), total-----	28,878	26,924	21,473	.80
Coconut oil acids (amine/acid ratio=1/1)-----	15,988	15,731	11,728	.75
Lauric acid (amine/acid ratio=1/1)-----	3,739	1,997	1,907	.95
Lauric and myristic acid (amine/acid ratio=1/1)---	7,586	7,738	6,596	.85
Linoleic acid-----	270	238	238	1.00
Oleic acid (amine/acid ratio=1/1)-----	...	49	42	.86
Stearic acid (amine/acid ratio=1/1)-----	159	157	114	.73
All other-----	1,136	1,014	848	.84
All other carboxylic acid amides-----	13,487	7,021	5,690	.81
Carboxylic acid esters, total-----	233,262	196,329	140,658	.72
Anhydrosorbitol esters, total-----	29,030	22,552	17,189	.76
Anhydrosorbitol mono-oleate-----	4,316	4,556	3,855	.85
All other-----	24,714	17,996	13,334	.74
Diethylene glycol esters, total-----	1,231	920	786	.85
Diethylene glycol monolaurate-----	110	113	81	.72
Diethylene glycol monostearate-----	272	208	194	.93
All other-----	849	599	511	.85
Ethoxylated anhydrosorbitol esters, total-----	22,714	24,341	19,158	.79
Ethoxylated anhydrosorbitol mono-oleate-----	3,131	3,397	2,853	.84
Ethoxylated anhydrosorbitol monostearate-----	8,085	8,747	6,953	.79
All other-----	11,498	12,197	9,352	.77
Ethoxylated sorbitol esters, total-----	3,413	3,506	3,020	.86
Ethoxylated sorbitol mono-oleate-----	876	900	639	.71
All other-----	2,537	2,606	2,381	.91
Ethylene glycol distearate-----	2,154	2,200	1,236	.56
Ethylene glycol monostearate-----	1,896	1,686	1,242	.74
Glycerol esters of chemically defined acids, total--	21,946	18,493	12,262	.67
Glycerol mono-oleate-----	3,186	3,185	2,363	.74
Glycerol monoricinoleate-----	68	72	89	1.24
Glycerol monostearate-----	17,906	14,443	8,979	.63
All other-----	786	793	831	1.05
Glycerol esters of mixed acids-----	45,890	40,200	27,080	.67
Natural fats and oils, ethoxylated, total-----	18,726	15,179	10,767	.71
Castor oil, ethoxylated-----	9,905	7,787	4,957	.64
Hydrogenated castor oil, ethoxylated-----	...	3,528	3,186	.90
Lanolin, ethoxylated-----	1,738	1,182	1,132	.96
All other-----	7,083	2,682	1,492	.56
Polyethylene glycol esters, total-----	47,516	39,774	22,715	.57
Polyethylene glycol dilaurate-----	1,057	927	959	1.03
Polyethylene glycol dioleate-----	2,074	722	499	.69
Polyethylene glycol distearate-----	2,914	2,555	2,385	.93
Polyethylene glycol monolaurate-----	4,403	4,363	3,478	.80
Polyethylene glycol mono-oleate-----	5,472	4,696	3,191	.68
Polyethylene glycol monostearate-----	5,875	4,953	3,772	.76
Polyethylene glycol sesquiester of tall oil acids--	16,180	16,335	4,199	.26
All other-----	9,541	5,223	4,232	.81

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
<i>NONIONIC--Continued</i>	<i>1,000</i>	<i>1,000</i>	<i>1,000</i>	<i>Per</i>
	<i>pounds</i>	<i>pounds</i>	<i>dollars</i>	<i>pound</i>
Carboxylic acid esters--Continued				
Polyglycerol esters, total-----	845	843	1,027	\$1.22
Polyglycerol monostearate-----	57	58	69	1.20
All other-----	788	785	958	1.22
Propanediol esters, total-----	2,534	2,143	2,016	.94
1,2-Propanediol monostearate-----	2,287	2,072	1,934	.93
All other-----	247	71	82	1.15
All other carboxylic acid esters ⁸ -----	35,367	24,492	22,160	.90
Ethers, total-----	994,811	815,699	409,881	.50
Benzenoid ethers, total-----	345,439	304,226	150,852	.50
Dinonylphenol, ethoxylated-----	6,681	5,103	3,683	.73
Dodecylphenol, ethoxylated-----	15,749	13,977	6,678	.48
Nonylphenol, ethoxylated-----	254,386	232,919	105,748	.45
Phenol, ethoxylated-----	2,072	1,302	828	.64
All other-----	66,551	50,925	33,915	.67
Nonbenzenoid ethers, total-----	561,227	450,242	215,272	.48
Chemically-defined linear alcohols, alkoxy- total-----	12,315	9,556	7,665	.80
Decyl alcohol, ethoxylated-----	4,855	3,551	1,747	.49
Dodecyl alcohol, ethoxylated-----	2,092	...	...	...
9-Octadecenyl alcohol, ethoxylated-----	...	442	432	.98
Oleyl alcohol, ethoxylated-----	923	841	1,091	1.30
All other-----	4,445	4,722	4,395	.93
Mixed linear alcohols, alkoxy- total-----	548,912	440,686	207,607	.47
Mixed linear alcohols, ethoxylated-----	500,134	421,680	194,518	.46
Mixed linear alcohols, ethoxylated and pro- poxylated-----	15,924	14,087	7,583	.54
Tallow alcohol, ethoxylated-----	6,710	...	...	...
All other-----	26,144	4,919	5,506	1.12
Other ethers and thioethers, total-----	88,145	61,231	43,757	.71
tert-Dodecyl mercaptan, ethoxylated-----	802	793	576	.73
Mixed alcohols, ethoxylated-----	828	398	583	1.46
Tridecyl alcohols, ethoxylated-----	11,704	10,054	5,957	.59
All other-----	74,811	49,986	36,641	.73
Other nonionic surface-active agents ⁹ -----	29,889	6,419	8,396	1.30

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 agents, 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).

⁵Includes ligninsulfonates.

⁶Includes all other natural fats and oils, sulfated.

⁷Includes quaternary ammonium salts, containing oxygen.

⁸Includes all other ethylene glycol esters and complex glycerol esters.

⁹Includes trimethylnonyl alcohol, ethoxylated; octyl phosphate, ethoxylated; trimethylalpropane, ethoxylated; and tri(castor oil alkyl) phosphate.

TABLE 2.--SURFACE ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980
 [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:	
(1-Carboxyheptadecyl)trimethylammonium hydroxide, inner salt	DUP.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, sodium salt	X.
N-(Coconut oil alkyl)- β -alanine, sodium salt	DUP, SCP.
N-Dodecyl-3-iminodipropionic acid	SCP.
N-Dodecyl-3-iminodipropionic acid, disodium salt	SCP.
Mixed acyclic primary amines, ethoxylated and sulfated, sodium salt	DUP, RH.
(Mixed alkyl) sulfobetaine	MOA.
Oleic acid-ethylenediamine condensate, propoxylated and sulfated, sodium salt	S.
Polypeptide ammonium salt	X.
Polypeptide ethyl ester	X.
Polypeptide, sodium salt	X.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt	SCP.
Acyclic amphoteric surface-active agents, all other	ARC, MIR, MOA, QCC, SBC, SCP.
CYCLIC:	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium chloride, disodium salt	SCP.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt	BRD, WTC.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt	HLI, WM.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt	MIR.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMPHOTERIC--CONTINUED	
CYCLIC--Continued	
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt	GAF, MIR, X.
Cyclic amphoteric surface-active agents, all other	MIR, MOA, QCC, SBC, SCP.
ANIONIC	
CARBOXYLIC ACIDS (AND SALTS THEREOF):	
AMINE SALTS OF FATTY, ROSIN, AND TALL OIL ACIDS:	
Coconut oil acids, ethanolamine salt	SBP.
Mixed fatty acids, ethanolamine salt	SBP.
Oleic acid, butylamine salt	DYS.
Oleic acid, diethylamine salt	WTC.
Rosin acids, triethanolamine salt	AES, ONX.
Stearic acid, N,N',N'-tetakis(2-hydroxyethyl)ethylenediamine salt	ICI.
Stearic acid, triethanolamine salt	GLY.
Tallow acids, ethanolamine salt	SBP.
Tallow acids, triethanolamine salt	SBP.
Amine salts of fatty, rosin, and tall oil acids, all other	WM, X, X.
CARBOXYLIC ACIDS HAVING AMIDE, ESTER, OR ETHER LINKAGES:	
N-(Coconut oil acyl)polypeptide, potassium salt	X.
N-(Coconut oil acyl)polypeptide, sodium salt	X.
N-(Coconut oil acyl)polypeptide, triethanolamine salt	X.
N-(Coconut oil acyl)sarcosine, sodium salt	HMP.
N-Lauroylsarcosine	HMP.
N-Lauroylsarcosine, sodium salt	HMP, ONX.
N-Oleoylpolypeptide, sodium salt	LMI.
N-Oleoylsarcosine	HMP.
N-Oleoylsarcosine, sodium salt	GAF.
Carboxylic acids with amide, ester or ether linkage, other	CHP, HMP, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--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:	
Castor oil acids, potassium salt	NTL, SEA.
Castor oil acids, sodium salt	HEM, X.
*Coconut oil acids, potassium salt	AES, CON, DYS, ESS, HEM, HIP, HNT, LUR, NMC, PEK, PG, PNX, SNM.
*Coconut oil acids, sodium salt	AGP, BSM, CON, CP, HEM, JRG, LEV, NMC, NPR, PG.
Corn oil acids, potassium salt	HNT, NMC.
Corn oil acids, sodium salt	DA.
Fish oil acids, sodium salt	PG.
Mixed vegetable fatty acids, potassium salt	AES, DYS, GRL, QCP, SOP.
Oleic acid, potassium salt	AES, DA, HAL, HNT, SNM, USR, WBG, X.
Oleic acid, sodium salt	BSM, NMC, USR, WBG, WTC.
Olive oil acids, sodium salt	HNT.
Palm oil acids, sodium salt	BSM, HEM.
Rosin acids, potassium salt	MCP, PEK, X.
Rosin acids, sodium salt	HRT, SIM, X.
Soybean oil acids, potassium salt	LUR, PEK, PNX.
*Stearic acid, potassium salt	CCC, CON, DA, HEM, WTC.
*Stearic acid, sodium salt	WTC.
*Tall oil acids, potassium salt	AES, ASY, CCC, CON, DYS, ESS, HIP, HNT, PEK, PNX, X, X.
*Tall oil acids, sodium salt	AES, CON, DAN, NMC, WVA, X.
Tallow acids, potassium salt	AES, AGP, ASY, PG.
*Tallow acids, sodium salt	BSM, CON, CP, DYS, HEM, JRG, LEV, NMC, NPR, PG, PRX.
Potassium and sodium salts of fatty, rosin, and tall oil acids, all other	ARZ, DYS, HEM, NMC, USR.
OTHER CARBOXYLIC ACIDS:	
Carboxylic acids, all other	BSM, KPI, NMC, SCP.
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF):	
ALCOHOLS AND PHENOLS, ALKOXYLATED AND PHOSPHATED:	
Butyl alcohol, ethoxylated and phosphated	GAF.
Dinonylphenol, ethoxylated and phosphated	GAF, MOA, MAY, WTC.
Dodecyl alcohol, ethoxylated and phosphated	GAF, ORO.
Dodecylphenol, ethoxylated and phosphated	GAF.
2-Ethylhexanol, ethoxylated and phosphated	DA, WAY.
*Mixed linear alcohols, ethoxylated and phosphated	AZS, CHP, CRT, CTL, FER, GAF, HIP, HRT, MIL, MOA, ORO.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ALCOHOLS AND PHENOLS, ALKOXYLATED AND PHOSPHATED--CONTINUED	
*Nonylphenol, ethoxylated and phosphated	QCC, RCD, SCP, SHX, STC, TCC, TCH, WTC, ARL, AZS, CRT, CTL, DA, DEX, GAF, HDG, HRT, MCP, MOA, ORO, QCC, SCP, SOP, TCC, MAY, WTC, WVA, X.
9-Octadecenyl alcohol, ethoxylated and phosphated	GAF.
Octylphenol, ethoxylated and phosphated	RH.
Octylphenol, ethoxylated and phosphated, magnesium salt	ONX.
*Phenol, ethoxylated and phosphated	DA, GAF, MOA, RH, TCH, WTC, X.
*Polyhydric alcohol, ethoxylated and phosphated	DEX, GAF, HDG, SCP.
*Tridecyl alcohol, ethoxylated and phosphated	DAN, GAF, HIP, MIL, SNW, WTC, X.
Alcohols and phenols, alkoxyalted and phosphated or polyphosphated, all other	BAS, CHP, DA, GAF, MCP, MIL, MOA, TCH, X.
ALCOHOLS, PHOSPHATED OR POLYPHOSPHATED:	
Butyl phosphate, potassium salt	DUP.
Decyl and octyl phosphate	DA.
2-Ethylhexyl phosphate	GAF.
*2-Ethylhexyl phosphate, sodium salt	CHP, DAN, ORO, WTC.
2-Ethylhexyl polyphosphate	X.
2-Ethylhexyl polyphosphate, sodium salt	ORO, X.
Hexyl phosphate	ICI, SFS.
Hexyl phosphate, potassium salt	ICI.
Hexyl polyphosphate, potassium salt	DEX.
*Mixed alkyl phosphate	CTL, DUP, SFS, STC, X.
Mixed alkyl phosphate, diethanolamine salt	DUP.
9-Octadecenyl phosphate	DA.
Octyl decyl phosphate	DUP.
Octyl phosphate	SCP, WTC.
Octyl phosphate, alkylamine salt	SCP.
Octyl phosphate, potassium salt	DEX.
Octyl polyphosphate	DEX.
Octyl polyphosphate, potassium salt	SMW, X.
Phosphated and polyphosphated alcohols, all other	CCC, CHP, EFH, HRT, KPI, MIL, RCD, VAL, X.
OTHER PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS:	
glycerol monoester of mixed fatty acids, phosphated	QCP, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
PHOSPHORIC AND POLYPHOSPHORIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
OTHER PHOSPHORIC AND POLYPHOSPHORIC ESTERS--CONTINUED:	
Phosphoric and polyphosphoric acid esters,	
all other--	GDC, MIL, X.
SULFONIC ACIDS (AND SALTS THEREOF):	
ALKYLBENZENESULFONATES:	
*Dodecylbenzenesulfonic acid--	ARC, CMT, CO, CRT, CTL, EMK, FTX, HLI, LEV, MON, PIL, PLX, PRX, RCD, STP, TCI, TEN, WTC, WVA, X, X.
Dodecylbenzenesulfonic acid, (Mixed alkyl)amine salt--	ECC, X.
Dodecylbenzenesulfonic acid, ammonium salt--	AES, CCC.
Dodecylbenzenesulfonic acid, branched chain--	WTC.
*Dodecylbenzenesulfonic acid, calcium salt--	DA, ICI, ORO, RCD, RH, STC, STP, TMH, WTC, WVA, X.
Dodecylbenzenesulfonic acid, dimethylamine salt--	PIL.
Dodecylbenzenesulfonic acid, isopropanolamine salt--	PIL.
*Dodecylbenzenesulfonic acid, isopropylamine salt--	PAK, CIN, CMT, CTL, ICI, RCD, STP, WTC.
Dodecylbenzenesulfonic acid, potassium salt--	AES, HIP, SVC.
*Dodecylbenzenesulfonic acid, sodium salt--	AAC, AES, APX, ATR, BLA, CMT, CO, CP, CRT, CTL, DA, DUP, ECC, GDC, HLI, LEV, NMC, PEK, PG, PIL, PLX, PNX, PRX, RCD, STP, TEN, WTC, WVA.
Dodecylbenzenesulfonic acid, sodium salt, branch ed chain--	WTC.
*Dodecylbenzenesulfonic acid, triethanolamine salt--	AAC, ARL, CCC, CIN, CTL, ESS, HLI, PIL, QCC, RCD, STP, WTC, X.
Dodecylbenzene sulfonates, all other--	DA, HIP, KPL, WTC.
OTHER ALKYLBENZENESULFONATES:	
Dodecylbenzenesulfonic acid--	WTC.
Tridecylbenzenesulfonic acid--	PLX, RCD.
*Tridecylbenzenesulfonic acid, sodium salt--	BLA, CP, NPR, PG, RCD, WTC.
Undecylbenzene sulfonic acid, sodium salt--	SCP, WTC.
Undecylbenzene sulfonic acid, triethanolamine salt--	WTC.
Alkylbenzene sulfonates, all other--	PIL, SCP.
BENZENE-, CUMENE-, TOLUENE-, AND XYLENESULFONATES:	
Cumenesulfonic acid, ammonium salt--	NES, WTC.
Cumenesulfonic acid, sodium salt--	NES, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
ALKYLBENZENESULFONATES--CONTINUED	
BENZENE-, CUMENE-, TOLUENE-, AND XYLENE-SULFONATES--Continued	
Toluenesulfonic acid, potassium salt	NES.
Toluenesulfonic acid, sodium salt	CO, NES, PG, WTC.
*Xylenesulfonic acid, ammonium salt	CO, NES, STP, WTC.
*Xylenesulfonic acid, sodium salt	CO, NES, PIL, SDC, STP, WTC.
Benzene-, cumene-, toluene-, and xylenesulfonates, all other	WTC.
LIGNINSULFONATES:	
Ligninsulfonic acid, ammonium salt	CRZ, MAR, SPA.
*Ligninsulfonic acid, calcium salt	CRZ, CWP, FPC, LKY, MAR, PSP.
Ligninsulfonic acid, chromium salt	MAR, PSP, RAY.
*Ligninsulfonic acid, iron salt	CRZ, MAR, PSP.
Ligninsulfonic acid, magnesium salt	MAR.
*Ligninsulfonic acid, sodium salt	CRZ, MAR, PSP, RAY, WVA.
Ligninsulfonic acid, zinc salt	MAR, PSP.
NAPHTHALENESULFONATES:	
Butylnaphthalenesulfonic acid, sodium salt	DA, ECC, UDI.
Dibutyl-naphthalenesulfonic acid	GAF, UDI.
Diisopropyl-naphthalenesulfonic acid, sodium salt	DUP, UDI.
Isopropyl-naphthalenesulfonic acid	DA, UDI.
Methylenebis(2-naphthalenesulfonic acid), sodium salt	DUP.
Methylenebis(2-Napmtalenesulfonic acid), sodium salt	DUP.
Methylnaphthalenesulfonic acid, sodium salt	DA, UDI.
Naphthalenesulfonates, all other	UDI.
SULFONIC ACIDS HAVING AMIDE LINKAGES:	X.
SULFOSUCCINAMIC ACID DERIVATIVES:	
N-(1,2-Dicarboxylethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt	ACY, MOA.
N-Octadecylsulfosuccinamic acid, disodium salt	ACY.
N-(Oleoyloxyisopropyl)sulfosuccinamic acid	WTC.
Sulfosuccinamic acid derivatives, all other	TCH.
TAURINE DERIVATIVES:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt	BAK, GAF, STC, TNI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
ALKYBENZENESULFONATES--CONTINUED	
SULFONIC ACIDS HAVING AMIDE LINKAGES--CONTINUED	
TAURINE DERIVATIVES--CONTINUED	
N-Cyclohexyl-N-palmitoyltaurine, sodium salt	GAF.
N-Methyl-N-oleoyltaurine, sodium salt	GAF, HRT, STC.
N-Methyl-N-palmitoyltaurine, sodium salt	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt	GAF, WVA.
SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
SULFOSUCCINIC ACID ESTERS:	
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl) ester, sodium salt	DAN, MOA, PC.
*Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt	ACY, ARI, CHP, CLD, CRT, CYL, DA, DAN, ECC, EMK, FTX, HDG, HIP, HRT, MCP, MOA, RH, SCO, WTC.
Sulfosuccinic acid, dihexyl ester, sodium salt	ACY.
Sulfosuccinic acid, diisodecyl ester, sodium salt	ACY.
Sulfosuccinic acid, diisooctyl ester, sodium salt	CCC, MOA, SOS.
Sulfosuccinic acid, dipentyl ester, sodium salt	ACY.
Sulfosuccinic acid, ditridecyl ester, sodium salt	ACY, MOA.
Sulfosuccinic acid esters, all other	CYL, MOA, RH, SCP, WTC.
ALL OTHER SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
Coconut oil acids, 2-sulfoethyl ester, sodium salt	GAF, HDG, LEV.
Dodecylidiphenyloxidedisulfonic acid, disodium salt	CTL, DOM, 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	CRT.
Sulfonic acids with ether linkages, all other	CYL, PG, WTC, X.
OTHER SULFONIC ACIDS:	
Mixed alkane sulfonic acid, sodium salt	DUP, QCP, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--CONTINUED	
ALKYLBENZENESULFONATES--CONTINUED	
OTHER SULFONIC ACIDS--CONTINUED	
Petroleum sulfonic acid, water soluble (Acid layer), sodium salt	WTC.
Sulfonic acids, all other	AAC, CLU, RBC, SLM, STP, USR, WTC.
SULFURIC ACID ESTERS (AND SALTS THEREOF):	
ACIDS, AMIDES, AND ESTERS, SULFATED:	
Coconut oil acids-ethanolamine salt, sulfated, potassium salt	EMK.
CARBOXYLIC ACID ESTERS (EXCEPT NATURAL FATS AND OILS), SULFATED:	
ESTERS OF SULFATED OLEIC ACID:	
*Butyl oleate, sulfated, sodium salt	AKS, CRT, ICI, MRV, PC.
Butyl and propyl oleate, sulfated, sodium salt	MCP.
Isobutyl oleate, sulfated, sodium salt	DA.
*Isopropyl oleate, sulfated, sodium salt	CRT, DEX, HRT.
Methyl oleate, sulfated, sodium salt	DUP, ICI.
Propyl oleate, sulfated, sodium salt	AKS, CHP, MRV.
Esters of sulfated oleic acid, all other	CHP, CYL.
OTHER SULFATED ESTERS:	
Glycerol monoester of coconut oil acids, sulfa- sulfated, sodium salt	CP, X.
9-Octadecenyl acetate, sulfated, sodium salt	DUP.
Sulfated esters, all other	DA.
OTHER SULFURIC ACID ESTERS:	
Mixed fatty acids, sulfated, potassium salt	SCO.
Oleic acid, sulfated, disodium salt	DA, TEN.
Sulfuric acid esters, all other	BFP, SLM, TEN.
*Tall oil, sulfated, sodium salt	ACT, APX, CHP, CRT, ICI, SEA, SOS, WHI, WHM, WVA.
ALCOHOLS, SULFATED:	
Decyl and octyl sulfate, sodium salt	TCH.
Decyl sulfate, sodium salt	ARI, EK, HLI, SCP.
3,9-Diethyl-6-tridecyl sulfate, sodium salt	NCC.
DODECYSULFATE SALTS:	
*Dodecyl sulfate, ammonium salt	AAC, CTL, HLI, JRG, ONX, STP, TCH, TNI, WVA.
Dodecyl sulfate, diethanolamine salt	AAC, DUP, JRG, ONX, STP, TCH.
Dodecyl sulfate, diethylamine salt	AAC.
Dodecyl sulfate, N,N-diethylcyclohexylamine salt	DUP.
Dodecyl sulfate, isopropanolamine salt	JRG, TCH.
*Dodecyl sulfate, magnesium salt	AAC, HLI, ONX, RCD, STP.
Dodecyl sulfate, potassium salt	PG.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFURIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ALCOHOLS, SULFATED--CONTINUED	
DODECYSULFATE SALTS--CONTINUED	
*Dodecyl sulfate, sodium salt	AAC, CTL, DUP, EK, HLI, ONX, STP, TCH, WVA.
*Dodecyl sulfate, triethanolamine salt	AAC, CTL, CYL, HLI, ONX, STP, TCH, TNI, WVA.
*2-Ethylhexyl sulfate, sodium salt	AAC, DA, NCC, QCC, SCP, TCH.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	NCC.
Hexadecyl sulfate, sodium salt	AAC.
Hexyl sulfate, potassium salt	DEX.
Linear alcohols, sulfated, all other	AZS, CYL, DUP, QCC, SCP, X.
Mixed linear alcohols, sulfated, ammonium salt	CP, PG, QCC, RCD, S, SCP, X.
*Mixed linear alcohols, sulfated, sodium salt	DUP, PG, QCC, RCD, SCP, WTC, X.
Mixed linear alcohols, sulfated, triethanolamine salt	
1-Octadecenyl-2-naphthyl tetrahydroxyrimidine	PG, QCC, RCD, SCP.
Octyl sulfate, sodium salt	EMK, ONX, RCD.
Tridecyl sulfate, sodium salt	AAC, APX, DUP, EK, RCD.
AAC, DA.	
ETHERS, SULFATED:	
ALKYLPHENOLS, ETHOXYLATED AND SULFATED:	
Nonylphenol, ethoxylated and sulfated, ammonium salt	GAF, STP.
Nonylphenol, ethoxylated and sulfated, sodium salt	GAF, WTC.
Nonylphenol, ethoxylated and sulfated, triethanolamine salt	ARL.
Octylphenol, ethoxylated and sulfated, sodium salt	RH.
Sulfated cyclic ethers, all other	TCH.
Decyl alcohol, propoxylated and sulfated, sodium salt	APX.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	AAC, AKS, CTL, CYL, HLI, MOA, ONX, STP.
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	AAC, CTL, CYL, HLI, ONX, SCP, STP, TCH, WVA.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt	HLI, LEV.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFURIC ACID ESTERS (AND SALTS THEREOF)--CONTINUED	
ETHERS, SULFATED--CONTINUED	
Hexyl alcohol, propoxylated and sulfated, sodium salt	APX.
*Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	CO, MOA, PG, PIL, QCC, RCD, SCP, SHC, STP, WTC, X, X.
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt	CO, DA, DUP, GAF, PG, PIL, QCC, RCD, SCP, SHC, STP, TCI, WTC, X.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt	AAC, ARL.
Sulfated ethers, all other	CMT, CYL, MOA, SCP, X.
NATURAL FATS AND OILS, SULFATED:	
Castor oil, sulfated, sodium salt	ACT, ACY, AKS, APX, ARI, ARL, CRT, DA, DEX, HIP, HRT, ICI, LEA, LUR, MRV, SCO, SCP, SEA, SLM, WHW.
Coconut oil, sulfated, sodium salt	DA, MRD.
Cod oil, sulfated, sodium salt	ARI, SEA, WHI, WHW.
Grease, other than wool, sulfated, sodium salt	WHI.
Herring oil, sulfated, sodium salt	ARI, SEA, SLM, WHW.
Lard, sulfated, sodium salt	CRT, MRD, WHW.
Mixed fish oils, sulfated, sodium salt	DA, MRD, SLM.
Mixed vegetable oils, sulfated, sodium salt	LUR.
Mustard seed oil, sulfated, sodium salt	DA.
Neat's foot oil, sulfated, sodium salt	ACT, ARI, MRD, SLM, WHI.
Pecan oil, sulfated, sodium salt	CRT.
Soybean oil, sulfated, sodium salt	ACT, SEA, WHW.
Sperm oil, sulfated, sodium salt	ARI, DA.
Sulfated animal fats and oils, all other	WHI.
Sulfated fish and marine fat oils, all other	ARI.
Tallow, sulfated, sodium salt	ACT, ACY, ARI, CCC, DA, ECC, LUR, MCP, MRD, PC, SID, SLM, SOS, WHI.
Vegetable oils, sulfated, all other	AZS, RH, SCH.
OTHER ANIONIC SURFACE-ACTIVE AGENTS:	
Mixed linear olefin sulfonate	X.
Polyethylene-vinyl alcohol copolymer, potassium salt	X.
Tridecyl alcohol, ethoxylated and carbonated, sodium salt	S.
Anionic surface-active agents, all other	ARI, CJO, CMT, DAN, MIL, MIR, S, SLM, SYT, VAL, WVA.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC	
AMINE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES):	
ACYCLIC:	
N,N-Bis(2-hydroxyethyl)octadecylamine	ARC, HXL.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine	ARC.
*(Coconut oil alkyl)amine, ethoxylated	ARC, DA, SHX, SVC, TCH, X.
M,N-Dimethyl dodecylamine oxide	HLL, PG.
N,N-Dimethylhexadecylamine oxide	ARC, ONX.
Ethylenediamine, propoxylated	DUP.
(Hydrogenated tallow alkyl)amine, ethoxylated	ORO.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)-ethylenediamine	WTC, X.
*(Mixed alkyl)amine, ethoxylated	ICL, RH, X.
(9-Octadecenyl)amine, ethoxylated	ARC, GAF, ORO, TCH.
Octadecylamine, ethoxylated	ARC, TCH.
*(Soybean oil alkyl)amine, ethoxylated	ARC, SHX, SVC.
*(Tallow alkyl)amine, ethoxylated	ARC, DA, DUP, GAF, ORO, S, SHX, TCH, WTC.
N-(Tallow alkyl)trimethylenediamine, ethoxylated	ARC, TCH.
N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine	X.
Triethanolamine, ethoxylated	MIL.
Amine oxides and oxygen-containing amines (Except those with amide linkages), acyclic, all other	ARC, AZS, BAK, BRD, CGY, CYL, DA, MOA, PG, QCC, S, SBC, SDH, SVC, TCH.
CYCLIC:	
1-(2-Hydroxyethyl)-2-heptadecyl-2-imidazoline	MOA.
*1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	BRD, DA, MIR, SBC, SHX.
*1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline	CGY, GAF, MOA, SCP.
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	HGD, MOA, TCH, X.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline	CGY.
hydrochloride	MVA.
Rosin amine, ethoxylated	BAK, HPC.
All other-	ARC, BAK, CGY, MOA, STC, TCH, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
CARBOXYLIC ACID - DIAMINE AND POLYAMINE CONDENSATES:	
Carboxylic acid-diamine and polyamine condensates, all other	BAK, DA, GAF, ICI, QCC, SBC, STC, X.
Coconut oil acids-N,N-dimethyltrimethylenediamine condensate	SCP.
Mixed fatty acids-polyalkylenepolyamine condensate	QCP, TCH, X.
Oleic acid-diethylenetriamine condensate	ICI, TCH.
Oleic acid-N,N-dimethyltrimethylenediamine condensate	CCM.
Oleic acid-ethylenediamine condensate, monoethoxylated	CLD, DEX, SOC.
Palm oil acids-ethylenediamine condensate, monoethoxylated	DA.
Pelargonic acid-tetraethylenepentamine condensate	FER, ICI.
*Stearic acid-diethylenetriamine condensate	JOR, ORO, STC.
Stearic acid-diethylenetriamine condensate, polyethoxylated	APX.
Stearic acid-N,N-diethylethylenediamine condensate	S.
Stearic acid-ethylenediamine condensate, diethoxylated	BAK.
Stearic acid-ethylenediamine condensate, monoethoxylated	CLD, DA, DEX, ICI, MRV, S, STC.
Stearic acid-tetraethylenepentamine condensate	ONX, X.
*Tall oil acids-diethylenetriamine condensate	AZS, NCM, SCP, STC.
*Tall oil acids-polyalkylenepolyamine condensate	ARC, AZS, QCC, QCP, SCP, WVA, X.
Carboxylic acid-diamine and polyamine condensates, alkoxylated, all other	BAK, CLD, MIR.
OTHER AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
3-Lauramido-N,N-dimethylpropylamine oxide	SNW.
Stearic acid, diethanolamine condensate, methyl sulfate	DUP.
Amines and amine oxides having amide linkages, all other	BAK, SCP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF):	
AMINE SALTS:	
(Coconut oil alkyl)amine acetate	: ARC.
(Hydrogenated tallow alkyl)amine acetate	: ARC.
(9-Octadecenyl)amine acetate	: SCP.
Octadecylamine acetate	: ARC, SHX.
(Tallow alkyl)amine acetate	: ARC.
N-(Tallow alkyl)trimethylenediamine acetate	: ARC, SHX.
N-(Tallow alkyl)trimethylenediamine oleate	: ARC.
Amine salts (Not containing oxygen), all other	: TCC.
DIAMINES AND POLYAMINES:	
IMIDAZOLINE DERIVATIVES:	
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-	: SCP.
N-(Docosyl and eicosyl)trimethylenediamine	: ENO.
2-Heptadecyl-2-imidazoline	: GGY, SCO.
N-(Coconut oil alkyl)trimethylenediamine	: ARC, JTO.
N-(Mixed alkyl)polyethylenepolyamine	: CCM, SNM.
*N-(9-Octadecenyl)trimethylenediamine	: ARC, SCP, SHX.
N-(Soybean oil alkyl)trimethylenediamine	: ENO.
N-(Tallow - alkyl)dipropylenetriamine	: ARC, JTO, NCM, SCP.
*N-(Tallow alkyl)trimethylenediamine	: ENO, JTO, NCM, SCP, SHX.
Diamines and polyamines, all other	: ARC, AZS, JTO, STC, X, X.
PRIMARY MONOAMINES:	
(Coconut oil alkyl)amine	: ARC, ENO, JTO, SHX.
(Docosyl and eicosyl)amine	: ENO.
Dodecylamine	: ARC, SHX.
Hexadecylamine	: ENO.
*(Hydrogenated tallow alkyl)amine	: ARC, ENO, JTO, SHX.
*9-Octadecenylamine	: ARC, ENO, JTO, SCP, SHX.
Octadecylamine	: ARC, SHX.
(Soybean oil alkyl)amine	: ARC, ENO, JTO.
(Tall oil alkyl)amine	: SHX.
*(Tallow alkyl)amine	: ARC, ENO, JTO, NCM, SHX.
Primary monoamines, all other	: ARC, AZS, ENO.
SECONDARY AND TERTIARY MONOAMINES:	
Bis(coconut oil alkyl)amine	: ARC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALFS WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF)--CON.	
SECONDARY AND TERTIARY MONOAMINES--CONTINUED	
Bis(hydrogenated tallow alkyl)amine	ARC, SHX.
N,N-Dimethyl(coconut oil alkyl)amine	AAC, ARC, BRD, ENO.
N,N-Dimethyldodecylamine	ARC, BRD.
*N,N-Dimethylhexadecylamine	ARC, BRD, SHX.
N,N-Dimethyl(hydrogenated tallow alkyl)amine	ARC, ENO.
N,N-Dimethyl(mixed alkyl)amine	ARC, ENO.
N,N-Dimethyl-9-octadecenylamine	ONX, TMA.
*N,N-Dimethyloctadecylamine	ENO.
N,N-Dimethyl(soybean oil alkyl)amine	ARC, BRD, ENO, ONX, SHX.
N,N-Dimethyltetradecylamine	ARC, ENO.
N-Methylbis(coconut oil alkyl)amine	ARC, SHX.
N-Methylbis(hydrogenated tallow alkyl)amine	ARC, ENO, SHX.
Triaurylamine	ARC, ENO, SHX.
Trioctylamine	SCP.
Secondary and tertiary monoamines, all other	ARC, BRD, ENO, PEL.
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS:	
Benzyl(coconut oil alkyl,ethoxylated)dimethyl- ammonium chloride	DUP, SCP.
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2- imidazolinium chloride	HDG.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)- 2-imidazoline	X.
Benzyl(tallow alkyl)bis(2-hydroxyethyl)ammonium chloride	DUP.
Bis(2-hydroxyethyl, ethoxylated)methyl(9- octadecenyl)-ammonium chloride	ARC, GAF.
Bis(2-hydroxyethyl, ethoxylated)methyloctadecyl ammonium chloride	ARC.
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)- methylammonium chloride	ARC, GAF.
(Ethoxybenzyl)dimethyl(octylphenoxy)ammonium chloride	RH.
(Ethoxybenzyl)dimethyl(octyltolylloxy)ammonium chloride	RH.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2- imidazolinium ethyl sulfate	ICI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
OXYGEN CONTAINING QUATERNARY AMMONIUM SALTS--CONTINUED	
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate-	ICI.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate-	ICI.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)ammonium dihydrogen phosphate-	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)ammonium nitrate-	ACY.
(3-lauramidopropyl)trimethylammonium methyl sulfate	ACY.
2-(2-lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride-	WTC.
1-Methyl-2-(2-stearoyloxyethyl)carbamoylpyridinium chloride-	WTC.
Oxygen-containing quaternary ammonium salts (Except those having amide linkages), all other-	ARC, BAK, ICI, MIR, MOA, X.
Quaternary ammonium salts having amide linkages, all other	BAK, DA, MRV, QCC, SBC, SHX, SNW, SVC, VND.
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN:	
ACYCLIC:	
Bis(coconut oil alkyl)dimethylammonium chloride	ARC, ENO, JTO, SCP, SHX.
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	ARC, ENO, SCP, SHX, SVC.
Bis(hydrogenated tallow alkyl)dimethylammonium methyl sulfate	ARC, SVC.
(Coconut oil alkyl)trimethylammonium chloride-	ARC, JTO.
Dimethylbis(soybean oil alkyl)ammonium chloride	ARC.
Dimethyldioctadecylammonium choride-	SHX.
Dodecyltrimethylammonium chloride-	ARC, SCP.
Ethylidimethyl(mixed alkyl)ammonium ethyl sulfate	DEX, JOR.
Hexadecyltrimethylammonium bromide	ONX.
Hexadecyltrimethylammonium chloride-	HXL.
Hexadecyltrimethylammonium chloride-	ARC.
Hexadecyltrimethylammonium p-toluenesulfonate-	HXL.
Methyltrioctylammonium chloride-	SCP, SHX.
(Mixed linear alkyl)trimethyl ammonium bromide (N,N',N'-pentamethyl-N-(tallow alkyl)trimethylene-bisammonium chloride)-	DUP.
	ARC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
QUATERNARY AMMONIUM SALTS NOT CONTAINING OXYGEN--CON.	
ACYCLIC--CONTINUED	
Trimethyl(mixed alkyl)ammonium chloride	JTO.
Trimethyloctadecylammonium chloride	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride	JTO.
Trimethyl(tallow alkyl)ammonium chloride	ARC, ENO, JTO, SHX.
Trimethyltetradecylammonium bromide	HXL.
Quaternary ammonium salts, not containing oxygen, acyclic, all other	AAC, ARC, ENO, JTO, ONX, X.
BENZENOID:	
Benzyl(coconut oil alkyl)dimethylammonium chloride	ARC, CRT, ENO, GDC, LUR, ONX, SCP, TCC.
*Benzyl(dimethyl(mixed alkyl)ammonium chloride	BKM, BRD, HNT, HXL, ONX, RH, SDH, SVC, TCC.
*Benzyl(dimethyloctadecylammonium chloride	AAC, HLI, QCC, RH, SCP, TNI.
Benzyl(dimethyl(tallow alkyl)ammonium chloride	ENO, HIP.
Benzyl(dimethyltetradecylammonium chloride	HXL, SDH.
Benzyl(dodecyl)dimethylammonium chloride	HXL, ONX.
Benzyl(hexadecyl)dimethylammonium chloride	ONX.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride	ENO.
1-Benzyl-2-picolinium bromide	HXL.
*Benzyl(trimethylammonium chloride	CIN, CRT, HLP, HXL, ORO, SHX, TCC.
(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.
1-Phenethyl-2-picolinium bromide	HXL.
Quaternary ammonium salts not containing oxygen, cyclic, all other	AKS, ARC, BAK, BRD, DEX, ENO, GDC, HXL, ICI, MIL, TCC, X, X.
OTHER CATIONIC SURFACE-ACTIVE AGENTS:	
Tallow amine, ethoxylated and propoxylated, methyl sulfate	DUP.
Tallow amine, ethoxylated, quaternary ammonium salt	DUP.
Cationic surface-active agents, all other	APX, BAK, CCL, HXL, MIR, SCP, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC	
CARBOXYLIC ACID AMIDES:	
*(AMINE/ACID RATIO = 2/1):	
*Capric acid (Ratio = 2/1)	CGY, SCP, TCH.
*Castor oil acids (Ratio = 2/1)	CLI, MOA, NTL, PC.
*Coconut oil acids (Ratio = 2/1)	AKS, ARL, AZS, CCL, CIN, CLI, CTL, CYL, DA ECC, EFH, HLI, HNT, HPT, HTN, LUR, MCP, MOA, MRV, ORO, PEK, PNX, PVO, RCD, SBC, SCP, SHX, SOP, STP, SVC, TCH, VAL, WTC, X.
*Coconut oil and tallow acids (Ratio = 2/1)	CLI, CTL, ESS, MOA, ORO, SBC.
*Lauric acid (Ratio = 2/1)	CLI, CTL, CYL, RCD, SHX, TCH.
*Lauric and myristic acids (Ratio = 2/1)	HRT, MOA, SBC, STP.
*Linoleic acid (Ratio = 2/1)	HRT, KNP, MOA, VND.
*Myristic acid (Ratio = 2/1)	BAK.
*Oleic acid (Ratio = 2/1)	CLI, EMR, HTN, SBC, SCP, STP.
*Pelargonic acid (Ratio = 2/1)	TCH.
*Stearic acid (Ratio = 2/1)	CLI, CPC, CTL, HTN, SCO, SOS, VAL.
*Tall oil acids (Ratio = 2/1)	ECC, FER, MOA.
Tallow acids (Ratio = 2/1)	EFH, FER, MOA.
Diethanolamine condensates (Amine/acid = 2/1), all other	CCC, CRT, FER, MOA, SCP, SOS.
OTHER AMINE/ACID RATIOS:	
*Coconut oil acids (Ratio = 1/1)	AZS, CGY, CLI, CTL, DA, GAF, HLI, HTN, JRG, MOA, ONX, PHL, PVO, QCC, SBC, SCP, STP, TCC, WTC.
*Lauric acid (Ratio = 1/1)	CLI, DA, LEV, MOA, QCC, SBC, SCP, TCH, TNI.
*Lauric and myristic acid (Ratio = 1/1)	CLI, HTN, ONX, QCC, SBC, SCP.
*Linoleic acid (Ratio = 1/1)	MOA, QCC, SBC, VND.
*Oleic acid (Ratio = 1/1)	EMK, HLI, SBC.
Palmitic and stearic acids (Ratio = 1/1)	VPC.
Soybean oil acids (Ratio=1/1)	MOA.
*Stearic acid (Ratio = 1/1)	ECC, GDC, HIP, MRV.
Tall oil acids	WTC.
Tallow acids	MOA, TCH.
Diethanolamine condensates, amine/acid ratio=1/1, all other	MOA, UNN.
ALL OTHER CARBOXYLIC ACID AMIDES:	
Alkanolamine condensates, all other	CHP, MCP, SBC, TCH, VND.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--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-alkanocamine condensate, alkoxylated, all other	ROB.
Carboxylic acid-diamine and polyamine condensate, all other	GDC.
Coconut oil acids	STP.
Coconut oil acids (Ratio = 1/1)	DA, MOA, PG, VND, WTC.
Coconut oil acids (Ratio = 2/1)	STP, TCH.
Coconut oil acids, other code	STP, TCH.
Coconut oil acids-N,N-dimethyltrimethylene-diamine condensate (Ratio = 1/2)	SCP.
Coconut oil acids-ethanolamine condensate, ethoxylated	JRG.
Diethanolamine condensate, all other	STP.
Ethanolamine condensate, (Ratio = 1/1), all other	EFH, GAF.
Isopropanolamine condensates, all other	GAF, VND.
Lauric acid	CRN, CYL, SBC, WTC X.
Lauric and myristic acids	CLI, MOA.
Lauric and myristic acids (Ratio = 1/1)	LEV.
Oleic acid-ethanolamine condensate, ethoxylated	HLI, MOA, PG, WTC.
Stearic acid (Ratio = 1/1)	DA.
Stearic acid (Ratio = 1/2)	MOA, VND, WTC.
Stearic acid (Ratio = 2/1)	HAL, TCH, WTC.
Stearic acid-ethylenediamine condensate (Ratio=1/2)	CLI, ECC.
Carboxylic acid amides, all other	DA, GDC.
CARBOXYLIC ACID ESTERS:	
ANHYDROSORBITOL ESTERS:	
Anhydrosorbitol dioleate	ICI.
Anhydrosorbitol monoester of tall oil acids	HDG.
Anhydrosorbitol monolaurate	GLY, HDG, ICI, PVO, TCH.
*Anhydrosorbitol mono-oleate	ARC, GLY, HDG, ICI, PVO, TCH.
Anhydrosorbitol monopalmitate	GLY, ICI, TCH.
Anhydrosorbitol monostearate	DA, GLY, HDG, ICI, PVO, TCH.
Anhydrosorbitol sesquioleate	GLY, TCH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED	
ANHYDROSORBITOL ESTERS--CONTINUED	
Anhydrosorbitol triester of tall oil acids	GLY.
Anhydrosorbitol trioleate	GLY, HDG, ICI, TCH.
Anhydrosorbitol tristearate	GLY, HDG, ICI, TCH.
Anhydrosorbitol esters, all other	ICI, QCC, TCH.
DIETHYLENE GLYCOL ESTERS:	
Diethylene glycol distearate	ARC, GLY, VAL.
Diethylene glycol monoester of coconut oil acids	ARC, CLD, DA.
*Diethylene glycol monolaurate	ECC, GLY, HAL, HDG.
Diethylene glycol mono-oleate	ARC, HAL, VND.
Diethylene glycol monoxiricinate	DA.
*Diethylene glycol monostearate	ARC, CHP, CLI, ECC, HAL, HDG, MCP, VND.
Diethylene glycol sesquiester of tall oil acids	ECC.
Diethylene glycol sesquilaurate	GLY.
Diethylene glycol sesquisteate	WTC.
Diethylene glycol esters, all other	ARC, BKM.
ETHOXYLATED ANHYDROSORBITOL ESTERS:	
Ethoxylated anhydrosorbitol monolaurate	GLY, HDG, ICI, PVO, SVC, TCH.
*Ethoxylated anhydrosorbitol mono-oleate	EMR, GLY, HDG, ICI, PVO, TCH.
Ethoxylated anhydrosorbitol monopalmitate	ICI, TCH.
*Ethoxylated anhydrosorbitol monostearate	EMR, GLY, HDG, ICI, PVO, TCH.
Ethoxylated anhydrosorbitol monotallate	TCH.
Ethoxylated anhydrosorbitol triester of tall oil acids	GLY, ICI.
Ethoxylated anhydrosorbitol trioleate	GLY, HDG, ICI, TCH.
Ethoxylated anhydrosorbitol tristearate	GLY, ICI, PVO, TCH.
Ethoxylated anhydrosorbitol esters, all other	GLY.
ETHOXYLATED SORBITOL ESTERS:	
Ethoxylated sorbitol beeswax ester	ICI.
Ethoxylated sorbitol esters, all other	BAK, ICI, MIL.
Ethoxylated sorbitol hexaester of tall oil acids	TCH.
Ethoxylated sorbitol hexaoleate	ICI, TCH.
Ethoxylated sorbitol lanolin ester	ICI.
*Ethoxylated sorbitol mono-oleate	HTM, ICI, TCH.
Ethoxylated sorbitol monostearate	HTM.
Ethoxylated sorbitol pentalaurate	ICI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--CONTINUED	
ETHOXYLATED SORBITOL ESTERS--CONTINUED	
Ethoxylated sorbitol tetraester of lauric and oleic acids-	ICI.
Ethoxylated sorbitol tetraoleate	ICI.
ETHYLENE GLYCOL ESTERS:	
*Ethylene glycol distearate	ARC, EMR, HAL, HUM, ICI, TCH, WM.
Ethylene glycol mono-oleate-	CGY, EFH.
*Ethylene glycol monostearate	ARC, CLI, GLY, HAL, HDG, KNP, VND, WM.
GLYCEROL ESTERS:	
COMPLEX GLYCEROL ESTERS:	
Glycerol diacetyl tartrate monostearate	EKT.
Glycerol monoester of mixed fatty acids, acetylated	EKT.
Glycerol monoester of mixed fatty acids, succinylated	EKT.
Complex glycerol esters, all other	
GLYCEROL ESTERS OF CHEMICALLY DEFINED ACIDS:	
Glycerol dilaurate	VND.
Glycerol dioleate	ARC, GRO, HAL.
Glycerol distearate-	ARC.
Glycerol monocaprylate	GLY, PVO.
Glycerol monolaurate	GLY, HAL, HDG.
*Glycerol mono-oleate	ARC, EFH, EMR, GLY, GRO, HAL, HDG, PVO, TCH, WTC.
*Glycerol monoricinoleate	GLY, HDG, NTL.
*Glycerol monostearate	ARC, BLS, CHL, CIN, EMR, GLY, GRO, HAL, HDG, HRT, LUR, PVO, SOS, TCH, VND, WM, WTC.
Glycerol esters of chemically defined acids, all other-	
GLYCEROL ESTERS OF MIXED ACIDS:	
Glycerol monoester of coconut oil acids-	HDG.
Glycerol monoester of coconut oil acids-	GLY, PVO.
Glycerol monoester of cottonseed oil acids	EKT.
Glycerol monoester of hydrogenated cottonseed oil acids-	EKT, LEV, WM.
Glycerol monoester of hydrogenated soybean oil acids-	BFP, EKT, PVO, WTC.
Glycerol monoester of lard acids	EKT, GLY.
Glycerol monoester of mixed vegetable oil acid	EKT, LEV.
Glycerol monoester of palm oil acids	EKT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
GLYCEROL ESTERS--CONTINUED	
GLYCEROL ESTERS OF MIXED ACIDS--CONTINUED	
Glycerol monoester of safflower oil acids	EKT.
Glycerol monoester of tall oil acids	FER.
Glycerol esters of mixed acids, all other	BFP, EKT, HDG, ICI, PVO, SLM, WTC.
NATURAL FATS AND OILS, ETHOXYLATED:	
*Castor oil, ethoxylated	DA, GAF, HYN, ICI, MIL, NTL, ORO, STC, SVC, TCH, TMH, X.
*Hydrogenated castor oil, ethoxylated	DA, HTN, ICI, MIL, ORO, PVO, TCH.
*Lanolin, ethoxylated	AAC, CRD, CRN, TCH.
Natural fats and oils, ethoxylated, all other	DA, GAF, MIL, PVO, SVC, TCH.
POLYETHYLENE GLYCOL ESTERS:	
POLYETHYLENE GLYCOL ESTERS OF CHEMICALLY DEFINED ACIDS:	
*Polyethylene glycol dilaurate	ARC, DA, GLY, HAL, HDG, TCH, WM.
*Polyethylene glycol dioleate	ARC, CGY, CLD, DA, EFH, GLY, HAL, HDG, MIL, ORO, TCH, WM.
*Polyethylene glycol distearate	ARC, CHP, GLY, HAL, HDG, SBC, TCH.
*Polyethylene glycol monolaurate	ARC, CCA, CGY, CLD, DA, ECC, GLY, HAL, ICI, TCH, VND, WM.
*Polyethylene glycol mono-oleate	ARC, BRD, CCA, CCC, CLD, CRT, DA, DEX, EFH, GAF, GLY, HAL, HDG, HTN, MRT, MRV, ONX, SCP, STC, SVC, TCH, WM.
Polyethylene glycol monopalmitate	ICI, KNP.
Polyethylene glycol monoperargonate	TCH.
Polyethylene glycol monocinoleate	HDG.
*Polyethylene glycol monostearate	AKS, ARC, ARL, CHP, CRT, DA, EFH, GAF, GDC, GLY, HDG, HRT, HTN, ICI, MCP, ONX, PVO, SIC, SOS, STC, TCH, VND.
Polyethylene glycol sesquinoate	CCC, TCH, WTC.
Polyethylene glycol esters of chemically defined acids, all other	
POLYETHYLENE GLYCOL ESTERS OF MIXED ACIDS:	
Polyethylene glycol diester of tall oil acids	EFH, ORO, X.
Polyethylene glycol monoester of soybean oil acids	ARC, GLY.
Polyethylene glycol monoester of tall oil acids	EFH.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
POLYETHYLENE GLYCOL ESTERS--CONTINUED	
POLYETHYLENE GLYCOL ESTERS OF MIXED ACIDS--CON.	
Polyethylene glycol monoester of tall oil acids, ethoxylated	X.
Polyethylene glycol sesquieater of coconut oil acids	MRT, TCH.
Polyethylene glycol sesquieater of rosin acids	MVA.
*Polyethylene glycol sesquieater of tall oil acids	AZS, ICI, SLM, WTC, MVA.
Polyethylene glycol sesquieater of tallow acids	TCH.
Polyethylene glycol esters of mixed acids, all other	ARC, BKM, ECC, EFH, FER, GAF, ICI, SOS, STC, TCH.
POLYGLYCEROL ESTERS:	
Polyglycerol distearate	GLY.
Polyglycerol mono-oleate	HDG, WTC.
*Polyglycerol monostearate	GLY, HDG, PVO, TCH.
Polyglycerol esters, all other	PVO, TCH.
PROPANEDIOL ESTERS:	
1,2-Propanediol monolaurate	ARC, SBC.
1,2-Propanediol mono-oleate	EFH.
*1,2-Propanediol monostearate	ARC, EKT, GLY, SBC, TCH, MM.
Propanediol esters, all other	ARC, X.
OTHER CARBOXYLIC ACID ESTERS:	
Cetyl palmitate	ARC.
Di-isobutylene maleate	RH.
Ethoxylated 1,2-propanediol monostearate	ICI.
lauric acid ester of glycerol and ethoxylated nonylphenol	TCC.
Methylglucoside laurate	HDG.
Pentaerythritol stearate	VAL.
Carboxylic acid esters, all other	AAC, BAK, CCM, CHP, CLD, CRN, DUP, EMR, HDG, MOA, ORO, PEL, PG, ROB, STC, SVC, SYL, TCH, VND, X.
ETHERS:	
BENZENOID ETHERS:	
Alkylphenol-formaldehyde condensates, alkoxylated, all other	X.
*dinonylphenol, ethoxylated	GAF, HTN, QCC, RH, S, TCH, TMH, WTC.
*dodecylphenol, ethoxylated	DA, GAF, MON, STC, TMH.
Iso-octylphenol, ethoxylated	AAC, DA, GAF, RH.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED		
ETHERS--CONTINUED		
BENZENOID ETHERS--CONTINUED		
(Mixed alkyl)phenol, ethoxylated		MIL, X.
(Mixed alkyl)phenol, ethoxylated, butyl ether-		RH, TCH.
(Mixed alkyl)phenol-formaldehyde		X.
(Mixed alkyl)phenoxypropyl(ethyleneoxy)ethyl chloride		GAF.
*Nonylphenol, ethoxylated		ARC, DA, GAF, HDG, HTN, ICI, JCC, MIL, MON, OMC, ORO, QCC, RH, S, STC, STP, TCH, TMH, TX, UCC, WTC, WVA, X.
Nonylphenol, ethoxylated and propoxylated		GAF, RH.
Nonylphenol-formaldehyde, alkoxylated		X.
n-Octylphenol, ethoxylated		TCH.
tert-Octylphenol-formaldehyde, ethoxylated		DA, SDM.
*Phenol, ethoxylated		DA, GAF, ICI, MIL, QCC, STC, TCH.
Tetradecylphenol ethoxylated		ORO.
Tridecylphenol, ethoxylated		TCH.
Phenols, ethoxylated, all other-		DA, OMC, PEL, RH, STC, SVC, X.
NONBENZENOID ETHERS:		
LINEAR ALCOHOLS, ALKOXYLATED:		
*Decyl alcohol, ethoxylated		GAF, ICI, MIL, ORO, STC, TCH.
Decyloxypropyl(ethyleneoxy)ethyl chloride		GAF.
*Dodecyl alcohol, ethoxylated		AAC, HDG, ICI, MIL.
Hexadecyl alcohol, ethoxylated		ICI, TCH.
*9-Octadecenyl alcohol, ethoxylated		AAC, GAF, ICI, TCH.
Octadecyl alcohol, ethoxylated		DUP, ICI.
*Oleyl alcohol, ethoxylated		CRD, CRM, HDG, HTN, PVO, STC.
Wool wax alcohols, ethoxylated		CRD.
Chemically defined linear alcohol, alkoxylated, all other-		DA, GAF, ICI, MIL, STC, VAL, X.
Coconut oil alcohol, ethoxylated		GAF, GLY, JCC, STC, TX.
Decyl and octyl alcohols, ethoxylated		GAF.
*Mixed linear alcohols, ethoxylated		BAS, CO, CYL, DA, DUP, GAF, HDG, HTN, ICI, JCC, MIL, ORO, PG, PVO, QCC, RH, S, SHC, SHX, STC, STP, TCH, TX, UCC, WTC, X.
*Mixed linear alcohols, ethoxylated and propoxylated		DUP, GAF, JCC, MIL, OMC, ORO, PG, S, STP, SVC, TX, UCC, WTC, WVA.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
ETHERS--CONTINUED	
NONBENZENOID ETHERS--CONTINUED	
*Tallow alcohol, ethoxylated-	AAC, JCC, PG, STC, TCH, TX.
Mixed linear alcohols, alkoxylated, all other-	CRN, DA, GLY, MIL, PVO, S, X.
OTHER ETHERS AND THIOETHERS:	
*tert-Dodecyl mercaptan, ethoxylated-	AAC, GAF, ORO.
Isodecyl alcohol, ethoxylated-	S, TCH.
Iso-octyl alcohol, ethoxylated-	DA.
*Mixed alcohols, ethoxylated-	CRN, MIL, MON, RH, S, X.
Poly(mixed ethylene, propylene)glycol-	BAS, DA, UCC, X.
Polyoxyalkylene glycols, alkoxylated-	X.
Polypropylene glycol, ethoxylated-	WTC.
*Tridecyl alcohols, ethoxylated-	AAC, DA, DUP, GAF, HTN, ICI, JCC, MIL, OMC, PVO, S, STC, TCH, TMH, TX, WTC, X.
Tridecyl alcohols, propoxylated and ethoxylated	DA, JCC, TX.
Trimethylheptanol, ethoxylated-	TCH.
Trimethylnonyl alcohol, ethoxylated-	TCH, UCC.
Trimethylolpropane, alkoxylated-	X.
Ethers and thioethers, all other-	AAC, ARC, BAK, BAS, DA, EFH, GAF, ICI, MIL, ORO, RH, S, SVC, TCH.
OTHER NONIONIC SURFACE-ACTIVE AGENTS:	
Dodecylbenzenesulfonic acid-diethanolamine condensate, fatty acid monoester-	DA.
Octyl phosphate, ethoxylated-	DUP.
Tri(castor oil alkyl)phosphate-	GLY.
Nonionic surface-active agents, all other-	BAK, CPC, CRN, JTO, KPL, MIL, PG, PVO, RH, S, TCH, X.

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1980

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 1980 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.	EK	Eastman Kodak Co.
ACT	Southland Corp., Chemical Div.	EKT	Tennessee Eastman Co. Div.
ACY	American Cyanamid Co.	EMK	Emkay Chemical Co.
AES	Penetone Corp.	EMR	Emery Industries, Inc.
AGP	Armour-Dial, Inc.	ENO	Enenco, Inc.
AKS	Arkansas Co., Inc.	ESS	Essential Chemicals Corp.
APX	Apex Chemical Co., Inc.		
ARC	Armak Co., Industrial Chemical Div.	FER	Ferro Corp., Keil Chemical Div.
ARI	Atlas Refining, Inc.	FPC	Flambeau Paper Corp.
ARL	Arol Chemical Products Co.	FTX	Finetex, Inc.
ARZ	Arizona Chemical Co.		
ASY	American Synthetic Rubber Corp.	GAF	GAF Corp.
ATR	Atlantic Richfield Co., ARCO Chemical Co.	GDC	Gresto Dyes & Chemicals, Inc.
AZS	AZS Corp.:	GLY	Glyco Chemicals, Inc.
	AZ Products Co. Div.	GRL	Chemed Corp., Vestal Laboratories Div.
	AZS Chemical Co.	GRO	A. Gross & Co., Millmaster Onyx Group, Kewanee Industries, Inc.
BAK	Baker International-Magna Corp.		
BAS	BASF Wyandotte Corp.	HAL	C.P. Hall Co.
BFP	Breddo Food Products Corp., Inc.	HDC	Hodag Chemical Corp.
BKM	Buckman Laboratories, Inc.	HEW	Hewitt Soap Co., Inc.
BLA	Astor Products, Inc., Blue Arrow Div.	HIP	High Point Chemical Corp.
BLS	Life Savers, Inc.	HLI	Millmaster Onyx Corp., Onyx Chemical Co. Div.
BRD	Lonza, Inc.	HMP	W.R. Grace & Co., Organic Chemicals Div.
BSW	Original Bradford Soap Works, Inc.	HNT	Huntington Laboratories, Inc.
		HPC	Hercules, Inc.
		HRT	Hart Products Corp.
CCA	Interstab Chemicals, Inc.	HTN	Heterine Chemical Co., Inc.
CCC	C.N.C. Chemical Corp.	HUM	Kraft, Inc., Humko Sheffield Chemical
CCL	Catawba-Charlab, Inc.	HXL	Hexcel Corp., Hexcel Chemical Products
CCW	Carstab Corp.		
CGY	Ciba-Geigy Corp.		
CHL	Chemol, Inc.	ICI	ICI Americas Inc., Chemical Specialties Co.
CHP	C.H. Patrick & Co., Inc.		
CIN	Stockhausen, Inc.	JCC	Jefferson Chemical Co., Inc.
CJO	C. J. Osborn Chemicals Inc.	JOR	Jordan Chemical Co.
CLD	Colloids, Inc.	JTO	Jetco Chemicals, Inc.
CLI	Clintwood Chemical Co.		
CLU	Core-Lube, Inc.	KNP	Knapp Products, Inc.
CMT	Chemithon Corp.	KPI	Kenrich Petrochemicals, Inc.
CO	Conoco, Inc.		
CON	Concord Chemical Co., Inc.	LEA	Leatex Chemical Co.
CP	Colgate-Palmolive Co.	LEV	Lever Brothers Co.
CPC	Chemical Products Corp.	LKY	Lake States Div. of Rhineland Paper Co.
CRD	Croda, Inc.	LMI	North American Chemical Co.
CRN	CPC International, Inc., Amerchol Corp.	LUR	Laurel Products Corp.
CRT	Crest Chemical Corp.		
CRZ	Crown Zellerbach Corp., Chemical Products Div.	MAR	American Can Co., Lignin Chemicals Div.
CTL	Continental Chemical Co.	MCP	Moretex Chemical Products, Inc.
CWP	Consolidated Papers, Inc.	MIL	Milliken & Co., Milliken Chemical Div.
CYL	Cyclo Chemicals Corp.	MIR	Miranol Chemical Co., Inc.
		MOA	Mona Industrial, Inc.
		MON	Monsanto Co.
DA	Diamond Shamrock Corp.	MRD	Marden-Wild Corp.
DAN	Dan River, Inc., Chemical Products Div.	MRT	Morton-Norwich Products, Inc., Morton Chemical Co. Div.
DEX	Dexter Chemical Corp.		
DOW	Dow Chemical Corp.	MRV	Marlowe-Van Loan Corp.
DUP	E.I. duPont de Nemours & Co., Inc.		
DYS	Davies-Young Co.		
		NCC	Niacet Corp.
ECC	Eastern Color & Chemical Co.	NCW	Nostrip Chemical Works, Inc.
EFH	E.F. Houghton & Co.		

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TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
NES	Reutgers-Nease Chemical Co.	SHX	Sherex Chemical Co., Inc.
NMC	National Milling & Chemical Co.	SID	George F. Siddal Co., Inc.
NPR	Safeway Stores, Inc.	SLC	Soluol Chemical Co., Inc.
NTL	NL Industries, Inc.	SLM	Salem Oil & Grease Co.
OMC	Olin Corp.	SNW	Sun Chemical Corp., Chemicals Div.
ONX	Onyx Chemical Co.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
ORA	The ORA Corp.	SOP	Southern Chemical Products Co.
ORO	Chevron Chemical Co.	SOS	SSC Industries, Inc.
PC	Proctor Chemical Co., Inc.	SPA	Scott Paper Co.
PEK	Peck's Products Co.	STC	American Hoechst Corp., Sou-Tex Works
PEL	Pelron Corp.	STP	Stepan Chemical Co.
PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.	SVC	Stokely-Van Camp, Inc., Capital City Products Co. Div., Armstrong Chemical Plant
PIL	Pilot Chemical Co.	SYL	Sylvachem Corp.
PLX	Plex Chemical Corp.	SYT	Synthron, Inc.
PNX	Murphy-Phoenix Co.	TCC	Sybron Corp., Chemical Division/Tanatex
PRX	Purex Corp.	TCH	Emery Industries, Inc., Trylon Div.
PSP	Georgia-Pacific Corp., Bellingham Div.	TCI	Morton-Norwich Products, Inc., Texize Div.
PVO	PVO International, Inc.	TEN	Cities Service Co., Copperhill Operations
QCC	Quad Chemical Corp.	TMH	Thompson Hayward Chemical Co.
QCP	Quaker Chemical Corp.	TNA	Ethyl Corp.
RAY	ITT Rayonier, Inc.	TNI	Gillette Co., Chemical Div.
RBC	Fike Chemicals, Inc.	TX	Texaco, Inc.
RCD	Richardson Co.	UCC	Union Carbide Corp.
RH	Rohm & Haas Co.	UDI	Petrochemicals Co., Inc.
ROB	Robeco Chemicals, Inc.	UNN	United Chemical Corp. of Norwood
S	Sandoz, Inc., Colors & Chemicals Div.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SBC	Scher Chemicals, Inc.	VAL	Valchem Div. of United Merchants & Manufacturers, Inc.
SBP	Sugar Beet Products Co.	VND	Van Dyk & Co., Inc.
SCM	SCM Corp., Organic Chemical Div.	VPC	Mobay Chemical Corp., Dyestuff Div.
SCO	Scholler, Inc.	WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.
SCP	Henkel Corp.	WBG	White & Bagley Co.
SDC	Martin-Marietta Corp., Sodyeco Div.	WHI	White & Hodges, Inc.
SDH	Hilton Davis Chemical Co. Div.	WHW	Whittemore-Wright Co., Inc.
SDW	Sterling Organics Div.	WM	American Can Co., Inolex Chemicals Div.
SEA	Seaboard Chemicals, Inc.	WTC	Witco Chemical Corp.
SFS	Stauffer Chemical Co., Specialty Div.	WVA	Westvaco Corp., Polychemicals Dept.
SHC	Shell Oil Co., Shell Chemical Co.		

Note.--Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 183 reporting companies and company divisions for which permission to publish was not restricted.

SECTION XIII -- PESTICIDES AND RELATED PRODUCTS

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STATISTICAL HIGHLIGHTS

Edmund Cappuccilli

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 1980 amounted to 1,468 million pounds--2.7 percent greater than the 1,429 million pounds reported for 1979 (table 1).¹ Sales in 1980 were 1,406 million pounds, an increase of 2.7 percent, as compared with 1,369 million pounds reported in 1979; the value of sales was \$4,078 million in 1980, compared with \$3,631 million in 1979--an increase of 12.3 percent.

The output of cyclic pesticides and related products amounted to 1,054 million pounds in 1980--8.6 percent greater than the 971 million pounds produced in 1979. Sales in 1980 were 1,017 million pounds, valued at \$3,080 million, compared with 979 million pounds, valued at \$2,811 million in 1979. Production of acyclic pesticides and related products in 1980 amounted to 414 million pounds, compared with 459 million pounds reported for 1979, a decline of 9.8 percent. Sales in 1980 were 389 million pounds compared with 390 million pounds reported in 1979; the value of sales was \$999 million in 1980, compared with \$820 million in 1979--an increase of 19.5 percent.

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

XIII -- PESTICIDES AND RELATED PRODUCTS

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TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1980

[Listed below are all pesticides and related products for which any reported data on production or sales may be published. 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	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,468,202	1,406,321	4,078,498	\$2.90
Benzenoid-----	807,652	740,040	2,434,006	3.29
Nonbenzenoid-----	660,550	666,281	1,644,492	2.47
CYCLIC				
Total-----	1,054,309	1,017,006	3,079,575	3.03
Fungicides, total-----	127,846	121,297	252,112	2.08
Naphthenic acid, copper salt-----	2,233	1,323	1,328	1.00
Pentachlorophenol (PCP)-----	46,826	43,347	20,523	.47
All other cyclic fungicides ² -----	78,787	76,627	230,261	3.01
Herbicides and plant growth regulators, total-----	642,397	632,362	2,042,620	3.23
2,4-Dichlorophenoxyacetic acid-----	13,589	6,917	7,401	1.07
2,4-Dichlorophenoxyacetic acid, dimethylamine salt-----	16,426	16,695	21,822	1.31
2,4-Dichlorophenoxyacetic acid, iso-octyl ester-----	8,515	7,881	9,659	1.23
Dinitrobutylphenol-----	12,211	8,833	11,098	1.26
Plant growth regulators ³ -----	6,801	5,270	39,442	7.48
All other cyclic herbicides ⁴ -----	584,855	586,766	1,953,198	3.33
Insecticides and rodenticides, total-----	284,066	263,347	784,843	2.98
Organophosphorus insecticides ⁵ -----	85,971	97,858	278,102	2.84
All other cyclic insecticides and rodenticides ⁶ -----	198,095	165,489	506,741	3.06
ACYCLIC				
Total-----	413,893	389,315	998,923	2.57
Fungicides, total-----	28,367	25,042	38,053	1.52
Dithiocarbamic acid salts ⁷ -----	24,764	22,292	30,603	1.37
All other acyclic fungicides ⁸ -----	3,603	2,750	7,450	2.71
Herbicides and plant growth regulators ⁹ -----	163,266	135,383	515,667	3.81
Insecticides, rodenticides, soil conditioners and fumigants, total-----	222,260	228,890	445,203	1.95
Organophosphorus insecticides ¹⁰ -----	60,673	59,535	167,359	2.81
Trichloronitromethane (Chloropicrin)-----	5,423	...	...	...
All other acyclic insecticides, rodenticides, soil conditioners and fumigants ¹¹ -----	156,164	169,355	277,844	1.64

¹Calculated from unrounded figures.

²Includes benomyl, captafol, captan, chlorothalonil, dinocap, DMTT, folpet, PCNB, PMA, sodium pentachlorophenate, and others.

³Includes maleic hydrazide.

⁴Includes alachlor, atrazine, barban, benefin, bensulide, other 2,4-D esters and salts, 2,4-DB, dicamba, dinitrophenol compounds, diuron, isopropyl phenylcarbamates (IPC and CIPC), MCPA, molinate, NPA, picloram, propanil, triazines, trifluralin, uracils, and others.

⁵Includes carbophenothion, diazinon, dioxachion, EPN, methyl parathion, parathion, and other phosphorothioates and phosphorodithioates.

⁶Includes carbaryl, carbofuran, chlorinated insecticides (chlordan, chlorobenzilate, DDT, heptachlor, methoxychlor, toxaphene, and others), insect attractants, DEET and other insect repellents, small amounts of rodenticides, and other.

⁷Includes ferbam, maneb, nabam, and zineb, plus the remaining dithiocarbamates which are used chiefly as fungicides.

⁸Includes dodine, and others.

Footnotes--Continued

⁹Includes butylate, dalapon, methanearsonic acid salts, thiocarbamates, and organophosphorus herbicides, and others.

¹⁰Includes acephate, DDVP, disulfoton, ethion, malathion, naled, phorate, and other organophosphorus insecticides.

¹¹Includes methomyl, methyl bromide, soil conditioners and fumigants, aldicarb, 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, 1980

[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.
5-Chloro-2-methyl-4-isothiazolin-3-one	RH.
α-(2-Chlorophenyl)-α-(4-chlorophenyl)-5-pyrimidine-methanol	LIL.
α-(2-Chlorophenyl)-α-(4-fluorophenyl)-5-pyrimidine-methanol	LIL.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine	CHG.
1,4-Dichloro-2,5-dimethoxybenzene (Chloroneb)	DUP.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline (Ethoxyquin)	MON.
5-Ethoxy-3-(trichloromethyl)-1,2,4-thiadiazole	OMC.
Hexahydro-1,3,5-triethyl-s-triazine	VNC.
Mercaptobenzothiazole, zinc salt	VNC.
Methyl-1-(butylcarbamoyl)-2-benzimidazolecarbamate (Benomyl)	DUP.
2-(1-Methyl-n-heptyl)-4,6-dinitrophenyl crotonate (Dinocap)	RH.
3-(2-Methylpiperidino)propyl 3,4-dichlorobenzoate (Piperalin)	LIL.
*Naphtheneic acid, copper salt	CCA, MCI, TRO, WTC, X.
2-n-Octyl-4-isothiazolin-3-one	RH.
*Pentachloronitrobenzene (PCNB)	OMC.
*Pentachlorophenol (PCP)	DOW, FRO, RCI.
Pentachlorophenol, potassium salt	X.
Pentachlorophenol, sodium salt	DOW.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*FUNGICIDES--CONTINUED	
Phenylmercuric acetate (PMA)	CLY, COS, TRO.
Phenylmercuric ammonium acetate	TRO.
Phenylmercuric oleate	COS, TRO.
Phenylmercuric propionate	MRK.
cis-N-[(1,1,2,2-Tetrachloroethyl)thio]-1-cyclohex- ene-1,2-dicarboximide (Captafol)	SOC.
2,4,5,6-Tetrachloroisophthalonitrile	DA.
Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thi- one (DMTT)	MRK, VCC.
2-(Thiocyanomethylthio)benzothiazole	BKM.
N-Trichloromethylthio-4-cyclohexene-1,2-dicarbox- imide (Captan)	SFA, SFC.
N-Trichloromethylthiophthalamide (Folpet)	SFA, SFC.
2,4,5-Trichlorophenol, potassium salt	X.
1,3,5-Tri(2-isopropanol)-s-triazine	EPH.
Cyclic fungicides, all other	LIL, RH, X.
*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)	DOM.
4,6-Bis(isopropylamino)-2-methoxy-s-triazine (Prometon)	CGY.
2,4-Bis(isopropylamino)-6-(methylthio)-s-triazine (Prometryn)	CGY.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	DUP.
2-(tert-Butylamino)-4-chloro-6-(ethylamino)-s-tri- azine	CGY.
2-(sec-Butylamino)-4-ethylamino-6-methoxy-s-triazine	CGY.
2-(tert-Butylamino)-4-ethylamino-6-methoxy-s-tri- azine	CGY.
2-(tert-Butylamino)-4-ethylamino-6-(methylthio)-s- triazine	CGY.
3-tert-Butyl-5-chloro-6-methyluracil	DUP.
N-Butyl-N-ethyl- α,α -trifluoro-2,6-dinitro-p- toluide (Benefin)	LIL.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
2-Chloro-4,6-bis(ethylamino)-s-triazine	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-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoro- methyl)benzene (Oxyfluorfen)	RH.
2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-tri- azine (Atrazine)	CGY, FRI, SHC, VTC.
2-[4-Chloro-6-(ethylamino)-s-triazin-2-ylamino]-2- methylpropionitrile (Cyanazine)	SHC.
N-(2-Chloroethyl)- α,α -trifluoro-2,6-dinitro-N- propyl-p-toluidine (Fluchloralin)	BAS.
2-Chloro-N-isopropylacetanilide (Propachlor)	DOW, MON.
4-Chloro-5-(methylamino)-2-(α,α -trifluoro-m- tolyl)-3-(2H)-pyridazinone (Norflurazon)	S.
2-(4-Chloro-2-methylphenoxy)propionic acid (MCPP)	DA.
2-(4-Chloro-2-methylphenoxy)propionic acid, dimethyl- amine salt	DA.
5-(2-Chloro-4-trifluoromethylphenoxy)-2-nitrobenzoic acid, sodium salt	SDC.
3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-tri- azine-2,4-(1H,3H)-dione	DUP.
N-(Cyclopropylmethyl)- α,α -trifluoro-2,6-dinitro- N-propyl-p-toluidine (Profluralin)	CGY.
3,5-Dibromo-4-hydroxybenzotrile, octanoic acid esters (Bromoxynil octanoate)	RDA.
3,6-Dichloro-2-anisic acid (Dicamba)	VEL.
4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB Acid)	RDA.
4-(2,4-Dichlorophenoxy)butyric acid, iso-octyl ester	RDA.
2-(2,4-Dichlorophenoxy)propionic acid	DA.
2-(2,4-Dichlorophenoxy)propionic acid, 2-butoxyethyl ester	DOW.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS
 MANUFACTURERS' IDENTIFICATION CODES
 (ACCORDING TO LIST IN TABLE 3)

CYCLIC--CONTINUED

*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)	DUP.
2,4-Dichlorophenyl p-nitrophenyl ether	RH.
3',4'-Dichloropropionanilide (Propanil)	CYT, RH, VTC.
S-(O,0-Diisopropyl phosphorodithioate) ester of N-(o-mercaptoethyl)benzenesulfonamide (Bensulide)	SFA.
1,1'-Dimethyl-4,4'-bipyridinium dichloride	X.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamid)	CMN.
N-(1,1-Dimethyl-2-propynyl)-3,5-dichlorobenzamide (Pronamide)	RH.
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)	DA.
*Nintriobutylphenol (DNBP)	DOM, USR, VTC.
Dinitrobutylphenol, ammonium salt	DOM.
Dinitrobutylphenol, triethanolamine salt	DOM, VTC.
2,6-Dinitro-N,N-dipropyl cumidine	LIL.
3,5-Dinitro-N ₄ ,N ₄ -dipropylsulfanilamide	SDC, X.
2-(Ethylamino)-4-(isopropylamino)-6-(methylthio)-s-triazine (Ametryne)	CGY.
5-Ethyl cyclohexylethylthiocarbamate	SFA.
S-Ethyl-hexahydro-1H-azepine-1-carbothioate (Molinat)	SFA.
2-(Ethylthio)-4,6-bis(isopropylamino)-s-triazine	CGY.
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.
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	DUP.
Methyl 5-(2',4'-dichlorophenoxy)-2-nitrobenzoate	SM.
1-Naphthylphthalamic acid (NPA)	USR.
7-Oxabicyclo-[2.2.1]-heptane-2,3-dicarboxylic acid, disodium salt (Endothall)	PAS.
PHENOXYACETIC ACID DERIVATIVES:	
4-Chloro-2-methylphenoxyacetic acid (MCPA)	DA.
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt	DA.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S.PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
PHENOXYACETIC ACID DERIVATIVES--CONTINUED	
2,4-DICHLOROPHENOXYACETIC ACID, ESTERS AND SALTS:	
2,4-Dichlorophenoxyacetic acid (2,4-D) ester	DA, DOM, RDA.
2,4-Dichlorophenoxyacetic acid, butoxyethanol ester	DOM, RIV.
2,4-Dichlorophenoxyacetic acid, butoxypolypropyleneglycol ester	DOM.
2,4-Dichlorophenoxyacetic acid, n-butyl ester	PBI.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	DOM.
*2,4-Dichlorophenoxyacetic acid, dimethylamine salt	DA, DOM, PBI, RDA, RIV.
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salts	DOM.
2,4-Dichlorophenoxyacetic acid, isobutyl ester	RDA.
*2,4-Dichlorophenoxyacetic acid, iso-octyl ester	DOM, PBI, RDA, RIV.
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 SALT	
2,4,5-Trichlorophenoxyacetic acid, butoxypolypropyleneglycol ester	DOM.
2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester	RIV.
2,4,5-Trichlorophenoxyacetic acid, triethylamine salt	DOM.
*PLANT GROWTH REGULATORS:	
2-Chloro-6-(trichloromethyl)pyridine	DOM.
1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide) (MH)	ACY, CHF, FMT, USR.
Gibberellic acid	ABB, MRK.
3-Indolebutyric acid	MRK.
1-Naphthaleneacetic acid (NAA)	GNW.
1-Naphthaleneacetic acid, sodium salt	GNW.
Plant growth regulators, cyclic, all other	ABB, MMM, USR.
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, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
PLANT GROWTH REGULATORS--CONTINUED	
2-(2,4,5-Trichlorophenoxy)propionic acid, 2-butoxy-	DOM.
polypropylene ester	
2-(2,4,5-Trichlorophenoxy)propionic acid, iso-octyl ester-	RIV.
α, α, α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin)	ACY, LIL.
1,1,1-Trifluoro-N-(2-methyl-4-(phenylsulfanyl)-phenyl)methanesulfonamide	CGY.
Cyclic herbicides, all other	MMM.
INSECT ATTRACTANTS AND REPELLENTS:	
tert-Butyl 4(or 5)-chloro-2-methylcyclohexanecarboxylate (Trimedlure)	UPM.
N,N-Diethyltoluamide (DEET)	HDM, PFZ, TNA, VGC.
Insect attractants, all other	AIC.
*INSECTICIDES:	
Bacillus thuringiensis	ABB, S.
(5-Benzyl-3-furyl)methyl-2,2-dimethyl-3-(2-methylpropenyl)cyclopropane carboxylate (Resmethrin)	PEN.
2,3,4,5-δ ² -Butenylene-tetrahydrofurfural	PIC.
2-(p-tert-Butylphenoxy)cyclohexyl-2-propenyl sulfite	USR.
CHLORINATED INSECTICIDES:	
Ethyl 4,4'-dichlorobenzilate (Chlorobenzilate)	CGY.
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor)	VEL.
Hexachloroepoxyoctahydro-endo,endo-dimethanophthalene (Endrin)	VEL.
Octachlorohexahydro-4,7-methanoindene (Chlordan)	VEL.
Toxaphene (Chlorinated camphene)	BHA, VTC.
1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)	MTO.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor)	CHF, DUP.
Chlorinated insecticides, cyclic, all other	ADC.
Cyano(3-phenoxyphenyl)methyl-4-chloro-α-(1-methyl-ethyl)benzeneacetate	SHC.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
* INSECTICIDES--CONTINUES	
CHLORINATED INSECTICIDES--CONTINUED	
2, 3-Dihydro-2, 2-dimethyl-7-benzofuranyl methylcarbamate	FMN.
2, 2-Dimethyl-1, 3-benzodioxol-4-yl N-methylcarbamate	FSN.
5, 6-Dimethyl-2-dimethylamino-4-pyrimidinyl dimethyl carbamate	X.
Di-n-propylisochromeronate	MKG.
Distinnaxane, hexakis(2-methyl-2-phenylpropyl)	SHC.
N-(Mercaptomethyl)phthalimide 5-(0, 0-dimethylphosphorodithioate)	SFA.
Methyl 3-(2, 2-dichlorovinyl)-2, 2-dimethylcyclopropane carboate	FMN.
1-Naphthyl N-methylcarbamate (Carbaryl)	UCC.
* ORGANOPHOSPHORUS INSECTICIDES:	
S-[1-(p-chlorophenyl)thio]methyl 0, 0-diethyl phosphorodithioate (Carbophenothion)	SFA.
N-(Chloro-o-tolyl-N, N-dimethylformamide (Chlordimeform))	CGY.
0-(2, 4-dichlorophenyl) 0-ethyl S-propyl phosphorodithioate	CHG.
2-(Diethoxyphosphinylimino)-4-methyl-1, 3-dithiolane	ACY.
0, 0-Diethyl 0-(2-isopropyl-4-methyl-6-pyrimidinyl)phosphorothioate (Diazinon)	CGY.
0, 0-Diethyl 0-[4-(methylsulfinyl)phenyl]phosphorothioate	CHG.
0, 0-Diethyl 0-(p-nitrophenyl)phosphorothioate (Parathion)	MON.
0, 0-Diethyl 0-3, 5, 6-trichloro-2-pyridyl phosphorothioate	DOM, SHC.
0, 0-Dimethyl 0-[4-(methylthio)-m-tolyl]phosphorothioate (Fenthion)	CHG.
0, 0-Dimethyl 0-(p-nitrophenyl)phosphorothioate (Methyl parathion)	AMP, MON.
0, 0-Dimethyl 0-(4-nitro-m-tolyl)phosphorothioate (fenitrothion)	MTP.
0, 0-Dimethyl S-[4-oxo-1, 2, 3-benzotriazin-3(4h)-yl]methylphosphorodithioate (Azinphos-methyl)	CHG.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*INSECTICIDES--CONTINUED	
ORGANOPHOSPHORUS INSECTICIDES--CONTINUED	
0,0-Dimethyl 0-(2,4,5-trichlorophenyl)phosphoro- thioate (Ronnel)	DOM.
2,3-p-Dioxanedithiol S,S-bis-(0,0-diethyl phos- phorodithioate (Dioxathion)	BHA.
0-Ethyl 0-[4-(methylthio)phenyl] S-propyl phos- phorodithioate	CHG.
0-Ethyl 0-(p-nitrophenyl)phenylphosphonothioate (EPN)	DUP, SFA, VEL.
0-Ethyl-S-phenylethylphosphonodithioate	SFA.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-cro- tonate	SHC.
0,0,0',0'-Tetramethyl-0,0'-thiodi-p-phenylene phosphorothioate	ACY.
Permethrin	X.
Tetrahydro-5,5-dimethyl-2(1H)-pyrimidinone[3-[4-(trifluoromethyl)phenyl]-1-[2-[4-(trifluoromethyl)- phenyl]ethenyl]-2-propenylidene]hydrazone	ACY.
Cyclic insecticides, all other	CGY, FMN, S, VTC, X, X.
NERMATOCIDES:	
0,0-Diethyl 0-(2,4-dichlorophenyl)phosphorothioate (Dichlofenthion)	SM.
RODENTICIDES:	
3-(α-Acetonylbenzyl)-4-hydroxycoumarin (Warfarin)	MOT.
2-Pivaloyl-1,3-indandione (Pindone)	MOT, PIC.
Rodenticides, cyclic, all other	MOT, X.
CYCLIC PESTICIDES, ALL OTHER:	
4-Bromoacetoxymethyl-N-dioxoline	EFH.
α-[2-(2-n-Butoxyethoxy)-ethoxy]-4,5-methylenedioxy- 2-propyltoluene (Piperonyl butoxide)	ALP, HDM, TNA.
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-dicar- boximide	MGK.

TABLE 2. -- PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC	
*FUNGICIDES:	
Bis-1,4-bromoacetoxy-2-butene	VIN.
Chloromethoxypropylmercuric acetate	TRO.
1,2-Dibromo-2,4-dicyanobutane	MRK.
Sodium cyanodithioimidocarbonate	MRK.
n-Dodecylguanidine acetate (Dodine)	ACY.
Dodecylguanidine hydrochloride	MRK.
Methylene bis(thiocyanate)	MRK. VCC.
*DITHIOCARBAMIC ACID FUNGICIDES:	
Dimethyldithiocarbamic acid, ferric salt (Fezbam)	FMN.
Dimethyldithiocarbamic acid, potassium salt	BKM.
Dimethyldithiocarbamic acid, sodium salt	VCC.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)	VCC.
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb)	RH.
Ethylene bis(dithiocarbamic acid), manganese salt with zinc ions	RH.
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)	FMN, RH.
N-Methyldithiocarbamic acid, potassium salt	BKM.
Dithiocarbamic acid fungicides, acyclic, all other	ALC, BKM, FMN, VNC, X.
Acyclic fungicides, all other	BRM.
*HERBICIDES AND PLANT GROWTH REGULATORS:	
N,N-Bis(phosphonomethyl)glycine	MON.
2-Chloroallyl diethyldithiocarbamate (CDEC)	MON.
2-Chloro-N,N-diallylacetamide (CDAA)	MON.
2,2-Dichloropropionic acid, sodium salt (Dalapon)	DOM.
Dimethylarsinic acid (Cacodylic acid)	CYT.
N-[5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl]-N',N'-dimethylurea (Tebuthiuron)	LII, MRT.
Ethyl carbamoylphosphonate, ammonium salt	DUP.
S-Ethyl diisobutylthiocarbamate (Butylate)	SFA.
S-Ethyl dipropylthiocarbamate (EPTC)	SFA.
Methanearsonic acid, disodium salt (DSMA)	VIN.
Methanearsonic acid, monosodium salt (MSMA)	CYT, DA.
N-(Phosphonomethyl)glycine, isopropylamine salt	MON.
S-Propyl butylethylthiocarbamate (Pebulate)	SFA.
S-Propyl dipropylthiocarbamate (Vernolate)	SFA.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S.PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
S,S-Tributyl phosphotriothioate	PLC.
Tributyl phosphotriothioate (Merphos)	SM.
S-(1,2,3-Trichloroallyl) diisopropylthiocarbamate (Triallate)	MON.
PLANT GROWTH REGULATORS:	
2-(Chloroethyl)phosphonic acid	GAF, UCC.
Succinic acid, 2,2-dimethylhydrazide	USR.
Acyclic herbicides, all other	S.
INSECTICIDES:	
2-(2-Butoxyethoxy)ethyl thiocyanate	RH.
Methyl N,N'-dimethyl-N-[(methylcarbamoylethoxy)-1-thiooxamido]	DUP.
S-Methyl-N-[(methylcarbamoylethoxy)thioacetimidate (Methomyl)]	DUP, SHC.
2-Methyl-2-(methylthio)propionaldehyde O-(methylcarbamoylethoxy)oxime (Aldicarb)	UCC.
*ORGANOPHOSPHORUS INSECTICIDES:	
S-[1,2-Bis(ethoxycarbonyl)ethyl]O,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.
O,0-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate (Disulfoton)	CHG.
O,0-Diethyl O-[2-(ethylthio)ethyl] phosphorothioate (Demeton O)	CHG.
O,0-Diethyl S-[(ethylthio)methyl] phosphorodithioate (Phorate)	ACY.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide	SHC.
O,S-Dimethylacetylphosphoramidothioate (Acephate)	SOC.
O,0-Dimethyl-0-2,2-dichlorovinyl phosphate (DDVP)	AMV, CLO, SHC.
Dimethyl phosphate of 3-hydroxy-N-methyl-cis-crotonamide	SHC.
O,S-Dimethyl phosphoramidothioate	CHG.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S.PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
INSECTICIDES--CONTINUED	
ORGANOPHOSPHORUS INSECTICIDES--CONTINUED	
0,0-Dimethyl phosphorochloridithioate	CHG.
0,0,0'-Tetraethyl S,S'-methylene bisphosphorodithioate (Ethion)	FMN.
Organophosphorus insecticides, acyclic, all other	X.
Acyclic insecticides, all other	ACY, X.
RODENTICIDES:	
2-Hydroxyethyl n-octyl sulfide	PIC.
Sodium fluoroacetate	RBC, TUI.
Rodenticides, acyclic, all other	RBC.
SOIL CONDITIONERS:	
Polyacrylonitrile, hydrolyzed, sodium salt	ACY.
SOIL FUMIGANTS:	
1,2-Dibromo-3-chloropropane (DBCP)	AMV.
1,3-Dichloropropene	DOM.
1,3-Dichloropropene, 1,2-dichloropropane	DOM, SHC.
O-Ethyl S,S-dipropyl phosphorodithioate	SM.
Methyl bromide (Bromomethane)	DOM, GTL, VEL.
N-Methyldithiocarbamic acid, sodium salt (Metham)	SFA.
Methyl isothiocyanate	MRT.
*Trichloronitromethane (Chloropicrin)	DOM, IMC, NLO.
ACYCLIC PESTICIDES, ALL OTHER:	
Diamino acetate	X.
Diamino copper acetate propionate	X.
2-[(Hydroxymethyl)amino]-2-methylpropanol	TRO.
2-[(Hydroxymethyl)ethanol	TRO.
3-Iodo-2-propynyl butylcarbamate	TRO.
Pesticides and related products, acyclic, all other	AIC, ARA, PCM, RBC, SHC, VIN, VTC, X.

TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1980

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 1980 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	Motomoco, Inc.
ACY	American Cyanamid Co.	MRK	Merck & Co., Inc.
ADC	Anderson Development Co.	MRT	Morton-Norwick Products, Inc., Morton Chemical Co. Div.
AIC	Albany International Corp.	MTO	Montrose Chemical Corp. of California
ALC	Alco Chemical Corp.	MTP	Mount Pleasant Chemical Co.
ALP	Alpha Laboratories, Inc.		
AMC	Amvoc Chemical Corp.		
AMP	Kerr-McGee Chemical Corp.	NLO	Niklor Chemical Co., Inc.
ARA	Araphoe Chemical, Inc., Sub/Syntic U.S.A., Inc.	OMC	Olin Corp., Agricultural Products Dept.
BAS	BASF Wyandotte Corp.	PAS	Pennwalt Corp.
BHA	Boots Hercules Agrochemicals Co.	PBI	PBI-Gordon Corp.
BKM	Buckman Laboratories, Inc.	PCW	Pfister Chemical, Inc.
		PEN	CPC International, Inc., Penick Div.
CCA	Interstab Chemicals, Inc.	PFZ	Pfizer, Inc.
CGY	Ciba-Geigy Corp., Agricultural Div.	PIC	Pierce Chemical Co.
CHF	Chemical Formulators, Inc.	PLC	Phillips Petroleum Co.
CHG	Mobay Chemical Corp., Agricultural Chemicals Div.	PPG	PPG Industries, Inc.
CLO	Colorado Organic Chemical Co., Inc.	RBC	Fike Chemicals, Inc.
CLY	W. A. Cleary Corp.	RCI	Reichhold Chemicals, Inc.
COS	Cosan Chemical Corp.	RDA	Rhone-Poulenc, Inc.
CWN	Upjohn Co., Fine Chemical Div.	RH	Rohm & Haas Co.
CYT	Crystal Chemical Co.	RIV	Riverdale Chemical Co.
DA	Diamond Shamrock Corp. & Agricultural Chemical, Inc.	S	Sandoz Inc., Crop Protection Dept.
		SDC	Martin-Marietta Corp., Sodyeco Div.
DOW	Dow Chemicals Co.		Stauffer Chemical Co.:
DUP	E. I. duPont de Nemours & Co., Inc.	SFA	Agricultural Div.
		SFC	Calhio Chemicals, Inc.
EFH	E. F. Houghton & Co.	SCH	Shell Oil Co., Shell Chemical Co., Div.
		SM	Mobil Oil Corp., Mobil Chemical Co., Phosphorus Div.
FMN	FMC Corp., Agricultural Chemical Div.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
FMT	Fairmount Chemical Co.		
FRI	Farmland Industries, Inc.		
FRO	Vulcan Materials Co., Chemicals Div.		
FSN	Fisons, Inc.	TNA	Ethyl Corp.
		TRO	Troy Chemical Corp.
GAF	GAF Corp.	TUL	Tull Chemical Co.
GNW	Greenwood Chemical Co.		
GTH	Guth Corp.	UCC	Union Carbide Corp.
GTL	Great Lakes Chemical Corp.	UPM	UOP, Inc.
		USR	Uniroyal, Inc., Uniroyal Chemical Div.
IMC	International Minerals & Chemicals Corp.		
		VCC	Vinings Chemical Co.
LIL	Eli Lilly & Co.	VEL	Velsicol Chemical Corp.
		VGC	Virginia Chemicals, Inc.
MCI	Mooney Chemical, Inc.	VIN	Vineland Chemical Co., Inc.
MGK	McLaughlin Gormley King Co.	VNC	Vanderbilt Chemical Corp.
MMM	Minnesota Mining & Manufacturing Co.	VTC	Vertac Chemical Corp.
MON	Monsanto Co.		
		WTC	Witco Chemical Corp.

Note.—Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 89 reporting companies and company divisions for which permission to publish was not restricted.

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

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STATISTICAL HIGHLIGHTS

Kenneth J. Conant, III

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 lubricating oil and grease additives, paint driers, photographic chemicals, polymers for fibers, and tanning materials, both production and sales of all other end-use groups contained within this section increased over 1979 levels.

In 1980 the production of miscellaneous end-use chemicals exceeded 23.6 billion pounds, an increase of 5.6 percent over the more than 22.3 billion pounds of production reported for 1979. Sales in 1980 totaled 14.1 billion pounds, valued at \$3.5 billion. The sales quantity increased 22.6 percent from that of 1979 with the value of sales increasing by 15.4 percent. Polymers for fibers and urea collectively accounted for 83 percent of the 1980 production of these miscellaneous end-use chemicals. Urea accounted for 74 percent of the 1980 sales quantity of these chemicals.

In 1980 the production of lubricating oil and grease additives totaled 1.7 billion pounds, a decrease of 3 percent compared with 1979. Total sales quantity for 1980 was 1.2 billion pounds, 6 percent less than the 1979 sales quantity of 1.3 billion pounds, while the value of sales increased 13 percent to \$874 million.

Production of gasoline additives for 1980 totaled 1.5 billion pounds, an increase of 11 percent from the previous year. Total sales quantity for 1980 was 1.3 billion pounds, up 47 percent from the 1979 sales quantity of 875 million pounds, with sales value decreasing 16 percent to \$671 million.

XIV -- MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION AND SALES, 1980

[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 and may not be published or where no data were reported.) Table 2 lists all miscellaneous end-use chemicals and chemical products for which data on production and/or sales were reported and identifies the manufacturers of each]

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	23,602,490	14,074,631	3,499,402	\$0.25
Chelating agents, nitriloacids and salts, total-----	298,344	235,548	109,403	.46
(Diethylenetrinitrilo)pentaacetic acid, penta-				
sodium salt-----	5,883	6,899	2,797	.41
(Ethylenedinitrilo)tetraacetic acid (EDTA)-----	9,345	6,313	6,605	1.05
(Ethylenedinitrilo)tetraacetic acid, calcium				
disodium salt-----	1,079	1,080	1,711	1.58
(Ethylenedinitrilo)tetraacetic acid, diammonium				
salt-----	...	371	337	.91
(Ethylenedinitrilo)tetraacetic acid, disodium				
copper salt, dihydrate-----	369	...	...	...
(Ethylenedinitrilo)tetraacetic acid, disodium salt-				
(Ethylenedinitrilo)tetraacetic acid, disodium zinc				
salt, dihydrate-----	1,685	...	...	...
(Ethylenedinitrilo)tetraacetic acid, tetrasodium				
salt-----	5,274	...	...	...
(Ethylenedinitrilo)tetraacetic acid, trisodium				
salt-----	55,229	64,086	20,606	.32
(N-Hydroxyethylethylenedinitrilo)triacetic acid,				
iron salt-----	2,609	2,432	2,480	1.02
All other-----	878	...	...	...
	215,993	154,367	74,867	.48
Chemical indicators-----	12	10	838	83.89
Chemical reagents-----	18	...	...	...
Enzymes, total-----	(²)	(²)	39,544	(²)
Hydrolytic enzymes, total-----	(²)	(²)	34,376	(²)
Amylases-----	(²)	(²)	8,164	(²)
Proteases, total-----	(²)	(²)	17,768	(²)
Rennin-----	(²)	(²)	9,310	(²)
All other proteases-----	(²)	(²)	8,458	(²)
All other hydrolytic enzymes-----	(²)	(²)	8,444	(²)
Non-hydrolytic enzymes-----	(²)	(²)	5,168	(²)
Flotation reagents-----	4,853	...	...	...
Gasoline additives, total ³ -----	1,481,586	1,287,580	671,493	.52
N,N'-Disalicylidene-1,2-propanediamine-----	424	...	...	...
Ethylenedibromide-----	195,098	...	...	...
Methyl-t-butyl ether-----	705,688	...	...	...
Tetraethyl lead-----	324,915	226,117	274,135	1.21
Tetra(methyl-ethyl) lead, (TEL-TML, reacted)-----	191,873	194,396	213,598	1.10
All other gasoline additives-----	63,588	867,067	183,760	.21
Lubricating oil and grease additives, total-----	1,710,129	1,226,676	874,050	.71
Chlorosulfurized and sulfurized compounds-----	5,651	3,642	3,631	1.00
Oil soluble petroleum sulfonate, calcium salt-----	311,548	234,966	165,269	.70
Oil soluble petroleum sulfonate, sodium salt-----	111,542	109,558	45,414	.41
Phenol salts, total-----	144,630	135,195	77,657	.57
Nonylphenol, barium salt-----	5,321	...	...	...
All other-----	139,309	135,195	77,657	.57
Sulfur compounds, total-----	168,609	164,978	103,205	.63
Sulfurized lard oil-----	13,081	...	...	...
All other sulfur compounds-----	155,528	164,978	103,205	.63

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION AND SALES, 1980--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
Lubricating oil and grease additives--continued				
Zinc dialkyldithiophosphate-----	24,698	6,897	6,691	\$0.97
All other lubricating oil and grease additives----	943,451	571,440	472,183	.83
Methionine and its salts-----	73,907	72,719	103,697	1.43
Paint driers, naphthenic acid salts, total ⁴ ⁵ -----	12,876	8,826	16,918	1.92
Calcium naphthenate-----	741	734	652	.89
Cobalt naphthenate-----	2,361	2,054	10,709	5.21
Lead naphthenate-----	5,131	3,423	2,801	.82
Manganese naphthenate-----	...	534	453	.85
Zinc naphthenate-----	1,776	1,575	1,439	.91
All other-----	2,867	506	864	1.71
Photographic chemicals, total-----	13,971	2,487	12,234	4.92
p-Diethylaminobenzenediazonium chloride-----	...	150	747	4.99
p-Dimethylaminobenzenediazonium chloride-----	...	129	641	4.96
All other photographic chemicals-----	13,971	2,208	10,846	4.91
Polymers for fibers, total-----	6,583,375	454,338	265,607	.58
Nylon 6 and 6/6-----	2,037,180	...	...	...
Polyethylene terephthalate-----	2,938,777	242,175	119,172	.49
All other polymers for fiber-----	1,607,418	212,163	146,435	.69
Polymers, water soluble, total-----	316,016	269,720	371,698	1.38
Cellulose ethers and esters-----	160,702	156,929	245,313	1.56
Polyacrylamide-----	70,098	51,150	56,346	1.10
Polyacrylic acid salts, total-----	46,228	...	...	...
Sodium polyacrylate-----	28,210	18,048	8,583	.48
All other polyacrylic acid salts-----	18,018	...	...	...
All other water soluble polymers-----	38,988	43,593	61,456	1.41
Tanning materials, synthetic-----	49,609	37,647	17,740	.47
Textile chemicals, other than surface-active agents-	10,727	6,674	5,907	.89
Urea, total-----	12,960,037	10,395,634	898,606	.09
In feed compounds-----	376,475	304,042	26,234	.09
In liquid fertilizer-----	4,322,987	3,674,999	283,851	.08
In solid fertilizer-----	7,492,602	6,118,675	562,265	.09
In plastics-----	706,261	237,151	19,671	.08
All other-----	61,712	60,767	6,585	.11
All other miscellaneous end-use chemicals and chem- ical products ⁶ -----	87,030	76,772	111,667	1.45

¹Calculated from unrounded figures.²Not available.³Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given with the section on "Plasticizers."⁴Quantities are given in the basis of solid naphthenate.⁵Statistics exclude production and sales of copper naphthenate. Statistics for copper naphthenate are given in the section on "Pesticides and Related Products."⁶Includes all other items listed in table 2 which are not individually publishable or 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, 1980

[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. COMPANY IDENTIFICATION CODES WHICH ARE FOLLOWED BY AND " (E) " ARE SO LABELED BECAUSE THE COMPANY FAILED TO SUPPLY THE U.S. INTERNATIONAL TRADE COMMISSION WITH THEIR DATA IN SUFFICIENT TIME FOR ITS INCLUSION IN THIS REPORT. THE COMPANY IS PRESUMED TO HAVE CONTINUED PRODUCTION OF THE COMPOUND IN QUESTION IN 1980 AND THE VOLUME OF PRODUCTION AND SALES HAS BEEN ESTIMATED BY THE USITC STAFF MEMBERS]

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Biological stains	: EK, MMC.
*CHELATING AGENTS, NITRILACIDS AND SALTS:	
Diethylenetriaminepenta(methylenephosphonic acid)-	: WAY.
(Diethylenetriamine)pentamethylenephosphonic acid,	
Sodium salt	: WAY.
(Diethylenetrinitrilo)pentaaetic acid	: CGY, HMP.
(Diethylenetrinitrilo)pentaaetic acid, monosodium	
Hydrogen ferric salt	: CGY.
*(Diethylenetrinitrilo)pentaaetic acid, pentasodium	
salt	: CGY, DAN, DOW, HMP, RPC.
N,N-Dihydroxyethylglycine, sodium salt	: DAN, HMP.
[(Dimethylamino)methylene]bisphosphoric acid,	
trisodium salt	: BKM.
Ethanol diglycine, disodium salt	: HMP.
(Ethylene-bis-nitrilo)dimethylene phosphonic acid,	
potassium salt	: WAY.
*(Ethylenedinitrilo)tetraaetic acid (Ethylenediamine-	
tetraaetic acid) (EDTA)	: CGY, DOM, HMP.
*(Ethylenedinitrilo)tetraaetic acid, calcium disodium	
salt	: CGY, DOM, HMP.
*(Ethylenedinitrilo)tetraaetic acid, diammonium salt	
*(Ethylenedinitrilo)tetraaetic acid, disodium copper	
salt, dihydrate	: CGY, DAN, DOW, HMP.
*(Ethylenedinitrilo)tetraaetic acid, disodium salt	
*(Ethylenedinitrilo)tetraaetic acid, disodium zinc	
salt, dihydrate	: CGY, DAN, DOW, HMP.
(Ethylenedinitrilo)tetraaetic acid, manganese salt	: CGY, DAN, 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, 1980--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, monoammonium ferric salt	HMP.
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	CGY, HMP.
*(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	CGY, CRT, DAN, DOM, HMP, RPC.
*(Ethylenedinitrilo)tetraacetic acid, trisodium salt	CGY, HMP, WAY.
Glucopentonic acid, sodium salt	BLZ.
Hexamethylenediaminetetra(methylenephosphonic acid), potassium salt	WAY.
Hexamethylenediaminetetra(methylenephosphonic acid)	WAY.
(N-Hydroxyethylethylenedinitrilo) triacetic acid	HMP.
(N-Hydroxyethylethylenedinitrilo) triacetic acid, copper salt	HMP.
*(N-Hydroxyethylethylenedinitrilo) triacetic acid, iron salt	CGY, DOM, HMP.
(N-Hydroxyethylethylenedinitrilo) triacetic acid, magnesium salt	HMP.
(N-Hydroxyethylethylenedinitrilo) triacetic acid, trisodium salt	CGY, CRT, DAN, DOM, HMP, MON, RPC.
Nitriloacetic acid, zinc salt	HMP.
Nitrilotriacetic acid	HMP.
Nitrilotriacetic acid, trisodium salt	DAN, HMP, MON.
Nitrilo-tris-methylene triphosphonic acid	MYO, WAY.
Nitrilo-tris-methylene triphosphonic acid, sodium salt	MYO, WAY.
Triethanolamine phosphate, sodium salt	WAY.
Chelating agents, nitriloacids and salts, all other	CGY, DOM, HMP, SCP, X.
*Chemical indicators	EK, GFS, HXL, MMC.
*Chemical reagents	EK, GFS, MMC, NLC(E), RSA.
Diesel fuel additives	TNA.
*ENZYMES:	
*HYDROLYTIC ENZYMES:	
*AMYLASES, all other-	CRN, GBF, PFZ, RH.

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, 1980--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ENZYMES--CONTINUED	
*HYDROLYTIC ENZYMES--CONTINUED	
*PROTEASES:	
Bromelain	DOL.
Papain	GBF, PFZ.
Pepsin	CHH, SPR.
*Rennin	CHH, GBF, MLS, PFZ.
Proteases, all other	GBF, MLS, PIC, PMP, SPR.
*Hydrolytic enzymes including pectic enzymes and lipase, all other	BCK, GBF, JFR, MLS, PMP, RH, WBC.
*NON-HYDROLYTIC ENZYMES:	
*Nonhydrolytic enzymes	BCK, OMS, PLB, UPJ.
RARE SUGARS:	
Rare sugars	PFN, PIC.
*FLOTATION REAGENTS:	
PHOSPHORODITHIOATES (DITHIOPHOSPHATES):	
Dicresylphosphorodithioic acid	ACY.
Dicresylphosphorodithioic acid, ammonium salt	ACY.
Dicresylphosphorodithioic acid, sodium salt	KCU.
Phosphorodithioates used as floatation reagents, all other	ESX.
OTHER FLOTATION REAGENTS:	
2,2'-Dimethylthiocarbamilide (Di-o-tolylthiourea)	RBC.
Resin amines	HPC.
Thiocarbamilide (Diphenylthiourea)	ACY.
*GASOLINE ADDITIVES:	
N,N'-Di-sec-butyl-p-phenylenediamine	TX, USR.
N,N'-Diisopropyl-p-phenylenediamine	USR.
*N,N'-Disalicylidene-1,2-propanediamine	FER, SM, TX.
Ethylene dibromide	DOM, GIL, PPG, TNA.
Methyl-t-butyl ether	ATR, ENJ, GHR(E), PIC, PTT.
Methylcyclopentadienylmanganese tricarbonyl	TNA.
4,4'-Methylenebis(2,6-di-tert-butylphenol)	TNA.
Mixed aryl diimides	SM.
N-Phenyl-1-naphthylamine	USR.
*Tetraethyl lead	DUP, PFG, TNA.
*Tetra(methyl-ethyl)lead, (Tel-tml,reacted)	DUP, MLC, PPG, TNA.

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, 1980--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*GASOLINE ADDITIVES--CONTINUED	
Tetramethyl lead	DUP, NLC, TNA.
Gasoline additives, all other	DUP, GLY, TNA.
*LUBRICATING OIL AND GREASE ADDITIVES:	
*CHLOROSULFURIZED AND SULFURIZED COMPOUNDS:	
Methylene-bridged polyalkyl phenols	TNA.
4,4'-Thiobis(6-tert-butyl-o-cresol)	TNA.
Chlorosulfurized and sulfurized compounds: used as lubricating oil and grease additives, all other	FER, GLY.
OIL-SOLUBLE PETROLEUM SULFONATES:	
Oil-soluble petroleum sulfonate, ammonium salt	NLL.
Oil-soluble petroleum sulfonate, barium salt	PAR, MTC, X.
*Oil-soluble petroleum sulfonate, calcium salt	ORO, PAR, PLC, SHC, TNA, TX, MTC, X.
Oil-soluble petroleum sulfonate, magnesium salt	MTC.
*Oil-soluble petroleum sulfonate, sodium salt	DA, ENJ, MOR, PAR, SHC, MTC, X.
Oil-soluble petroleum sulfonate, all other	SHC.
*PHENOL SALTS:	
Alkylphenol, calcium salt	ORO.
*Nonylphenol, barium salt	CCA, ENJ, X.
Phenol, magnesium salt	MTC.
Phenol salts, all other	TX, X.
PHOSPHORODITHIOATES (DITHIOPHOSPHATES):	
Di-2-ethylhexylphosphorodithioic acid	ELC, SFA.
Di-N-propylphosphorodithioic acid	ELC, SFA.
*Zinc dialkyl dithiophosphate	ELC, ORO, TNA, TX.
Zinc hydrocarbon dithiophosphate	X.
Phosphorodithioates used as lubricating oil and grease additives, all other	ELC, TX.
SUCCINIMIDES:	
Dodecyl-oleyl succinimide	SM.
Polyisobutenyl succinimide, polypropylene glycol salt	SM.
Polyisobutenyl succinimide, zinc sulfate complex	SM.
*SULFUR COMPOUNDS:	
Aliphatic hydrocarbon sulfides	ELC, FER, X.
Aliphatic imides, sulfur compounds	ORO.
Chlorosulfurized sperm oil	CCW.
Diisobutylene polysulfide	TX.

TABLE 2. -- MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATES, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*LUBRICATING OIL AND GREASE ADDITIVES--CONTINUED	
*SULFUR COMPOUNDS--CONTINUED	
Di-tertiary nonylpolysulfide	PAS.
Phosphosulfurized terpene	SM.
*Sulfurized lard oil	CCW, FER, QCP, WBG.
Sulfurized sperm oil substitutes	CCW, ELC, FER.
Sulfur compounds, all other	CCW, ELC, ORO, TX.
ALL OTHER LUBRICATING OIL AND GREASE ADDITIVES:	
Aminonaphthenic acid salts	SM.
Dodeceny succinamic acid, glyamide	SM.
Dodeceny succinic acid, benzotriazole salt	SM.
Lubricating oils and grease additives, all other	ACY, ALX, ELC, ENG, HCC, MIL, ORO, PLC, SHC, SM, TNA, TX, X.
*PAINT DRIERS, NAPHTHENIC ACID SALTS:	
Barium naphthenate	BAK.
Cadmium naphthenate	CCA.
*Calcium naphthenate	CCA, HN, MCI, TRO, WTC, X.
Chromium naphthenate	MCI, WTC.
*Cobalt naphthenate	CCA, HN, MCI, SHP, TRO, WTC, X.
Iron naphthenate	HN, WTC.
Lead cobalt calcium naphthenate	MCI.
*Lead naphthenate	CCA, HN, MCI, SHP, SM, TRO, WTC, X.
Lithium naphthenate	CCA.
*Manganese naphthenate	CCA, HN, MCI, SHP, SM, SW, WTC, X.
Rare earths naphthenate	CCA.
*Zinc naphthenate	CCA, HN, MCI, SM, TRO, WTC, X.
Paint dryers, naphthenic acid salts, all other	SM.
*PHOTOGRAPHIC CHEMICALS:	
N-(2-Acetamidophenethyl)-1-hydroxy-2-naphthamide	X.
3-Amino-1,2,4-triazole (5-Amino-1,3,4-triazole)	FMT.
Benzotriazole	COC, FMT.
3-Chloro-4-diethylaminobenzenediazonium chloride (p-Diazo-2-Chloro-N,N-diethylaniline)-zinc chloride	ESA.
Chlorohydroquinone	EK, ESA.
4-Diazo-2,5-dithoxymorpholinobenzene	ESA.
4-Diazo-3,5-dithoxythiocresol salts	ESA, FMT.
2,5-Diethoxy-4-morpholinobenzenediazonium chloride	ALL, ESA.
*p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline)-zinc chloride	ALL, ESA, FMT, WAY.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride	EKT.

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, 1980--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*PHOTOGRAPHIC CHEMICALS--CONTINUED	
*p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline)-zinc chloride	ALL, ESA, FMT.
p-Diphenylaminediazonium sulfate	ESA, FMT.
p-(N-Ethylbenzimidobenzenediazonium 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, FMT.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	WAY.
Hydroquinone (Hydroquinol)	EKT.
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline)-zinc chloride	ESA, FMT.
2-Hydroxynaphthoic ethylamide	FMT.
4-Methoxy-1-naphthol	X.
p-Methylaminophenol sulfate (Metol)	EK.
5-Methylbenzotriazole	EK, FMT.
4-Methyl-1-phenyl-3-pyrazolidione	WAY.
p-Morpholinyl-2,5-dibutoxybenzene diazonium chloride	ALL.
6-Nitrobenzimidazole	EK, FMT.
Phenyl-5-mercaptopotetrazole	FMT.
1-Phenyl-3-pyrazolidone	WAY.
4-N-(1-Pyrrolidyl)-m-toluenediazonium chloride	ALL, ESA.
Photographic chemicals, all other-	ALL, DIX, DUP, EK, FMT, HST, WAY, X.
POLYMER CHEMICALS	
Poly-d-olefins	CO, SM.
Poly-c-olefins, sulfurized	SM.
*POLYMERS FOR FIBERS:	
Cellulose acetate	CEL, EKT, MIL.
Nylon 6 (Polymer for fiber, only) and 6/6-	AFP, DUP, FND, FRF, MON, SKP.
Polyacrylonitrile and acrylonitrile copolymers	ACY, DUP, MON.
*Polyethylene terephthalate	DUP, EK, EKT, FND, FRF, GYR, MON.
POLYMERS for fibers, all other	BKL, DUP, EKT, MON, X.
*POLYMERS, WATER SOLUBLE:	
*CELLULOSE ETHERS AND ESTERS:	
Hydroxyethylcellulose	UCC, 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, 1980--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*POLYMERS, WATER SOLUBLE--CONTINUED	
*CELLULOSE ETHERS AND ESTERS--CONTINUED	
Methylcellulose	DOM.
Sodium carboxymethylcellulose (100%)	BUK, MAK, X.
Cellulose ethers and esters, all other	X.
Ethyl acrylate methacrylic acid copolymer	ALC.
*polyacrylamide	ACY, DOM, HPC, MRK, X.
*POLYACRYLIC ACID SALTS:	
Ammonium polyacrylate	BFG.
Sodium ammonium polyacrylate and copolymers	ALC, BAK.
*Sodium polyacrylate	ALC, BAK, BFG, BKM, DA, MYO, RH, UOC, X.
Polyacrylic acid salts, all other	ACY, BFG, BKM, DA, X.
Polyacrylonitrile, hydrolyzed	ALC, BKM.
Polyacrylonitrile, starch hydrolyzed polymer	GPC, SCP.
Polymethacrylic acid, sodium salt	ALC, GRD, NLC.
1-Vinyl-2-pyrrolidinone, polymers	DAN.
Polymers, water soluble, all other	BAK, BFG, BKM, GAF, MRK, PEL, PFN, S, UCC, X.
Silicone greases	DCC, SPD, SMS.
*TANNING MATERIALS, SYNTHETIC:	
1-Naphthalenesulfonic acid, formaldehyde condensate and salt	DA.
2-Naphthalenesulfonic acid, formaldehyde condensate and salt	AKS, DA, GRD, RH, SYT.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated)	RH.
Tanning materials, synthetic, all other	DA, 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.
Dimethyldihydroxyethylene urea	CCC, CHP, DAN.
N,N-Ethylene-urea formaldehyde resin	CCC.
Melamine formaldehyde methanol polymer	CCC.
Octadecanoic acid reaction products with 2-(2-Aminoethyl)aminoethanol and urea	CCC.
Octadecanoic acid reaction products with diethylene triaminetriethyl phosphate and urea	CCC.
oleyl chloride	CCC.

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, 1980--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	
Product from the reaction of stearyl nitrate candelilla wax-formaldehyde phosphorus trichloride and picoline	CCC.
Tallow ester with polyethylene glycol	CCC.
1,3,5-Triazine-2,4,6-triamine-N ¹ ,N ¹ ,N ¹ -tris(methoxymethyl)-N ¹ ,N ¹ ,N ¹ -tris(octadecyloxy)methyl	CCC.
Tri(benzyloxymethyl)trimethoxymethylmelamine	DUP.
Urea polymers with formaldehyde and methanol	CCC.
Textile chemicals, other than surface active agents, all other	DAN, DUP, EKT, MIL.
UREA, BY END-USE MARKETS:	
Urea, primary solution (Report on 100% urea-content basis)	ACS, AGY, APD, ARM, BNP, BOR, CAC, CFA, CFI, CHN, CNC, FRI, GCC, GPI, HKY, HPC, MSC, OMC, ORO, PLC, SMP, SNI, SOH, TER, TRI, TVA, UOC, VLN, WIC, WYC, X.
*UREA IN COMPOUNDS OR MIXTURES (100% BASIS):	
*Urea in feed compounds (100% Basis)	ACS, AGY, APD, CAC, SNI, SOH, TER, TRI, VLN, WYC.
*Urea in liquid fertilizer (100% Basis)	ACS, AGY, ARM, BNP, CFA, CFI, CHN, CNC, FRI, GPI, HKY, HPC, MSC, ORO, PLC, SMP, SNI, SOH, TER, TRI, TVA, VLN, WLC, X.
*Urea in plastics (100% Basis)	BOR, OMC, SOH, TRI.
*Urea in solid fertilizer (100% Basis)	ACS, AGY, APD, CFA, CFI, CNC, GCC, HPC, MSC, OMC, SOH, TER, TRI, TVA, UOC, VLN, WLC.
*Urea in compounds and mixtures (100% Basis), all other	BNP, PFN, SOH(E), TER, WYC.
AMINO ACIDS AND THEIR SALTS:	
Glutamic acid hydrochloride	LEM.
Glycine (Aminoacetic acid), non-medical	CHT.
Levodopa (antiparkinsonian)	MON, MRK.
*METHIONINE AND ITS SALTS:	
Methionine (animal feed grade)	DGC, RDA.
Methionine, hydroxy analogue, calcium salt	DUP, MON.
Potassium glutamate	LEM.
Amino acids and salts, all other	BRS, MRK.

TABLE 3.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY
OF MANUFACTURERS, 1980

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 1980 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ACS	Allied Chemical Corp.	FER	Ferro Corp. Keil Chemical Div.
ACY	American Cyanamid Co.	FMT	Fairmount Chemical Co., Inc.
AFP	Allied Chemical Corp., Fibers & Plastics Co. Div.	FND	Fiber Industries, Inc.
AGY	Agway, Inc., Olean Nitrogen Complex	FRF	Firestone Tire & Rubber Co., Firestone Synthetic Fibers Co.
AKS	Arkansas Co., Inc.	FRI	Farmland Industries, Inc.
ALC	Alco Chemical Corp.	GAF	GAF Corp.
ALL	Alliance Chemical Corp.	GBF	GBF Fermentation Industries, Inc.
ALX	Alox Corp.	GCC	W. R. Grace & Co.
APD	Atlas Powder Co. Sub. of Tyler Corp.	GFS	G. Frederick Smith Chemical Co.
ARM	USS Agri-Chemicals Div. of U.S. Steel Corp.	GHR	Good Hope Refineries, Inc.
BAK	Baker International-Magna Corp.	GLY	Glyco Chemicals, Inc.
BCK	Beckman Microbics	GPC	Grain Processing Corp.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	GPI	Goodpasture, Inc.
BKL	Millmaster Onyx Group, Millmaster Chemical Co. Div.	GRD	W. R. Grace & Co., Polymers & Chemical Div.
BKM	Buckman Laboratories, Inc.	GTL	Great Lakes Chemical Corp.
BLZ	Belzal Corp.	GYR	Goodyear Tire & Rubber Co.
BNP	Bison Nitrogen Products Co.	HCC	Hatco Chemical Corp.
BOR	Borden, Inc., Borden Chemical Div.	HKY	Hawkeye Chemical Co.
BRS	Bristol-Meyers Co.	HMP	W. R. Grace & Co., Organic Chemicals Div.
BUK	Buckeye Cellulose Corp.	HN	Tenneco Chemicals, Inc.
CAC	Cominco American, Inc., Camex Operation	HPC	Hercules, Inc.
CCA	Interstab Chemicals, Inc.	HST	American Hoechst Corp., Industrial Chemicals Div.
CCC	C.N.C. Chemical Corp.	HXL	Hexcel Corp., Hexcel Chemical Products
CCW	Carstab Corp.	JFR	George A. Jeffreys & Co., Inc.
CEL	Celanese Corp., Celanese Fibers Co.	KCU	Kennecott Minerals Co., Utah Copper Div.
CFA	Cooperative Farm Chemicals Association	LEM	Napp Chemicals, Inc.
CFI	CF Industries, Inc.	MAK	MAK Chemical Corp.
CGY	Ciba-Geigy Corp.	MCI	Mooney Chemicals, Inc.
CHH	CHR. Hansen's Laboratory, Inc.	MLL	Milliken & Co., Milliken Chemical Co.
CHN	N-ReN Corp., Cherokee Nitrogen Div.	MLS	Miles Laboratories, Inc., Biotechnology Group
CHP	C. H. Patrick & Co., Inc.	MMC	MCB Manufacturing Chemists, Inc.
CHT	Chattem, Inc.	MON	Monsanto Co.
GNC	Columbia Nitrogen Corp.	MOR	Marathon Morco, Co.
COC	Columbia Organic Chemicals Co., Inc.	MRK	Merck & Co., Inc.
CRN	CPC International, Inc., Amerchol Corp.	MSC	Mississippi Chemical Corp.
CRT	Crest Chemical Corp.	MYO	Mayo Chemicals Co., Inc.
DA	Diamond Shamrock Corp.	NTL	NL Industries, Inc.
DAN	Dan River, Inc., Chemical Products Div.	OMC	Olin Corp.
DCC	Dow Corning Corp.	OMS	E. R. Squibb & Sons, Inc.
DGC	Degussa Corp.	ORO	Chevron Chemical Co.
DIX	Dixie Chemical Co., Inc.	PAR	Pennzoil Co., Penreco Div.
DOL	Castle & Cooke, Inc., Castle & Cooke Foods, Hawaii Pineapple Div.	PAS	Pennwalt Corp.
DOW	Dow Chemical Co.	PEL	Pelron Corp.
DUP	E. I. duPont de Nemours & Co., Inc.	PFN	Pfanstiehl Laboratories, Inc.
EK	Eastman Kodak Co.:	PFZ	Pfizer, Inc.
EKT	Tennessee Eastman Co. Div.	PIC	Pierce Chemical Co.
ELC	Elco Corp., Sub. of Detrex Chemical Industries, Inc.	PLB	P-L Biochemicals, Inc.
ENJ	Exxon Chemical Americas	PLC	Phillips Petroleum Co.
ESA	East Shore Chemical Co.		
ESX	Essex Chemical Corp.		

SYNTHETIC ORGANIC CHEMICALS, 1980

TABLE 3.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY
OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
PMP	Premier Malt Products, Inc.	SW	Sherwin-Williams Co.
PPG	PPG Industries, Inc.	SWS	Stauffer Chemical Co., SWS Silicones Div.
PTT	Petro-Tex Chemical Corp.	SYT	Synthron, Inc.
QCP	Quaker Chemical Corp.	TER	Terra Chemicals International, Inc.
RBC	Fike Chemicals, Inc.	TER	Terra Nitrogen, Inc.
RDA	Rhone-Poulenc, Inc.	TNA	Ethyl Corp.
RH	Rohm & Haas Co.	TRI	Triad Chemical
RPC	Millmaster Onyx Group, Refined Onyx Co. Div.	TRO	Troy Chemical Corp.
RSA	R.S.A. Corp.	TVA	Tennessee Valley Authority
S	Sandoz, Inc., Colors & Chemicals Div.	TX	Texaco, Inc.
SCP	Henkel Corp.	UCC	Union Carbide Corp.
SFA	Stauffer Chemical Co., Agricultural Div.	UOC	Union Oil Co. of California, Union Chemicals Div.
SHC	Shell Co., Shell Chemical Co. Div.	UPJ	Upjohn Co.
SHP	Shepherd Chemical Co.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SKP	Shakespeare Co., Monofilaments Div.	VLN	Simcal Chemical Co.
SM	Mobil Oil Corp.:	WAY	Phillip A. Hunt Chemical Corp., Organic Chemical Div.
	Mobil Chemical Co.:	WBC	Worthington Diagnostic Div. of Millipore Corp.
	Chemical Coatings Div.	WBG	White & Bagley Co.
	Phosphous Div.	WLC	Agrico Chemical Co.
SMP	J.R. Simplot Co.	WTC	Witco Chemical Co.
SNI	Kaiser Aluminum & Chemicals Corp., Kaiser Agricultural Chemicals Div.	WYC	Wycon Chemical Co.
SOH	Vistron Corp.		
SPD	General Electric Co., Silicone Products Dept.		
SPR	Scientific Protein Laboratories, Inc.		

Note.--Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 149 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

Kenneth J. Conant, III

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 are those used for refrigerants, aerosols, solvents and a wide range of chemical intermediates.

U.S. production of miscellaneous cyclic and acyclic chemicals in 1980 amounted to 94.4 billion pounds, a decrease of 4.5 percent compared with 1979. U.S. sales for 1980 totaled 36.1 billion pounds valued at \$11.7 billion. Compared with 1979, sales quantity decreased 9.0 percent, while sales value increased by 14.5 percent. Production of miscellaneous cyclic chemicals comprised only 2.0 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 chlorinated hydrocarbons (not otherwise halogenated), the largest segment of this group, decreased from 24.8 billion pounds in 1979 to 23.0 billion pounds in 1980, or by 7.5 percent. Sales of chlorinated hydrocarbons declined from 8.6 billion pounds in 1979 to 7.5 billion pounds in 1980, or by 12 percent. Production of fluorinated hydrocarbons increased from 873.5 million pounds in 1979. This segment of the of the halogenated hydrocarbons industry is expected to resume its decline because of Federal regulations limiting the use of certain fluorinated hydrocarbons.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1980

[Listed below are all miscellaneous cyclic and acyclic chemicals for which any reported data on production or sales may be published. (Leader(...)) 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	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	94,368,268	36,138,748	11,672,157	\$0.32
CYCLIC				
Total-----	1,888,182	1,036,710	1,421,490	1.37
Benzoic acid, sodium salt-----	18,266	15,115	9,513	.63
Benzoyl peroxide-----	6,857	7,014	18,343	2.62
Bis(2,4-dichlorobenzoyl) peroxide-----	108	98	1,732	17.67
tert-Butyl peroxybenzoate-----	...	2,531	5,950	2.35
2,6-Di-tert-butyl-p-cresol (BHT):				
Food grade-----	11,488	9,066	11,261	1.24
Tech. grade-----	9,679	8,691	13,657	1.57
Dioxane-----	...	6,823	5,327	.78
Hexamethylenetetramine, tech. grade-----	90,925	38,062	519,580	13.65
Maleic anhydride-----	303,533	218,361	85,348	.39
α-Pinene-----	103,338	...	...	...
β-Pinene-----	46,351	...	...	....
Tall oil, chemically modified-----	1,700	...	...	...
Tall oil salts-----	6,108	5,594	4,288	.77
Terpene hydrocarbons, monocyclic (Solvenol)-----	49,400	33,435	7,875	.24
All other miscellaneous cyclic chemicals-----	1,240,429	691,920	738,616	1.07
ACYCLIC				
Total-----	92,480,086	35,102,038	10,250,667	.29
NITROGENOUS COMPOUNDS				
Total-----	7,293,111	2,305,890	1,088,387	.47
Amides, total-----	311,640	122,192	91,938	.75
Acrylamide-----	76,856	...	...	...
All other amides-----	234,784	122,192	91,938	.75
Amines, total ² -----	1,493,404	509,474	366,308	.72
Butylamines, total-----	55,080	48,035	33,999	.71
n-Butylamine, mono-----	3,249	2,488	1,880	.76
Di-n-butylamine-----	5,000	3,918	3,261	.83
Tri-n-butylamine-----	819	627	722	1.15
All other butylamines-----	46,012	41,002	28,136	.69
Diethylamine-----	15,252	7,805	5,771	.74
Diisopropylamine-----	4,562	...	...	...
Isopropylamine, mono-----	54,836	54,590	25,654	.47
Triethylamine-----	15,721	11,893	9,898	.83
All other-----	1,347,953	387,151	290,986	.75
2-Diethylaminoethyl methacrylate-----	711	...	...	...
2-Dimethylaminoethanol (N,N-Dimethylethanol-amine)-----	9,980	8,428	7,140	.85
Dimethylaminoethyl methacrylate-----	3,074	2,601	4,565	1.76
Ethanolamines, total-----	376,093	349,185	159,130	.46
2,2'-Aminodiethanol (Diethanolamine)-----	122,819	109,652	50,243	.46
2-Aminoethanol (Monoethanolamine)-----	130,196	124,978	55,896	.45

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	per pound
<i>ACYCLIC--Continued</i>				
<i>NITROGENOUS COMPOUNDS--Continued</i>				
Ethanolamines--Continued				
2,2',2''-Nitrilotriethanol (Triethanolamine)-----	123,078	114,555	52,991	\$0.46
Hexamethylene diamine adipate (Nylon salt)-----	732,071	...	...	...
Nitriles, total-----	3,788,408	1,060,183	275,155	.26
Acetonitrile-----	25,221	...	...	...
Acrylonitrile-----	1,829,893	853,124	241,787	.28
2-Methylactonitrile (Acetone cyanohydrin)-----	937,929	50,326	11,555	.23
Nitriles, all other-----	995,365	156,733	21,813	.14
All other nitrogenous compounds-----	577,730	253,827	184,151	.73
<i>ACIDS, ACYL HALIDES, AND ANHYDRIDES</i>				
Total-----	12,351,586	1,493,429	582,800	.39
Acetic acid, synthetic, 100%-----	2,976,772	514,995	90,285	.18
Acetic anhydride, 100%-----	...	118,569	35,408	.30
Acrylic acid-----	611,172	68,966	27,851	.40
Chloroacetic acid-----	15,715	...	...	...
Dodecenylsuccinic anhydride-----	2,294	2,345	2,854	1.22
Fatty acids, partially hydrogenated-----	9,180	...	...	...
Fumaric acid-----	39,828	28,588	14,321	.50
Propionic acid-----	102,975	69,753	15,739	.23
All other acids, acyl halides, and anhydrides-----	8,593,650	690,213	396,342	.57
<i>SALTS OF ORGANIC ACIDS</i>				
Total-----	306,095	277,370	194,785	.70
Acetic acid salts, total-----	28,884	24,542	17,952	.73
Potassium acetate-----	...	1,629	1,804	1.11
Sodium acetate-----	20,501	18,244	7,865	.43
Zinc acetate-----	...	432	537	1.24
All other-----	8,383	4,237	7,746	1.83
Calcium neodecanoate-----	79	86	109	1.27
Calcium propionate ³ -----	20,945	10,722	4,661	.43
2-Ethylhexanoic acid (α -Ethylcaproic acid)				
salts, total-----	14,741	13,225	29,250	2.21
Calcium 2-ethylhexanoate-----	1,897	1,874	1,749	.93
Cobalt 2-ethylhexanoate-----	2,927	2,365	13,200	5.58
Lead 2-ethylhexanoate-----	1,856	1,758	1,462	.83
Manganese 2-ethylhexanoate-----	885	908	878	.97
Zinc 2-ethylhexanoate-----	814	752	693	.92
Zirconium 2-ethylhexanoate-----	2,687	2,532	4,895	1.93
All other-----	3,675	3,036	6,373	2.10
Lactic acid salts-----	1,439	1,573	1,577	1.00
Oxalic acid salts, total-----	192	211	497	2.36
Ammonium oxalate-----	...	86	279	3.24
All other-----	192	125	218	1.74
Sodium propionate ⁴ -----	4,585	3,353	1,610	.48

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued				
<i>SALTS OF ORGANIC ACIDS--Continued</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Stearic acid salts, total ⁵ -----	74,145	73,000	56,317	\$0.77
Aluminum distearate-----	...	1,227	1,552	1.26
Aluminum mono- and tristearates-----	1,222	1,268	1,325	1.04
Barium stearate-----	661	672	541	.81
Calcium stearate-----	43,991	42,964	28,179	.66
Lithium stearate-----	...	373	493	1.32
Magnesium stearate-----	5,482	5,389	4,573	.85
Zinc stearate-----	17,204	17,054	14,679	.86
All other-----	5,585	4,053	4,975	1.23
All other salts of organic acids-----	161,085	150,658	82,812	.55
<i>ALDEHYDES</i>				
Total-----	8,378,505	2,303,687	294,129	.13
Butyraldehyde-----	915,699	...	...	...
Formaldehyde (37% by weight) ⁶ -----	5,555,349	1,795,135	126,203	.07
Isobutyraldehyde-----	259,233	...	...	...
Propionaldehyde-----	249,460	6,951	1,657	.24
All other-----	1,398,764	501,601	166,269	.33
<i>KETONES</i>				
Total-----	2,994,375	2,518,196	626,358	.25
Acetone:				
From cumene-----	1,653,621	1,402,496	280,324	.20
From isopropyl alcohol-----	422,158	...	...	...
2-Butanone (Methyl ethyl ketone)-----	586,815	593,933	184,536	.31
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	68,547	32,770	12,495	.38
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	168,281	170,426	60,476	.35
4-Methyl-3-penten-2-one (Mesityl oxide)-----	31,762	11,780	5,224	.44
All other-----	63,191	306,791	83,303	.27
<i>ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED</i>				
Total-----	14,864,546	7,792,802	1,613,091	.21
Alcohols, C ₁₁ or lower, unmixed, total-----	13,896,680	7,196,100	1,318,386	.18
Butyl alcohols:				
n-Butyl alcohol (n-Propylcarbinol)-----	790,493	442,239	121,743	.28
Isobutyl alcohol (Isopropylcarbinol)-----	125,463	101,780	22,607	.22
Ethyl alcohol, synthetic ⁷ -----	1,450,769	1,159,446	315,659	.27
2-Ethyl-1-hexanol-----	367,178	217,148	74,984	.35
n-Hexyl alcohol-----	41,537	21,686	8,866	.41
Isopropyl alcohol-----	1,835,604	1,025,853	235,404	.23
Methanol, synthetic-----	7,152,974	3,389,450	319,635	.09
Propyl alcohol (Propanol)-----	178,248	143,756	43,709	.30
All other-----	1,954,414	694,742	175,779	.25
Alcohols, C ₁₂ and higher, unmixed-----	165,239	77,987	48,263	.62
Mixtures of alcohols, total-----	802,627	518,715	246,442	.48
C ₁₁ or lower only-----	176,994	111,660	48,143	.43
C ₁₂ or higher only-----	556,764	335,422	181,309	.54
All other-----	68,869	71,633	16,990	.24

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued				
ESTERS OF MONOHYDRIC ALCOHOLS	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	4,897,923	2,706,210	1,065,861	\$0.39
Bityl acetates:				
n-Butyl acetate-----	126,107	108,549	38,237	.35
Isobutyl acetate-----	67,422	41,314	12,542	.30
Butyl acrylate-----	347,206	152,013	69,344	.46
tert-Butyl Peroxy-2-Ethylhexanoate-----	2,056	2,054	6,469	3.15
tert-Butyl peroxy-pivalate-----	1,645	1,676	7,253	4.33
Dibutylmaleate-----	3,438	3,099	1,773	.57
Di(2-ethyl-1-hexyl) maleate-----	396	...	...	...
Dilauryl-3,3'-thiodipropionate-----	3,410	3,044	4,424	1.45
Dioctyl maleate-----	4,405	...	...	...
Ethyl acetate (85%)-----	233,646	218,417	54,953	.25
Ethyl acrylate-----	268,245	142,900	58,707	.41
2-Ethyl-1-hexyl acrylate-----	67,855	56,086	30,690	.55
Fatty acid esters, not included with plasticizers or surface-active agents-----	22,956	22,040	15,172	.69
Lauryl methacrylate-----	...	369	539	1.46
Methyl methacrylate-----	779,831	225,352	109,651	.49
Phosphorus acid esters, not elsewhere specified-----	95,819	76,099	78,236	1.03
Propyl acetate-----	50,288	47,517	17,040	.36
Vinyl acetate-----	1,921,511	1,007,559	246,960	.25
All other-----	901,687	598,122	313,871	.52
POLYHYDRIC ALCOHOLS				
Total ⁸ -----	5,728,359	3,986,105	1,266,722	.32
1,4-Butanediol-----	107,608	...	...	...
Ethylene glycol-----	4,385,731	3,008,147	806,327	.27
Glycerol, synthetic only ⁹ -----	140,578	137,784	78,063	.57
Pentaerythritol-----	116,519	110,237	63,062	.57
Propylene glycol-----	487,526	426,762	155,967	.37
Sorbitol (70% by weight)-----	200,117	129,872	59,824	.46
All other-----	290,280	173,303	103,479	.60
POLYHYDRIC ALCOHOL ESTERS				
Total-----	176,555	153,480	104,120	.68
POLYHYDRIC ALCOHOL ETHERS				
Total-----	1,650,422	1,200,133	467,072	.39
2-Butoxyethanol-----	200,512	196,011	73,673	.38
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)-----	42,016	36,641	14,519	.40
Diethylene glycol-----	382,412	217,741	56,158	.26
Dipropylene glycol-----	27,144	26,119	9,401	.36
2-Ethoxyethanol-----	200,746	88,876	33,046	.37
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)-----	30,702	27,765	9,604	.35
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-----	18,282	...	...	...
2-Methoxyethanol (Ethylene glycol monomethyl ether)-----	97,262	86,597	29,558	.34
2-(2-Methoxyethoxy)ethanol (Diethylene glycol mono- methyl ether)-----	24,422	20,964	7,364	.35
Polyethylene glycol-----	109,627	90,020	40,273	.45

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued				
POLYHYDRIC ALCOHOL ETHERS--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Polypropoxy ethers-----	15,349	15,713	9,589	\$0.61
Polypropylene glycol-----	30,207	18,409	9,217	.50
Tetraethylene glycol-----	20,712	16,303	7,842	.48
Triethylene glycol-----	122,726	105,526	42,874	.41
All other-----	328,303	253,448	123,954	.49
HALOGENATED HYDROCARBONS				
Total-----	23,863,056	8,160,246	1,822,966	.22
Chlorinated hydrocarbons, total-----	22,955,747	7,497,664	1,329,239	.18
Carbon tetrachloride-----	709,591	384,348	44,134	.11
Chlorinated paraffins (C ₁₀ -C ₃₀):				
35%-64% chlorine-----	77,256	69,424	23,730	.34
65% or more chlorine-----	22,645	13,615	7,240	.53
Chloroethane (Ethyl chloride)-----	396,378	172,228	35,867	.21
Chloroform-----	353,098	340,810	71,156	.21
Chloromethane (Methyl chloride)-----	362,322	165,973	29,534	.18
1,2-Dichloroethane (Ethylene dichloride)-----	11,107,831	1,125,639	114,147	.10
Dichloromethane (Methylene chloride)-----	563,942	320,270	70,824	.22
1,2-Dichloropropane (Propylene dichloride)-----	76,953	...	...	...
Tetrachloroethylene (Perchloroethylene)-----	765,290	591,079	93,251	.16
1,1,1-Trichloroethane (Methyl chloroform)-----	692,269	649,933	156,911	.24
Trichloroethylene-----	266,485	283,949	55,603	.20
Vinyl chloride, monomer (Chloroethylene)-----	6,465,880	3,235,681	569,509	.18
All other chlorinated hydrocarbons-----	1,095,807	144,715	57,333	.40
Chlorodifluoromethane (F-22)-----	227,573	140,725	154,917	1.10
Dichlorodifluoromethane (F-12)-----	294,979	264,132	147,413	.56
Trichlorofluoromethane (F-11)-----	158,080	117,702	57,044	.48
All other halogenated hydrocarbons-----	226,677	140,023	134,353	.96
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS				
Total-----	9,975,553	2,204,490	1,124,376	.51
2-Butanone peroxide-----	6,329	6,522	11,519	1.77
Carbon disulfide-----	376,669	321,544	33,535	.10
Epoxides, ethers, and acetals, total-----	7,546,964	1,390,458	522,299	.38
Ethylene oxide-----	5,220,400	530,986	182,539	.34
Propylene oxide-----	1,767,165	...	...	...
All other epoxides, ethers, and acetals-----	559,399	859,472	339,760	.40
Hydrocarbons, not elsewhere specified-----	...	5,500	8,936	1.62
Mixtures not specifically itemized-----	199,121	187,746	79,580	.42
Organo-tin compounds-----	31,800	19,574	63,814	3.26
Pine oil, synthetic-----	44,156	44,918	24,823	.55
Phosgene (Carbonyl chloride)-----	1,042,331	...	...	...
Silicone fluids-----	230,259	60,515	139,819	2.31

SYNTHETIC ORGANIC CHEMICALS, 1980

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1980--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued				
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Sodium methoxide (Sodium methylate)-----	7,934	7,906	7,760	\$0.98
All other miscellaneous acyclic chemicals-----	489,990	159,807	232,291	1.45

¹Calculated from rounded figures.

²Statistics exclude production and sales of fatty amines. Statistics on fatty amines are included in the section "Surface-Active Agents."

³Calcium propionate statistics for 1979 were production, 26,175,000 pounds; sales quantity, 14,236,000 pounds; and sales value, \$5,820,000.

⁴Sodium propionate statistics for 1979 were production, 5,164,000 pounds; sales quantity, 3,462,000 pounds; and sales value, \$1,536,000.

⁵Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section "Surface-Active Agents."

⁶The production data for 1979 was understated.

⁷Statistics for production of specially denatured alcohol, 300,251,979 wine gallons, and completely denatured alcohol 98,363,363 wine gallons, for calendar year 1980 are compiled from data supplied by the Bureau of Alcohol, Tobacco, and Firearms.

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

1980 production of glycerol, both natural and synthetic, was 300,300,000 pounds, as reported by the Department of Commerce.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980

[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. COMPANY IDENTIFICATION CODES WHICH ARE FOLLOWED BY AN "(E)" ARE SO LABELED BECAUSE THE COMPANY FAILED TO SUPPLY THE U.S. INTERNATIONAL TRADE COMMISSION WITH THEIR DATA IN SUFFICIENT TIME FOR ITS INCLUSION IN THIS REPORT. THE COMPANY IS PRESUMED TO HAVE CONTINUED THE PRODUCTION OF THE COMPOUND IN QUESTION IN 1980 AND THE VOLUME OF PRODUCTION AND SALES HAS BEEN ESTIMATED BY THE USITC STAFF MEMBERS]

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
6-Acetoxy-2,4-dimethyl-1,3-dioxane	: GIV.
Acetylcyclohexane sulfonyl peroxide	: WTL.
Alkylphenolalkyleneopolyamine formaldehyde copolymer	: X.
Alkylphenol formaldehyde copolymer	: X.
Alkylphenoxypolybutylene glycol	: BAS.
1-(2-Aminoethyl)piperazine	: JCC, TX, UCC.
1-(2-Aminoethyl)piperazine, technical	: UCC.
3-Aminopropylcyclohexylamine	: ABB.
1-(3-Aminopropyl)morpholine	: JCC, TX.
1-(2-Aminopropyl)piperazine	: JCC.
Amyl p-dimethylaminobenzoate	: VND.
BENZOIC ACID SALTS:	
*Sodium benzoate, U.S.P.	: HCP, KLM, MAL, PFZ.
*Sodium benzoate, tech.	: HN, PFZ.
Benzoic acid salts, all other	: MOH.
p-Benzoquinone (p-Quinone)	: EKT.
Benzothiazole	: ACY, RCI.
Benzo-triazole, substituted	: CGY.
Benzoyl peroxide	: AZT, CAD, NOC, WTC, WTL.
Benzoyl alcohol	: KLM, MNR, SFS, TNA, VEL.
Benzyl alkyl pyridinium chloride	: BAK.
Benzyl cocoalkyl dimethyl ammonium chloride	: BAK.
*Bis(2,4-dichlorobenzoyl) peroxide	: CAD, WTC, WTL.
Bis(α,α-dimethylbenzyl)peroxide	: WTL.
Boron fluoride - phenol complex	: ACS.
Butyl benzoate	: CIN, TCC, VEL.

CYCLIC

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2 (and 3)-tert-Butyl-4-methoxyphenol (BHA)-	EKT.
*tert-Butyl peroxybenzoate	AZI, CAD, WTC, WTL.
4-tert-Butylpyrocatechol	BKI, CRZ, DOM.
Camphene	HPC, SCM.
Caprolactam (2-Oxohexamethylenimine)	APP, CNP, DRC.
Cellulose acetate phthalate	X.
Centralite-1 (N,N'-Diethyl-N,N'-diphenylurea)-	VDM.
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	DOM.
β-Chloro-tert-butylbenzene	TNA.
Cumene hydroperoxide	CLK, USS, WTC.
Cyanuric acid	FMB, MON, OMC.
CYCLOHEXENE-1,2-DICARBOXYLIC ACID (TETRAHYDROPHthalic ACID), DISUBSTITUTED, POLYESTER SALTS:	
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid), disubstituted, polyester salts, tin salt-	X.
1,4-Cyclohexylenedimethanol	EKT.
Cyclopropane	OH.
Decabromobiphenyl or ether	DOM, GTL.
Decahydrophthalene (Decalin)	DUP.
Dehydroacetic acid or sodium salt	EKT, GNN.
Dialkyl naphthalene	X.
1,4-Diazobicyclo(2.2.2)octane	JCC, TX, X.
Diazodinitrophenol	HPC.
2,5-Di(benzoyl peroxy)-2,5-dimethylhexane	WTL.
2,5-Di-tert-butylhydroquinone	EKT.
1,3-Dichloro-5,5-dimethylhydantoin	GLY.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione (Dichloro isocyanuric acids and salts)	FMB, OMC.
4,4'-Dichloro-3-(trifluoromethyl)carbanilide	CGY.
2,5-Dihydrothiophene-1,1-dioxide (Sulfolene)	PLC.
3,5-Dihydroxy-3,5-dimethyl-1,2-peroxycyclopentane	WTC, WTL.
2,2'-Dihydroxy-4-methoxybenzophenone	ACY.
Diiodomethyl-p-tolyl sulphone	ABB.
Diisopropylbenzene hydroperoxide	HPC, WTC.
Diketene	BRD, EKT.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL, EKT.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol	MRK.
Diocetyl tin phthalate	X.
*Dioxane (1,4-Diethylene oxide)	CWN, DOM, FER, UCC.
1,3-Dioxolane	FER.
2,6-DI-TERT-BUTYL-P-CRESOL (BHT):	
*2,6-Di-tert-butyl-p-cresol, (BHT), Food grade	HXL, KPT, SHC, SHX, SM, USR.
*2,6-Di-tert-butyl-p-cresol, (BHT), Technical grade	HXL, KPT, SHC, SHX, SM.
Dodecyl diphenyl oxide	X.
1-(Dodecyl oxy)-2-hydroxybenzophenone	EKT.
1,2-Epoxy-3-phenoxypropane (glycidyl phenyl ether)	WTC.
6-Ethoxy-12-dihydro-2,2,4-trimethyl quinoline	MON.
2-Ethylhexyl benzoate	TCC.
2-Ethylhexyl-p-dimethylaminobenzoate	VHD.
2-Ethylhexyl tallate	CHP.
4-Ethylmorpholine	TX.
FURAN DERIVATIVES:	
2-Furaldehyde (Furfural)	QKO.
Tetrahydrofurfuryl alcohol	QKO.
Furan derivatives, all other	AIC.
Gallic acid, tech.	MAL.
Glyceryl p-aminobenzoate	VAD.
*Hexamethylenetetramine, tech.	BOR, HKD, HMP, HN, OMC, PLS, MCL.
Homomenthyl salicylate	HUM, NEO, WTC.
Hydrindantin	HEX, PIC.
Hydroquinone, di(β-hydroethyl)ether	EKT.
p-Hydroxybenzoic acid, butyl ester	HN.
p-Hydroxybenzoic acid, ethyl ester	HN.
p-Hydroxybenzoic acid, methyl ester	HN, LEM.
p-Hydroxybenzoic acid, propyl ester	HN, LEM.
N-(Hydroxyethyl)piperazine	JCC, TX.
2-Hydroxy-4-methoxybenzophenone	ACI, GLY.
2-Hydroxy-4-methoxy-5-sulfobenzophenone trihydrate	ACY.
2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole	ACY.
1,2,3-Indantrione monohydrate (Ninhydrin)	PIC.
Isopropyl-o-cresols	GAF.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
LACTONES:		
Caprolactone		UCC.
Glucono-6-lactone		PFZ.
*Maleic anhydride		AMO, ASH, DKA, HN, KFT, MON, RCI, USS.
P-Menthane		HPC.
8-p-Menthyl hydroperoxide		HPC.
4-Methoxyphenol		ASL, EKT.
Methylaziridine		ARS.
2,2'-Methylenebis[4-chlorophenol] (Dichlorophene)		GIV.
2,2'-Methylenebis[3,4,6-trichlorophenol] (Hexachlorophene)		GIV.
Methyl gallate		BKL.
4-Methylmorpholine		JCC, TX.
1-Methyl-2-pyrrolidone, monomer		GAF.
Methyltetrahydrophthalic anhydride		MIL.
Mono-tert-butylhydroquinone		EKT.
Morpholine		DOM, JCC, TX.
Morpholine salt of p-toluene sulfonic acid		AHB, SHX, SOL(H).
Octabromodiphenyl oxide		GTL.
Phenothiazine		WAG.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)		DOM, TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether)		DOM.
Phthalic acid, lead salt, (Dibasic)		ALI.
Picramic acid, sodium salt		SDC.
Pinane		SCM.
Pinane hydroperoxide		SCM.
2-Pinanol (cis and trans)		SCM.
*α-Pinene		ARZ, NCI, SCM.
*β-Pinene		ARZ, HPC, NCI, SCM.
Pinene, sulfate		ARZ, HPC.
Pinene, wood		HPC.
Poly-4-(2-acryloxyethoxy)-2-hydroxybenzophenone		ACY.
Polyethylene glycol, α-dinonylphenyl ether		BAK.
Polyethylene glycol, α-nonylphenyl ether		BAK.
Polyethylene glycol, α-nonylphenyl ether phosphate		BAK.

CYCLIC--CONTINUED

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Polypropylene glycol glycerol triether and epichlorohydrin bisphenol epoxy resin	BAK.
Propyl gallate	EKT.
Resorcinol monobenzoate	EKT.
ROSIN ACID SALTS:	
Calcium resinate	CBY.
Salicylic acid, lead salt	ALL, SHP.
Styrene oxide	UCC.
Succinic anhydride	ORO.
*Tall oil, chemically modified	ARC, BAK, FOC, WPG, WVA, ZGL, X.
Tall oil dimer acid, methyl esters	ARC, BAK, FOC, WPG, WVA, ZGL, X.
*TALL OIL SALTS (LINOLEIC-ROSIN ACID SALTS):	NLC.
Calcium manganese tellate	MCI, SHP.
Calcium tellate	CCA, HN, MCI, X.
Cobalt tellate	HN, MCI, SHP.
Lead manganese tellate	MCI, SHP.
Lead tellate	HN, MCI.
Manganese tellate	HN, MCI, SHP.
Tallow alkyl tellate	X.
Zinc tellate	MCI.
Tall oil salts, all other (Linoleic-rosin acid salts)	ARC, CBY, GAF, KCH, MCI, SHP.
Tannic acid, U.S.P.	MAL.
*Terpene hydrocarbons, monocyclic (Solvenol)-	HPC, NCI, SCM.
Tetrabromobisphenol A	GTL.
n-Tetradecenylsuccinic anhydride	HM, MCI.
1,2,3,4-Tetrahydronaphthalene (Tetralin)	HNY.
Tetrahydrothiophene	DUP.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)	PAS.
[2,2'-Thiobis(4-octylphenolate)]-n-butylamine nickel salt	PLC.
Thiophene	ACY.
Triallyl cyanurate	PMS.
3,4,4'-Trichlorocarbanilide	ACY.
1,3,5-Trichloro-s-triazine-2,4,6-(1H,3H,5H)trione (Trichloroisocyanuric acid)	MON.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
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.
Triphenyltin hydroxide	X.
1-Vinyl-2-pyrrolidinone--other copolymers-	GAF.
1-Vinyl-2-pyrrolidinone-methylacrylic acid, dimethyl- amine ethyl ester, copolymer	GAF.
1-Vinyl-2-pyrrolidinone, monomer	GAF.
1-Vinyl-2-pyrrolidinone--vinyl acetate copolymer	GAF, RSA.
Cyclic chemicals, all other--	AAE, ACY, ALB, ALD, AMB, ARA, BAK, BKL, BOC, CAD, CGY(E), CHP, COC, COS, CWN, DOM, DUP, EK, EKT, EVN, FMT, GAF, GIV, GLY, GTL, HK, HMY, JCC, KCH, MIL, MMC, MON, NES, ORO, PAC, PAS, PEL, PEN, PFN, PIC, S, SBC, SCM, SFS, SHP, SK, SM, STC, SW, TCC, TLC, THI, TX, UCC, UPJ, VEL, VIK, WCC, WIN, WTC, WTL, X, X, X, X, X, X.
ACYCLIC	
*NITROGENOUS COMPOUNDS:	
Acetamide hydrochloride	WTC.
Acetamidoethanol (N-Acetyl-ethanolamine)	ALB, SEC.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea-	FMT.
Allyl trimethylammonium chloride	UOC.
2-Aminoethanol (Monoethanol amine) sulfate	EVN.
Aminoethoxyethanol	JCC, TX.
2-(2-Aminoethylamino)ethanol (Aminoethylethanol- amine)	DOM, HDG, UCC.
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate)	EVN.
2-Amino-2-ethyl-1,3-propanediol-	IMC.
2-Amino-2-(hydroxymethyl)-1,3-propanediol [Tris- (hydroxymethyl)aminomethane]	IMC.
2-Aminomalonate hydrochloride-	ABB.
2-Amino-2-methyl-1,3-propanediol	IMC.
2-Amino-2-methyl-1,3-propanediol condensate-	IMC.
2-Amino-2-methyl-1-propanol-	IMC.
2-Amino-2-methyl-1-propanol hydrochloride-	CCC.

TABLE 2. -- MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
3-Amino-1-propanol	ALB.
*AMIDES:	
Acetamide	ACS.
*Acrylamide monomer	ACY, DOM, X.
1,1'-Azobisformamide	FMT, MPI(E), USR.
2-Chloro-N-(hydroxymethyl)-acetamide	SDM.
Coconut oil amide	ARC, FTX, HUM.
N,N-Diethyldodecanamide	EK.
N,N-Dimethylacetamide	DUP, MON, UPJ, X.
N,N-Dimethylacetoacetamide	EKT.
Dimethylaminoethylmethacrylate acrylamide	X.
N,N-Dimethylformamide	AIP, DUP.
Erucamide	ARC, HUM, HXL, WTC.
Erucamide - lauramide	HXL.
N,N'-Ethylenebis-oleamide (Oleic acid-ethylene-diamine condensate (Amine/acid ratio = 1/2))	GLY, HUM, WTC.
N,N'-Ethylenebis(stearamide)	CCW, GLY, HUM, WTC.
Ethylmonoethanolamide	DA, GAF.
Fish oil fatty acid amide	HUM, WTC.
Hexamethylenediammoniumoleate (C15 salt)	MON.
4-Hydroxy-4-methyl-2-pentanone acrylamide (diacetone acrylamide)	ACY.
12-Hydroxystearamide	CCW.
Methacrylamide	DUP.
N-Methylacetamide	EKT.
N,N'-Methylenebis(acrylamide)	ACY.
Oleamide (Octadecene amide)	ARC, HUM, HXL, WTC.
Oleoylpalmitamide	HUM, HXL.
Stearamide (Octadecane amide)	ARC, HUM, WTC.
Stearylerucamide	HXL, RPC.
Tallow amide, hydrogenated	ARC, HUM.
N-Trimethylsilylacacetamide	OMC.
Amides, all other	CMF, COS, HAL, HML, HUM, HXL, JCC, PAC, PIC, S, TKL, TX, X, X.
*AMINES:	
Allylamines	SHC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMINES--Continued	
Bis-hexamethylenetriamine amine	DUP.
*BUTYLAMINES:	
*n-Butylamine, mono	AIP, PAS, VGC.
sec-Butylamine, mono	PAS.
tert-Butylamine, mono	MON.
*Di-n-butylamine	AIP, PAS, VGC.
Diisobutylamine	AIP, VGC.
*Tri-n-butylamine	AIP, PAS, VGC.
n-Butylethylamine	PAS.
Diamylamine	VGC.
Di-tert-butylethyldiamine	VGC.
Diethylenetriamine	DOM, UCC.
N,N-Diethylethylenediamine	ALB.
*Diisopropylamine	AIP, PAS, UCC, VGC.
Dimethylaminopropylamine	ABB, JCC, TX.
1,3-Dimethylbutylamine	ORO.
ETHYLAMINES:	
*Diethylamine	AIP, PAS, UCC, VGC.
Ethylamine, mono	AIP, PAS, UCC, VGC.
*Triethylamine	AIP, PAS, UCC, VGC.
Ethylbutylamine	AIP, VGC.
Ethylene-diamine	DOM, JCC, TX, UCC.
(2-Ethylhexyl)amine, mono	VGC.
1,6-Hexamethylenediamine (Hexamethylenediamine)	CEL, DUP, MON.
3,3'-Iminobispropylamine	JCC, TX.
*Isopropylamine, mono	AIP, PAS, UCC, VGC.
METHYLAMINES:	
Dimethylamine	AIP, DUP, GAF.
Dimethylamine sulfate	EK, RH.
Methylamine, mono	AIP, DUP, GAF, X.
Trimethyl amine	AIP, DUP, GAF.
Mixed primary T-alkylamines	RH.
tert-Octylamine	RH.
n-Octylamine, mono	VGC.
Pentaethylenehexamine	UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMINES--Continued	
PENTYLAMINES (AMYLAMINES):	
Dipentylamine - - - - -	: PAS.
Pentylamine, mono - - - - -	: ALB, PAS.
Tripentylamine - - - - -	: PAS.
Polyalkylene polyamine - - - - -	: X.
1,3-Propanediamine (1,3-Diaminopropane) - - - - -	: JCC, TX.
PROPYLAMINES:	
Dipropylamine - - - - -	: AIP, PAS, VGC.
Propylamine, mono - - - - -	: AIP, PAS.
Tripropylamine - - - - -	: PAS.
Tetraethylenepentamine - - - - -	: DOM, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine - - - - -	: UCC.
Tetramethylethylenediamine - - - - -	: BKM, RH.
Triethylenetetramine - - - - -	: DOM, UCC.
Amines, all other - - - - -	: AAC, ALB, COS, DOM, EKT, HCP, HXL, JCC, MIL, MON, OMC, PAC, PAS, RBC, RSA, S, SCP, TX, UCC, USR, X.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea) - - - - -	: GLY.
tert-Butylaminoethanol - - - - -	: PAS.
tert-Butyldiethanolamine - - - - -	: PAS, UCC.
1-Butyl-3-ethyl-2-thiourea - - - - -	: PAS.
Butyl isocyanate - - - - -	: UPJ, X.
3-Chloro-2-hydroxypropyltrimethyl ammonium chloride - - - - -	: DOM.
Choline base - - - - -	: RH.
Choline bisulfite - - - - -	: WAY.
N-Cocoamidopropyl-N,N-dimethyl-N-sodium acetate, ammonium salt - - - - -	: BAK.
Cyanoacetic acid - - - - -	: KF.
1-(2-Cyanoethyl)ethyl urea - - - - -	: GAF.
2-Dibutylaminoethanol - - - - -	: ORO, PAS.
Dibutylaminomethanol - - - - -	: X.
1,3-Dibutyl-3-thiourea - - - - -	: PAS.
1,4-Dicyanobutene - - - - -	: DUP.
2-Diethylaminoethanol (N,N-Diethylethanolamine) - - - - -	: ORO, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol - - - - -	: UCC.
2-Diethylaminoethyl acrylate - - - - -	: BIM, CPS.
Diethylaminoethylacrylate, dimethyl sulfate, quaternary salt - - - - -	: CPS.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*2-Diethylaminoethyl methacrylate	BIM, CPS, DUP.
Diethylcarbamoyl chloride	GAF.
Diethylhydroxylamine	PAS.
1,3-Diethyl-2-thiourea	PAS.
2-Diisopropylaminoethanol (N,N-Diisopropylethanolamine)	PAS.
2-Diisopropylaminoethyl methacrylate	DUP.
Dimethylamine epichlorohydrin copolymer	X.
2-Dimethylaminoethanol hydrochloride	EVN.
*2-Dimethylaminoethanol (N,N-Dimethylethanolamine)	JCC, PAS, TX, UCC.
Dimethylaminoethyl acrylate	CPS.
*Dimethylaminoethyl methacrylate	AAC, BLM, CPS, RH.
Dimethylaminoethylmethacrylate, dimethyl sulfate, quaternary salt	CPS.
Dimethylaminoethylmethacrylate, methyl chloride, quaternary salt	AAC.
Dimethylaminomethanol	X.
Dimethylamino-2-propanol	PAS.
Dimethylamino propionitrile	ABB.
1,1-Dimethylhydrazine	OMC.
2,5-Dithiobiurea	FMT, GAF.
tert-Dodecylsuccinamide	GAF.
*ETHANOLAMINES:	
*2,2'-Aminodiethanol (Diethanolamine)	DOM, JCC, OMC, TX, UCC.
*2-Aminoethanol (Monoethanolamine)	DOM, GLY, JCC, OMC, TX, UCC.
Aminotrimethylaminoethyl ethanol (aminotrimethylaminoethyl ethanolamine)	EKT.
*2,2',2''-Nitrilotriethanol (Triethanolamine)	DOM, JCC, OMC, TX, UCC.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS, UCC.
Ethyl cyanoacetate	KF.
Glycine ethyl ester hydrochloride	SFS.
*Hexamethylenediamine adipate (Nylon salt)	CEL, DUP, MON.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris(hydroxymethyl)nitromethane)	IMC.
Iminodiacetic acid	HMP.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
ISOPROPANOLAMINES:	
1-Amino-2-propanol (Monoisopropanolamine)	DOM, X.
1,1'-Iminodi-2-propanol (Diisopropanolamine)	DOM, X.
1,1',1''-Nitrilotri-2-propanol (Triisopropanolamine)	DOM.
2-Isopropylaminoethanol	DOM, X.
Isopropyl ethylthionocarbamate	PAS.
Ketimine, tetrafunctional	DOM, ESX.
3-Methoxypropylamine	SM.
2-Methylaminoethanol (N-Methylethanolamine)	JCC, TX.
Methyl carbamate	PAS, UCC.
Methyl cyanoacetate	BKL.
Methyl α -cyanoacrylate	KF.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)	EKT.
Methyl isocyanate	DOM, PAS.
2-Methyl-2-nitro-1,3-propanediol	UCC.
2-Methyl-2-nitro-1-propanol	IMC.
Nitrated lard oil	IMC.
*NITRILES:	SM.
Acetonitrile	DUP, SOH, X.
*Acrylonitrile, monomer	ACY, DUP, MON, SOH.
Adiponitrile	DUP, MON.
α -Aminoacetoneitrile	SDM.
n-Butyronitrile	EKX, MYT.
Coconitrile	SHX.
Crotononitrile	RBC.
Glycolonitrile	KF.
Isobutyronitrile	AIP, EKX.
Lactonitrile	MON.
Methacrylonitrile	DOM.
Methylisobutyl ketone aminonitrile	HMP.
*2-Methylacetonitrile (Acetone cyanohydrin)	CYR, DUP, MON, RH.
Oleonitrile (Octadecene nitrile)	ARC, SHX.
Propionitrile	MON.
Stearonitrile (Octadecane nitrile)	SHX.
Tallow nitrile	ARC, SHX, SOL(E).
Tallow nitrile, hydrogenated	ARC, SHX, SOL(E), WYC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*NITRILES--Continued	
3,3'-Thiodipropionitrile	EVN.
Vinylacetoneitrile	RBC.
Nitriles, all other	DUP, HMP, SBC, X.
Nitroethane	IMC.
Nitromethane	IMC.
1-Nitropropane	IMC.
2-Nitropropane	IMC.
Octadecyl isocyanate	MOB.
2-Oximino-3-pentanone	PD.
Pentaerythritol tetranitrate	DUP, HPC.
n-Propylaminoethanol	PAS, X.
n-Propyl carbamate	BKL.
n-Propyldiethanolamine	PAS.
Propylisocyanate	HPC.
Sarcosine (N-Methylaminoacetic acid)	HMP.
Semicarbazide hydrochloride	FMT.
Tetrabutyl ammonium bromide	EK, HXL.
N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine	BAS.
Tetramethylammonium bromide	RSA.
Tetramethylammonium chloride	RSA.
Tetramethylguanidine	ACY.
Thiosemicarbazide	FMT.
Nitrogenous compounds, acyclic, all other	AAC, ALB, BKL, CHP, CT, DAN, DUP, EK, EVN, FKE, FMT, HLI, PEL, PFN, PFZ, PIC, RBC, REM, RH, RSA, S, SBC, SCP, SDW, STC, TCH, TKL, TNA, USR, X, X, X, X, X, X.
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES:	
ACETIC ACID, 100%:	
Acetic acid, recovered (100%)	ALP, CEL, DOM, EKT, MON, RDA, UCC.
*Acetic acid, synthetic (100%)	ARC, BOR, CEL, EKT, FMP, 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, PIC.
Acetyl chloride	WCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES--CONTINUED	
*Acrylic acid	CEL, DBC, RH, UCC.
Adipic acid	AFP, CEL, DUP, MON.
Azelaic acid	EMR.
Bromobutyric acid	GTL, WCC.
tert-Butylperoxy maleic acid	WTC, WTL.
Butyric acid	CEL, EKT.
Butyric anhydride	EKT.
Butyryl chloride	WCC.
Castor oil fatty acids, dehydrated	NIL.
*Chloroacetic acid, mono-	BUK, DOM, PFZ.
Chloroacetyl chloride	DOM, MON.
α-Chloropropionic acid, mono	DOM.
Citric acid	MLS, PFZ.
Crotonic acid (2-Butenoic acid)	EKT.
Decanoyl chloride	WTL.
Dimer acid (C-36 Aliphatic dibasic acid)	CBY, EMR.
Dithiodipropionic acid	EVN.
Dodecanedioic acid	DUP.
*Dodecenylsuccinic anhydride	BCC, DIX, HMY, PRL.
2-Ethylbutyric acid (Diethylacetic acid)	UCC.
2-Ethylhexanoic acid (α-Ethylcaproic acid)	EKT, UCC.
Fatty acids, hydrogenated	AZI, WTL.
*Fatty acids, partially hydrogenated	GLY, SHX.
Formic acid, 90%	CBY, GLY, SHX.
*Fumaric acid	CEL, UCC.
Gluconic acid, technical	AGC, HN, MON, PFZ, USS.
Glutaric anhydride	MON, PFZ.
Glycolic acid (Hydroxyacetic acid)	UCC.
n-Hexadecenylsuccinic anhydride	DUP.
n-Hexanoic acid	HMY.
Isoethionic acid (2-Hydroxyethanesulfonic acid)	HMY.
Isoascorbic acid (Erythorbic acid)	WTC.
Isobutyric acid	PFZ.
Isobutyric anhydride	EKT.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES--CONTINUED	
Iso-octadecenyloxy succinic anhydride	: HMY.
Itaconic acid (Methylenesuccinic acid)	: PFZ.
LACTIC ACID:	
Lactic acid, edible, 100%	: CLN, MON.
Lauryl chloride	: WCC, WTL.
Levulinic acid	: CCA.
Maleic acid	: ACS, PFN, PFZ.
Malic acid	: ACS, AGC.
Meraptoacetic acid (Thioglycolic acid)	: EVN.
3-Mercaptopropionic acid	: EVN.
Merapto succinic acid (Thiomalic acid)	: EVN.
Methacrylic acid	: DUP, RH.
Methanesulfonic acid	: PAS.
Methanesulfonyl chloride	: PAS.
Neodecanoic acid	: ENJ.
Neopentanoic acid	: ENJ.
Nonanoic acid (Pelargonic acid)	: EMR, GIV.
Nonenylsuccinic anhydride	: HMY.
Octanoyl chloride	: WCC.
Octenylsuccinic anhydride	: HMY.
Oleic acid	: ARC, GLY.
Oleoyl chloride	: HRT.
Oxalic acid	: ACS, HK, PFZ.
Oxidized fischer tropsch wax	: SNW.
Palmitoyl chloride	: X.
Peroxyacetic acid	: FMB, UCC.
Pivaloyl chloride	: AZT, MCC.
Polyacrylic acid	: BAK, BFG, DA, RH, SNW.
*Propionic acid	: CEL, EKT, UCC.
Propionic anhydride	: EKT.
Sebacic acid	: BMS, WTH.
Sebacoyl chloride	: EK.
Sorbic acid (2,4-Hexadienoic acid)	: MON.
Succinic acid	: ACS.
Tallow fatty acid	: ARC.
Thioacetic acid	: EVN.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES--CONTINUED	
3,3'-Thiodipropionic acid	EVN.
Thioloactic acid	EVN.
Valeric acid	UCC.
Acids, acid anhydrides, and acyl halides, all other	ARB, AMD, BCC, CRN, DIX, EK, ENJ, HMY, PD, PIC, SM, TX, UCC, WCC, X.
*SALTS OF ORGANIC ACIDS:	
*ACETIC ACID SALTS:	
Aluminum acetate	MCC.
Ammonium acetate	ACS, BKC, MAL.
Barium acetate	BKC, MAL.
Butyltin acetate (Dibutyltin diacetate)	X.
Calcium acetate	ACS, HFT, MAL.
Chromium acetate	ACS, SHP.
Cobalt acetate	SHS, SHP, UCC.
Copper acetate	BKC.
Lead acetate	BKC, MAL.
Lead subacetate	BKC, MAL.
Magnesium acetate	BKC, HCP, SHP.
Manganese acetate	SHS, SHP.
Mercuric acetate	COS, MAL.
Nickel acetate	BKC, HSH, SHP.
*Potassium acetate	BKC, HCP, MAL, NCC, X.
*Sodium acetate	ACS, ATL, BKC, DAN, EKT, HCP, MAL, NCC.
Sodium diacetate	HCP, NCC.
*Zinc acetate	ACS, BKC, CCC, MAL, NCC, SHP.
Zirconium acetate	TZC.
Acetic acid salts, all other	MAL, RBC, SHP, X.
Allylsulfonic acid, sodium salt	IOC.
CITRIC ACID SALTS:	
Ammonium citrate	MAL, PFZ.
Calcium citrate	PFZ.
Ferric ammonium citrate	PFZ.
Ferric citrate	MAL.
Potassium citrate	HXL, MLS, PFZ.
Sodium citrate	HXL, MAL, MLS, PFZ.
Citric acid salts, all other	X.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
*2-ETHYLHEXANOIC ACID (ALPHA-ETHYLCAPROIC ACID) SALTS:	
Aluminum 2-ethylhexanoate	DA, NOC, WTC.
Barium 2-ethylhexanoate	CCA.
Cadmium 2-ethylhexanoate	CCA.
*Calcium 2-ethylhexanoate	CCA, HN, MCI, TRO, WTC, X.
*Cobalt 2-ethylhexanoate	CCA, HN, MCI, SHP, TRO, WTC, X.
Copper 2-ethylhexanoate	CCA.
Dibutyltin di-2-ethylhexanoate	X.
Iron 2-ethylhexanoate	CCA, HN.
*Lead 2-ethylhexanoate	CCA, HN, SHP, TRO, WTC, X.
*Manganese 2-ethylhexanoate	CCA, HN, MCI, SHP, TRO, WTC, X.
Nickel 2-ethylhexanoate	MCI, SHP, WTC.
Potassium 2-ethylhexanoate	CCA, MCI, WTC.
Rare earths 2-ethylhexanoate	CCA, MCI.
Stannous 2-ethylhexanoate	WTC, X.
*Zinc 2-ethylhexanoate	CCA, HN, MCI, OMC, SHP, WTC, X.
*Zirconium 2-ethylhexanoate	CCA, HN, MCI, TRO, WTC, X.
2-Ethylhexanoic acid salts, all other	LIL, MCI, SHP.
FORMIC ACID SALTS:	
Potassium formate	HCP.
Sodium formate, refined	BKC.
Sodium formate, technical	CEL, PST, PVO.
Fumaric acid, lead salt	ALI.
GLUCOHEPTANOIC ACID SALTS:	
Calcium glucoheptanoate	PFN.
Sodium glucoheptanoate	DA, DAN, PFN.
GLUCONIC ACID SALTS:	
Sodium gluconate	PFN, PFZ, SFI.
Humic acids, sodium salts	X.
Isoascorbic acid, sodium salt (Sodium erythorbate)	PFZ.
Ianolin acid, barium salt	CRN.
Laurolic acid, dibutyltin salt	X.
Potassium glycolate	HCP, X.
Sodium ethyl oxalacetate	FMP.
Sodium glycolate	HCP.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
TERTIARY-ALPHA-ALKYL-CARBOXYLIC ACID SALTS	
(ISO-CARBOXYLIC ACID SALTS):	
Calcium t- α -alkylcarboxylate	MCI.
Cobalt t- α -alkylcarboxylate	MCI.
Iron t- α -alkylcarboxylate	MCI.
Isononoic acid, lead salt	CCA.
Lead t- α -alkylcarboxylate	MCI.
Manganese t- α -alkylcarboxylate	MCI.
t- α -Alkylcarboxylic acid salts (Isocarboxylic acid salts), all other	MCI.
*LACTIC ACID SALTS:	
Calcium lactate	SHF.
Sodium lactate (Nalac)	PFM.
Lactic acid salts, all other	SM.
LAURIC ACID SALTS:	
Lauric acid, barium-cadmium salt	X.
Lauric acid salts, all other	X.
LINOLEIC ACID SALTS:	
Calcium linoleate	CCA.
Cobalt linoleate	SHP.
MALEIC ACID SALTS:	
Dibutyltin maleate	X.
Tribasic lead maleate	ALI.
Maleic acid salts, all other	CCA, X.
MERCAPTOACETIC ACID (THIOGLYCOLIC ACID) SALTS:	
Ammonium mercaptoacetate	EVN.
Calcium mercaptoacetate	EVN.
Potassium mercaptoacetate	EVN.
Sodium mercaptoacetate	EVN.
Mercaptoacetic acid (Thioglycolic acid) salts, all other	CCA.
NEODECANOIC ACID SALTS:	
*Calcium neodecanoate	CCA, MCI, SHP.
Cobalt neodecanoate	MCI, SHP, UCC.
Lead-cobalt neodecanoate	MCI.
Lead neodecanoate	MCI.
Lithium neodecanoate	MCI.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
NEODECANOIC ACID SALTS--Continued	
Manganese neodecanoate	MCI, SHP.
Zirconium neodecanoate	MCI, SHP, WTC.
Neodecanoic acid salts, all other	MCI, SHP.
OCTANOIC-ACID (CAPRYLIC ACID) SALTS:	
Octanoic acid (Caprylic acid) salts, all other	ALI.
OLEIC ACID SALTS:	
Calcium oleate	TCC.
Copper oleate	WTC.
Oleic acid salts, all other	SHP.
*OXALIC ACID SALTS:	
*Ammonium oxalate	ACS, BKC, HML.
Potassium oxalate	BKC, HML.
Sodium oxalate	BKC, DA, HML.
PALMITIC ACID SALTS:	
Calcium palmitate	SYL.
PHOSPHORODITHIOIC ACID SALTS (DITHIOPHOSPHATES):	
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.
Phosphorodithioc acid salts (Dithiophosphates), all other	ACY.
PROPIONIC ACID SALTS:	
*Calcium propionate	HFT, MAL, PFZ.
*Sodium propionate	HFT, MAL, PFZ.
Propionic acid salts, all other	DUP, SHP.
RICINOLEIC ACID SALTS:	
Calcium ricinoleate	NLL.
Lithium ricinoleate	NLL.
Sodium sorbitol borate	ICI.
*SEARIC ACID SALTS:	
ALUMINUM STEARATES:	
*Aluminum distearate	KCH, NOC, SYF, WTC.
*Aluminum monostearate	DA, NOC, SYP, WTC.
*Aluminum tristearate	NOC, PEN, SYP, WTC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED		
*SALTS OF ORGANIC ACIDS--CONTINUED		
*STEARIC ACID SALTS--Continued		
Ammonium stearate		DA, HN, WPG.
*Barium stearate		HN, NOC, SYP, WTC.
Cadmium stearate		WTC.
*Calcium stearate		DA, FER, GCM, HN, MAL, NOC, PEN, SNM, SYP, WTC, X.
Cobalt stearate		SH, X.
Ferric stearate		WTC.
Lead stearate		ALI, NOC, WTC, X.
Lead stearate, dibasic		ALI.
*Lithium stearate		DA, NOC, PEN, SYP, WTC.
*Magnesium stearate		DA, HN, MAL, NOC, PEN, SYP, WTC.
Manganese stearate		NOC.
Nickel stearate		WTC.
Silver stearate		MAL.
*Zinc stearate		CCC, DA, HN, MHI, NOC, PEN, PLS, SYP, WTC, X.
Stearic acid salts, all other		NOC, WTC.
TARTARIC ACID SALTS:		
Potassium bitartrate		PFZ.
XANTHIC ACID SALTS:		
Potassium amylxanthate		DOM.
Potassium ethylxanthate		DOM.
Potassium pentylxanthate		ACY.
Sodium n-butylxanthate		KCC, USR.
Sodium isopropylxanthate		DOM.
Salts of organic acids, all other		EK, HSH, SDH, SHP, WPG, WTC, X.
*ALDEHYDES:		
Acetaldehyde		ACS, CEL, EKX, SHC, UCC.
Acrolein (Acrylaldehyde)		SHC, UCC.
*Butyraldehyde		CEL, DBC, EKX, UCC.
Chloral (Trichloroacetaldehyde)		MTO.
Crotonaldehyde		EKT.
2-Ethylbutyraldehyde		UCC.
2-Ethylhexanal (α -Ethylcaproaldehyde)		EKX, UCC.
2-Ethyl-2-hexen-1-al (2-Ethyl-3-propylacrolein)		UCC.
*Formaldehyde (37% HCHO by Weight)		AMR, ARC, BOR, CBD, CEL, DUP, GAF, GP, HFD, HN, HPC, IMC, MON, RCI, WCL.
Glutaraldehyde		UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ALDEHYDES--CONTINUED	
Glyoxal	ACY, UCC.
* Isobutyraldehyde	CEL, DBC, EKK, UCC.
Isopentanaldehyde, mixed isomers	UCC.
2-Methylvaleraldehyde (2-Methylpentanaldehyde)	UCC.
* Propionaldehyde	CEL, EKK, UCC.
Valeraldehyde (Pentanal)	UCC.
Aldehydes, acyclic, all other	HEX, RDA, UCC.
*KETONES:	
ACETONE:	
* Acetone from cumene	AFP, CLK, DOM, GE, GP, GYR, MON, SHC, SKO, SOC, UCC, USS.
* Acetone from isopropyl alcohol	EKT, ENJ, SHC, UCC.
Acetone, all other	OCC.
* 2-Butanone (Methyl ethyl ketone)	ATR, CEL, ENJ, SHC, UCC.
5-Chloro-2-pentanone	SDM.
1-Chloro-1-penten-3-one (β -Chlorovinyl ethyl ketone)	ABB.
Chloro-2-propanone (Chloroacetone)	EK, MRK.
Diethyl-1,3-dicarboxylic acid acetone	SDM.
Diisobutyl ketone	EKT.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	EKK.
2-Heptanone (Methyl amyl ketone)	EKT.
3-Heptanone (Ethyl butyl ketone)	UCC.
2,5-Hexanedione (Acetylacetone)	ARS.
* 4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	CEL, SHC, UCC.
Isovalerone (Diisobutyl ketone)	EKT, UCC.
Lactide (3,6-Dimethyl-2,5-p-dioxanedione)	CLN.
4-Methoxy-4-methyl-2-pentanone	SHC.
5-Methyl-2-hexanone (Methyl isobutyl ketone)	EKT.
* 4-Methyl-2-pentanone (Methyl isobutyl ketone)	EKT, ENJ, SHC, UCC.
* 4-Methyl-3-penten-2-one (Mesityl oxide)	ENJ, SHC, UCC.
2-Octanone (Hexyl methyl ketone)	WTH.
3-Octanone (Ethyl amyl ketone)	SHC.
2,4-Pentanedione (Acetylacetone)	UCC.
2-Pentanone	EKT.
3-Pentanone (Diethyl ketone)	HEX, ORT, UCC.
Pseudoionone	SCM.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*KETONES--CONTINUED	
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	UCC.
Ketones, all other	ARC, CHG, EKT, PFZ.
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED:	
*ALCOHOLS, C11 OR LOWER, UNMIXED (95% OR MORE PURE):	
Allyl alcohol	FMP, SHC.
AMYL ALCOHOLS:	
2-Methyl-1-butanol	UCC.
1-Pentanol	UCC.
BUTYL ALCOHOLS:	
*n-Butyl alcohol (n-Propylcarbinol)	ARC, CEL, CO, DBC, EKX, GAF, SHC, TNA, UCC.
sec-Butyl alcohol (Methylethylcarbinol)	ENJ, SHC.
tert-Butyl alcohol (Trimethylcarbinol)	SHC, X.
*Isobutyl alcohol (Isopropylcarbinol)	CEL, DBC, EKX, SHC, UCC.
1-Decanol	CO, TNA.
*Ethyl alcohol, synthetic only	EKX, PUB, SHC, UCC, USI.
*2-Ethyl-1-hexanol	DBC, EKX, SHC, UCC.
n-Heptyl alcohol	EKX.
*n-Hexyl alcohol	CO, EKJ, TNA, UCC.
Isodecyl alcohol	ENJ, USS.
Isoheptyl alcohol	ENJ.
Isononyl alcohol	ENJ, USS.
Iso-octyl alcohol	ENJ, USS.
*Isopropyl alcohol	ARC, ATR, ENJ, SHC, UCC.
*Methanol, synthetic only	ALP, ALM, BOR, CEL, DUP, GP, HN, MON.
2-Methyl-1-pentanol	UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	SHC.
1-Octanol	CO, TNA.
2-Octanol (sec-Capryl alcohol)	WTH.
*Propyl alcohol (Propanol)	ARC, CEL, EKX, UCC.
2-Propyn-1-ol (Propargyl alcohol)	GAF.
Alcohols, unmixed C11 or lower, all other	RDA, SCM.
*ALCOHOLS C12 OR HIGHER, UNMIXED (95% OR MORE PURE):	
Dodecyl alcohol (Lauryl alcohol)	CO.
1-Hexadecanol (Cetyl alcohol)	CO, CRN, PG.
2-Hexyl-1-decanol	SCP.
Isohexacosanol	SCP.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED--CONTINUED	
*ALCOHOLS, C12 OR HIGHER, UNMIXED (95% OR MORE PURE)--Continued	
1-Octadecanol (Stearyl alcohol)	CO, CRN, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)	SHX, SOL(E).
2-Octyl dodecanol-1	SCP.
1-Tetradecanol (Myristyl alcohol)	CO.
1-Tridecanol	ENJ.
2,6,8-Trimethyl-4-nonanol	UCC.
Alcohols, unmixed C12 or higher, all other	UCC.
MIXTURES OF ALCOHOLS:	
*Alcohol mixtures, other-	CO, CXI, EKX, ENJ, PG, SCP, TNA.
*Alcohol mixtures, C-12 or higher only	CO, PG, SHC, TNA.
*Alcohol mixtures, C-11 or lower only	CO, CFS, EKX, NCI, SHC, TNA, UCC, WTH.
*ESTERS OF MONOHYDRIC ALCOHOLS:	
Allyl methacrylate	AAC, BLM, GLY, SAR, SHC, UCC.
AMYL ACETATES:	
Amyl acetate (n-Pentyl acetate)	UCC.
BUTYL ACETATES:	
*n-Butyl acetate	CEL, EKT, UCC.
*Isobutyl acetate	CEL, EKT, EKX, UCC.
Bis(2-(bis(2-hydroxyethyl)amino)ethyl)diisopropyl titanate	DUP.
*Butyl acrylate	CEL, DBC, RH, UCC.
sec-Butyl chloroformate	PPG.
Butyl maleate	TCH.
Butyl mercaptopropionate	EVN.
Butyl methacrylate	DUP, JCC, RH, TX.
tert-Butyl peroxyacetate	AZT, WTL.
*tert-Butyl peroxy-2-ethylhexanoate	AZT, WTC, WTI.
tert-Butyl peroxyisobutyrate	AZT, WTL.
tert-Butyl peroxyisopropylcarbonate	WTL.
tert-Butyl peroxyundecanoate	WTC, WTL.
*tert-Butyl peroxyvalerate	AZT, WTC, WTI.
Butyl stearate	CRN.
Ceilyleicosyl methacrylate	RH.
Cetyl lactate	SEC, VND.
Decyl methacrylate	DUP.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Diallyl maleate	FMP.
Dibutyl fumarate	RCI.
*Dibutyl maleate	HN, RCI, USS.
Diethyl carbonate (Ethyl carbonate)	PPG.
Diethyl(ethoxymethylene)malonate	Kf.
Di(2-ethyl-1-hexyl) chloroformate	ESX.
*Di(2-ethyl-1-hexyl) maleate	CCC, CHP, CIN, DAN, HRT.
Diethyl maleate	ACY.
Diethyl malonate (Malonic ester)	Kf.
Diethyl oxalate (Ethyl oxalate)	FMP, PFZ.
Diethyl thiodicarbonate	FMP, PFZ.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)	ESX.
*Dilauryl-3,3'-thiodipropionate	EKX, PPG.
Dimethyl maleate	ACY, CCG, EVN, PPG.
Dimethyl malonate	AAC, BLM.
*Diocetyl maleate	Kf.
Di-n-propyl peroxydicarbonate	FTX, RCI, USS.
Distearyl-3,3'-thiodipropionate	WTL.
Dithiobis(stearyl propionate)	ACY, EVN.
Ditridecyl maleate	EVN.
Di(tridecyl)-3,3'-thiodipropionate	EFH.
Dodecylpentadecyl methacrylate	ACY, EVN.
2-Ethoxyethyl acetate	RH.
*Ethyl acetate (85%)	EKX, UCC.
Ethyl acetoacetate	CEL, EKT, EKX, MON, UCC.
*Ethyl acrylate	BRD, EKT.
Ethyl chloroformate	CEL, RH, UCC.
1-Ethyl-3-(1,2-dimethylpropyl) thiodicarbonate	ESX, PPG.
Ethylene carbonate	ESX.
2-Ethyl-1-hexyl acetate	JCC, TX.
*2-Ethyl-1-hexyl acrylate	EKT.
2-Ethyl-1-hexyl methacrylate	CEL, DBC, UCC.
1-Ethyl-3-(1-methylpropyl) thiodicarbonate	DUP.
1-Ethyl-3-(2-methylpropyl) thiodicarbonate	ESX.
Ethyl silicate	ESX.
	SFS.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Ethyl sulfate (Diethyl sulfate)	UCC.
*FATTY ACID ESTERS, NOT INCLUDED WITH PLASTICIZERS OR SURFACE ACTIVE AGENTS:	
Dimethyl brassylate	EMR.
Hexadecyl stearate	CYL(E).
Isopropyl lanolinolate	CRN.
Isopropyl linoleate	VND.
2-Mercaptoethyl oleate	GCM.
2-Mercaptoethyl stearate	GCM.
Methyl esters of coconut oil	FTX, PG, WTC.
Methyl esters of tallow	CHL, FER, HUM.
Methyl 12-hydroxystearate	NLL, WTH.
Methyl stearate	CHL, CIN.
Myristyl myristate	CYL(E), SBC, VND.
Tridecyl stearate	CIN.
Fatty acid esters, not included with plasticizers	
surface-active agents, all other	CCM, FER, HUM, SBC, VND, WTC.
Hexyl acetate	X.
Hexyl acrylate	CPS.
Isobutyl acrylate	UCC.
Isobutyl chloroformate	PPG.
Isobutyl isobutyrate	EKX.
Isobutyl methacrylate	RH.
Isodecyl acrylate	CPS.
Isodecyl methacrylate	CPS, RH.
Isodecyl thioglycolate	EVN.
Iso-octyl mercaptoacetate	CCM, EVN, GCM.
Iso-octyl-3-mercaptopropionate	EVN.
Isopropyl acetate	EKT, UCC.
Isopropyl chloroformate	PPG.
Isostearyl neopentanoate	SBC, VND.
Lauryl acetate	CPS.
Lauryl lactate	VND.
Lauryl methacrylate	CPS, RH, TX.
Laurylstearyl methacrylate	RH.
Menthallylidene diacetate	RDA.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
2-Methoxyethyl acrylate	: AAC, CPS.
Methyl acetate	: GRD, MON.
Methyl acetoacetate	: BRD, EKT.
Methyl acrylate, monomer	: CEL.
Methyl borate	: SFS.
Methyl chloroformate	: FSX, PPG.
Methyl formate	: CEL.
*Methyl methacrylate, monomer	: CYR, DUP, RH.
Methyl pivaloylacetate	: EKT.
Methyl sulfate (Dimethyl sulfate)	: DUP.
Myristyl lactate	: VND.
Octadecyl-3-mercaptopropionate	: EVN.
*PHOSPHORUS ACID ESTERS:	
Bis (2-Chloroethyl)-2-chloroethylphosphonate	: SM.
Bis(2-ethylhexyl) hydrogen phosphate	: SM.
Bis(2-ethylhexyl)hydrogen phosphite	: SM.
Butyl acid phosphate	: HDG, HK, SM.
Dibutyl butylphosphonate	: SM.
Dibutyl hydrogen phosphite	: SM.
Dibutyl pyrophosphate	: SM.
Diethyl hydrogen phosphite	: SM.
Diethyl phosphorochloridothionate	: SFA.
Dimethyl hydrogen phosphite	: SM.
Dimethyl methylphosphonate	: SM.
Dimethyl phosphoridothionate	: SFA.
2-Ethylhexyl ammonium tridecylphosphate	: DUP.
2-Ethylhexyl hydrogen phosphate	: SM.
Iso-octyl hydrogen phosphite	: HK.
Methyl dihydrogen phosphate	: MCB.
Trialkyl phosphite	: MCB.
Tri(butoxyethyl)phosphate	: SM.
Tributyl phosphate	: FMP, SFS.
Triethyl phosphite	: SFA, SM.
Triiso-octyl phosphite	: MCB, SM.
Triisopropyl phosphite	: SM.
Trimethyl phosphite	: SFA, SM.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
*PHOSPHOROUS ACID ESTERS--Continued	
Tris(butyl ethyl)phosphate	HN.
Tris(2-chloroethyl) phosphite	SM.
Tris-2-chloropropyl phosphate	SM.
Tris(2-ethylhexyl)phosphite	SM.
Phosphorus acid esters, all other	HDG, HK, JCC, MIL, MON, OMC, SM, X, X.
*Propyl acetate	CEL, EKT, UCC.
Propylene carbonate	JCC, TX.
Stearyl methacrylate	RH, TX.
Tetraethyl orthosilicate (Tetraethyl silicate)	UCC.
Tetraethyl silicate, condensed	ADC, UCC.
Tetraoctyl orthosilicate	MON.
TITANIC ACID ESTERS:	
Tetrabutyl titanate	DUP, SFS.
Tetraisoopropyl titanate	DUP, SFS.
Tetrakis(2-ethylhexyl)titanate	DUP.
Titanic acid esters, all other	DUP, X.
Triethyl orthoacetate	KF.
Triethyl orthoformate	KF.
Triethyl orthopropionate	KF.
Trimethyl orthoacetate	KF.
Trimethyl orthoformate	KF.
*Vinyl acetate, monomer	BOR, CEL, DUP, NSC, UCC, USI.
Monohydric alcohol esters, all other	EK, EMR, ESX, EVN, FER, KF, MON, SM, SNM, UCC, USR, VND, WCC, WPG, WTL, X, X.
*POLYHYDRIC ALCOHOLS:	
2,2-Bis(bromomethyl)-1,3-propanediol	DOM.
1,2(and 1,3)-Butanediol	CEL, DUP.
*1,4-Butanediol	BAS, GAF, X.
2-Butene-1,4-diol	GAF.
2-Butyne-1,4-diol	BAS, GAF.
3-Chloro-1,2-propanediol (Glycerol α -chlorohydrin)	DIX, EVN.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	DBC, EKX.
*Ethylene glycol	BAS, CAU, CEL, DIX, DOM, EKX, HCF, JCC, NMP, OCC, OMC, PPG, SHC, TX, UCC.
2-Ethyl-1,3-hexanediol	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane)	CEL, GLY.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*POLYHYDRIC ALCOHOLS--CONTINUED	
*glycerol, synthetic only	DOM, FMP, SHC.
1,6-Hexanediol	CEL.
Mannitol	ICI.
3-Mercapto-1,2-propanediol (Thioglycerol)	EVN.
2-Methyl-2,4-pentanediol (Hexylene glycol)	SHC, UCC.
2-Methyl-2-propyl-1,3-propanediol	BKL.
*Pentaerythritol	CEL, HFC, IMC(E), PST.
*Propylene glycol (1,2-Propanediol)	DOM, JCC, OCC, OMC, TX, UCC.
*Sorbitol (70% by Weight)	BRD, EHC, HDG, ICI, MRK, PFZ.
2,2,4-Trimethyl-1,3-pentanediol	EKX.
Polyhydric alcohols, all other	AIC, EK, ERX, JCC, SHC, TNA, TX, WTC.
ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS:	
*POLYHYDRIC ALCOHOL ESTERS:	
Bis(2-methoxyvinyl)maleate	GAF.
1,3-Butanediol dimethacrylate	SAR.
2-(2-Butoxyethoxy)ethyl acetate	EKT, UCC.
2-Butoxyethyl acetate	UCC.
Diethylene glycol adipate	DIX.
Diethylene glycol chloroformate	PPG.
Dipentaerythritol hexavaleratecaprylate caprate	PVO.
2-(2-Ethoxyethoxy)ethyl acetate	EKT, UCC.
Ethylene glycol diacetate	EKT, UCC.
Ethylene glycol dimercaptoacetate	EVN.
Ethylene glycol dimethacrylate	CPS, SAR.
Ethylene glycol hydroxyacetate	CCA.
Glycerol tricaprlylate caprate	PVO.
Glyceryl diacetate (Diacetin)	ARC, HAL.
Glyceryl monoacetate (Monoacetin)	ARC, HAL.
Glyceryl monothiolglycolate	EVN.
Glyceryl triacetate (Triacetin)	ARC, EKT, UCC.
Glycol adipate	MM.
1,6-Hexanediol diacrylate	CEL, SAR.
Hexylene glycol diacetate	UCC.
Hydroxyethyl acrylate	DOM.
Hydroxypropyl acrylate	DOM.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ESTERS--Continued	
Hydroxypropyl methacrylate	RH.
Lanolin acetate	CRN.
Lanolin alcohol acetate	CRN.
2-Methoxyethyl acetate	UCC.
2-Methoxyvinyl maleate	GAF.
Pentaerythritol stearate	GLY, X, X.
Pentaerythritol tetraacrylate	CEL, SAR, TKL.
Pentaerythritol tetrakis (3-Mercaptopropionate)	EVN.
Pentaerythritol tetravalerate heptanoate	PVO.
Polyethylene glycol dimethacrylate	SAR.
Polyethylene polypropylene glycol glyceryl triether maleate	BAK.
Propylene glycol dicaprylatecaprate	PVO.
Sucrose octa-acetate	HFT, PD.
2-Sulfoethyl methacrylate	DOM.
Tetraethylene glycol diacrylate	CEL, SAR.
Triethylene glycol diacetate	EKT.
Triethylene glycol diacrylate	CEL.
Triethylene glycol dimethacrylate	SAR.
Trimethylolpropane triacrylate	CEL, SAR.
Trimethylolpropane triheptanoate caprylate	PVO.
Trimethylolpropane trimethacrylate	SAR.
2,2,3-Trimethyl-1,3-pentanediol monoisobutyrate	EKX, TKL.
Polyhydric alcohol esters, all other	BAK, CCM, DUP, EFH, EVN, HUM, OMC, PG, SAR, SK, SM, SNW, TKL, UCC, USB, WM.
*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)	DOM, EKX, JCC, OMC, SHC, TX, UCC.
*2-(2-Butoxyethoxy)ethanol (Diethylene glycol butyl ether)	DOW, EKX, JCC, OMC, SHC, TX, UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ETHERS--Continued	
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)-	DOM, OMC, UCC.
1-Butoxyethoxy-2-propanol-	UCC.
*Diethylene glycol-	BAS, CEL, DIX, DOM, EKK, JCC, NMP, OMC, PPG(E), SHC, TX, UCC.
Diethylene glycol mono-N-propyl ether-	EKK.
Dimethoxyethane (Ethylene glycol dimethyl ether)	ASL, FER, OCC.
*Dipropylene glycol-	DOM, JCC, OMC, TX, UCC.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)	DOM, EKK, JCC, OMC, SHC, TX, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	DOM, EKK, JCC, OMC, SHC, TX, UCC.
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-	DOM, EKK, JCC, OMC, SHC, TX, UCC.
Ethylene glycol butyl ether-	DOM, OMC, UCC.
Ethylene glycol di-tributyl ether-	EKK.
Ethylene glycol di-triethyl ether-	EKK.
Ethylene glycol monoisobutyl ether-	OMC.
2-[2-(Hexyloxy)ethoxy]ethanol-	OMC, UCC.
2-(2-Isobutoxyethoxy)ethanol (Diethylene glycol monoisobutyl ether)-	UCC.
1-Isobutoxy-2-propanol (Propylene glycol isobutyl ether)-	DOM.
*2-Methoxyethanol (Ethylene glycol monomethyl ether)-	DOM, JCC, OMC, PPG, SHC, TX, UCC.
*2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)-	DOM, JCC, OMC, PPG, SHC, TX, UCC.
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)-	DOM, OMC, UCC.
2-(2-Methoxyethoxy)ethyl-2-methoxyethyl ether (Triethylene glycol dimethyl ether)-	ASL, OMC, SHX.
Methoxypolyethylene glycol-	DUP, UCC, WTC.
1-Methoxy-2-propanol-	DOM, UCC.
3-(3-Methoxypropoxy)propanol-	DOM.
3-[3-(3-Methoxypropoxy)propoxy]propanol-	DOM.
Monoethylene glycol mono-N-propyl ether-	EKK.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOL ETHERS--Continued	
Paraformaldehyde	CEL.
Polyethoxyethyl glycerol	WTC.
*polyethylene glycol	BAS, CAU, DA, DOM, DUP, HDG, JCC, OMC, S, TX, UCC, X.
Polyglycols, ethylene glycol and glycol ether, mixed	DOM, UCC.
Polyoxyalkalene glycol	OMC.
*POLYPROPOXY ETHERS:	
Polypropoxybutyl ether	BAS, DA, JCC, TX.
Polypropoxyglyceryl ether	BAK.
Polypropoxy ethers, all other	ICI, JCC, OMC, TNI, TX, UCC.
Polyoxypropylene polyoxyethylene glycol, mixed	PEL, UCC.
*polypropylene glycol	BAS, DOM, HDG, JCC, OMC, TX, UCC, WTC.
Polytetramethylene glycol ether	DUP, QKO.
Poly(1,1,1-trichlorobutane-2-ol)ethylene glycol dextrose ether	OMC.
Propylene glycol, mixed ethers	DOM.
Sorbitol, ethoxylated	GLY, ICI.
Sorbitol, propoxylated	ICI.
*Tetraethylene glycol	DOM, EKX, OMC, UCC.
1,1,3,3-Tetramethoxypropane	KF.
2,2'-Thiodiethanol (Thiodiglycol)	ORO.
*Triethylene glycol	CEL, DOM, EKX, JCC, PPG, SHC, TX, UCC.
Tripropylene glycol	DOM, OMC, UCC.
Polyhydric alcohol ethers, all other	BAK, CRN, EKX, GAF, JCC, OMC, TX, UCC, X, X.
* HALOGENATED HYDROCARBONS:	
BROMINATED (INCLUDING BROMOCHLORINATED) HYDROCARBONS	
1-Bromobutane (n-Butyl bromide)	WCC.
Bromochlorinated paraffin C ₁₀ -C ₂₀	FER.
Bromochloromethane	DOM.
Bromoethane (Ethyl bromide)	DOM, GTL.
1-Bromohexane (n-Hexyl bromide)	WCC.
1-Bromo-octadecane	HNY.
2-Bromopropane (Isopropyl bromide)	MCC.
3-Bromopropene (Allyl bromide)	MCC.
Bromotrichloromethane	OMC.
2,2-Dibromo-2-cyanoacetamide	DOM.

TABLE 2. -- MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HALOGENATED HYDROCARBONS--CONTINUED	
BROMINATED (INCLUDING BROMOCHLORINATED)	
HYDROCARBONS--Continued	
Dibromomethane (methylene bromide)	DOM.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOM.
Vinyl bromide (Bromoethylene)	TNA.
Brominated (Including bromochlorinated)	
hydrocarbons, all other	AIC, HMY, WCC.
*CHLORINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS	
*Carbon tetrachloride	ACS, DA, DOM, DUP, FRO, SFI.
CHLORINATED PARAFFINS (C10-C30):	
*Chlorinated paraffins, 35-64% chlorine	CCH, DA, DVC, FER, ICI, NEV, X.
*Chlorinated paraffins, less than 35% chlorine	FER.
*Chlorinated paraffins, 65% or more chlorine	DA, DVC, FER, NEV.
1-Chlorobutane (n-Butyl chloride)	PUB, UCC.
*Chloroethane (Ethyl chloride)	DOM, DUP, HPC, PPG, SFP, TNA.
*Chloroform	ACS, DA, DOM, FRO, SFI.
*Chloromethane (Methyl chloride)	ACS, CO, DCC, DOM, DUP, LCP, TNA, UCC.
3-Chloro-2-methyl-1-propene (Methallyl chloride)	FNP.
3-Chloropropene (Allyl chloride)	DOM, SHC.
1,4-Dichlorobutene	DUP.
*1,2-Dichloroethane (Ethylene dichloride)	ATR, BAS, BFG, CO, DA, DOM, FRO, ICI, OMC, PPG, SFP, SHC, TNA, UCC.
*Dichloromethane (Methylene chloride)	ACS, DA, DOM, FRO, LCP, SFI.
*1,2-Dichloropropane (Propylene dichloride)	BAS, DOM, OMC.
2,3-Dichloropropene	DOM.
Lauryl chlorides	HDM.
Octyl chloride	HDM, TNA.
*Tetrachloroethylene (Perchloroethylene)	DA, DOM, DUP, FRO, HK, PPG, SFI, TNA.
*1,1,1-Trichloroethane (Methyl chloroform)	DOM, FRO, PPG.
1,1,2-Trichloroethane (Vinyl trichloride)	DOM.
*Trichloroethylene	ACS, DOM, HK, PPG, TNA.
1,2,3-Trichloropropane	DOM, SHC.
1,2,3-Trichloropropene	DOM.
*Vinyl chloride, monomer (Chloroethylene)	BFG, BOR, CO, DA, DOM, ICI, MNO, PPG, SFP, SHC, TNA, USR.
Vinylidene chloride, monomer (1,1-Dichloroethylene)	DOM, PPG.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HALOGENATED HYDROCARBONS--CONTINUED	
*CHLORINATED (NOT OTHERWISE HALOGENATED)	
HYDROCARBONS--Continued	
Chlorinated (Not otherwise halogenated hydrocarbons, all other)	AIC, HDM, RDA, TNA, MCC, X.
FLUORINATED (INCLUDING OTHER FLUOROHALOGENATED)	
HYDROCARBONS:	
Bromotrifluoromethane	DUP, ICI.
1-Chloro-1,1-difluoroethane	PAS.
*Chlorodifluoromethane (F-22)	ACS, DUP, KAI, PAS, RCN.
Chloropentafluoroethane	DUP.
Chlorotrifluoroethylene (Trifluorovinyl chloride)	ACS, MMM.
Chlorotrifluoromethane	DUP.
*Dichlorodifluoromethane (F-12)	ACS, DUP, KAI, PAS, RCN.
Dichlorotetrafluoroethane	ACS, DUP, PAS.
1,1-Difluoroethane	ACS, DUP.
Hexafluoropropylene, monomer	DUP.
1-Iodoperfluorohexane	DUP.
Polytetrafluoroethylene ethyl iodine	DUP.
Tetrafluoroethylene, monomer	DUP, ICI, SCM.
Tetrafluoroethane	DUP.
*Trichlorofluoromethane (F-11)	ACS, DUP, KAI, PAS, RCN.
Trichlorotrifluoroethane	ACS, DUP.
Vinyl fluoride, monomer	DUP.
Vinylidene fluoride, monomer	PAS.
Fluorinated (Including other fluorohalogenated hydrocarbons, all other)	DUP, ICI, OMC.
IODINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS:	
Diiodomethane (Methylene iodide)	NTB, RSA.
Iodoethane (Ethyl iodide), non-medical	FMT, RSA.
Iodoform (Triiodomethane)	NTB.
Iodomethane (Methyl iodide)	FMT, RSA.
Halogenated hydrocarbons, all other	COC.
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS:	
Acetyl peroxide	WTL.
Aluminum isopropoxide (Aluminum isopropylate)	CHT, KCH.
*2-Butanone peroxide	CAD, NOC, RCI, WTC, WTL.
tert-Butyl hydroperoxide	AZI, OCC, WTC, WTL.
tert-Butyl peroxide (Di-tert-butyl peroxide)	AZI, SHC, WTL.
*Carbon disulfide	FNB, PAS, PPG, SFI.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
Decanoyl peroxide	WTC, WTL.
2,3-Dibromopropanol	GTL.
2,5-Dimethyl-2,5-bis(2-ethyl-1-hexanoyl peroxy)hexane	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3	WTL.
*EPOXIDES, ETHERS, AND ACETALS:	
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)	AAC, BLM, CPS.
Bis(2-chloroethoxy)methane (Dichloroethylformal)	TKL.
Bis(2-chloroethyl)ether (Dichlorodiethyl ether)	BKN, DOM.
Bis(2-chloro-1-methylethyl)ether (Dichloroisopropyl ether)	DOM.
Butylene oxide	DOM.
Butyl ether (Di-n-butyl ether)	DOM.
Butyl vinyl ether	PUB.
2-Chloroethyl vinyl ether	GAF.
Chloromethyl methyl ether	AAC.
2,2-Dichloro-1,1-difluoroethyl methyl ether	RH.
Dimercaptodiethyl ether	DOM.
Epichlorohydrin	EVN.
*Ethylene oxide	DOM, SHC.
Ethyl ether, U.S.P.	BAS, CAU, CEL, DOM, EKX, JCC, NWP, OMC, PPG, SHC, SNO, TX, UCC.
Ethyl ether, absolute	MAL, USI.
Ethyl ether, tech.	MAL, USI.
Ethyl vinyl ether	PUB, USI.
Glycidol (2,3-Epoxy-1-propanol)	GAF.
Isopropyl ether	DIX.
Methylal (Dimethoxymethane)	ENJ, SHC.
Methyl ether (Dimethyl ether)	CEL.
Methyl vinyl ether	DUP.
*Propylene oxide	GAF, UCC.
Epoxides, ethers, acetals, all other	BAS, DOM, JCC, OCC, OMC, TX.
1,2-Ethanedithiol	ATR, DA, DUP, GAF, PG, UCC, VIK, WLN, X, X.
Ethyl chlorothiolformate	RBC.
	SFA.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
FATS AND OILS, CHEMICALLY MODIFIED:	
Coconut oil (modified)	PVO.
Cocnut/palm kernel oil (modified)	PVO.
Hydrogenated tallow glycerides	CHL.
Soybean/cottonseed oil stearine	PVO.
Stearic acid glycerides and oxidized stearic acid glycerides	SDA.
Fats and oils, chemically modified, all other	DOM, PVO, SM.
Glutaraldehyde bis(sodium bisulfite)	EK, FMI.
Hexachlorodimethyl sulfone	SFS.
n-Hexadecyl disulfide	PAS.
*HYDROCARBONS:	
n-Decane	HMY, PLC.
2,5-Dimethylhexa-2,4-diene	SCM.
n-Dodecane	HMY, PLC.
Hexadecane	HMY.
Myrcene	SCM, X.
n-Nonane	PLC.
n-Octadecane	HMY.
Hydrocarbons, all other	AIC, HMY, PIC, SFS, SM.
Lauroyl peroxide	WTC, WTL.
2-Mercaptoethanol	ORO, PLC.
Methyl sulfide (Dimethyl sulfide)	CRZ, PAS.
Methyl sulfoxide (Dimethyl sulfoxide)	CRZ.
ORGANO-ALUMINUM COMPOUNDS:	
Diethylaluminum chloride	MHI, TNA, TSA.
Diethylaluminum iodide	TNA, TSA.
Diisobutylaluminum chloride	TNA, TSA.
Diisobutylaluminum hydride	TNA, TSA.
Ethylaluminum dichloride	TNA, TSA.
Ethylaluminum sesquichloride	TNA, TSA.
Isopropenylaluminum	TSA.
Methylaluminum sesquichloride	TNA.
Triethylaluminum	TNA, TSA.
Triisobutylaluminum	TNA, TSA.
Trimethylaluminum	MHI.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-ALUMINUM COMPOUNDS--Continued	
Organo-aluminum compounds, all other	HXL, REH, TNA, TSA.
ORGANO-BORON COMPOUNDS:	
Boron fluoride - ethyl ether complex	ACS.
1-Hexyl-1,2-dicarbododecaborane	X.
N-Methyl-methanamine with borane (1:1)	X.
2-Methyl-2-propanamine with borane(1:1)	X.
Thiobis(methane) with borane (1:1)	X.
Triethylborane	CLC.
Trimethoxyboroxine	CLC.
Trimethyl borate	MHI.
N,N,N-Trimethyl methanaminium octahydrotriborate	X.
Organo-boron compounds, all other	ACS, ADC, PIC, TSA.
ORGANO-LITHIUM COMPOUNDS:	
n-Butyllithium	FTE.
sec-Butyllithium	FTE.
ORGANO-MAGNESIUM COMPOUNDS:	
Methylmagnesium bromide	ARA.
Methylmagnesium chloride	ARA.
Organo-magnesium compounds, all other	TNA, TSA.
ORGANO-SILICON COMPOUNDS:	
N-(8-Aminoethyl)-γ-aminopropyl triethoxysilane	UCC.
γ-Aminopropyltriethoxysilane	UCC.
Amyltriethoxysilane	UCC.
α-Chloropropyltrichlorosilane	DCC.
Chloropropyltrimethoxysilane	DCC.
Chlorotrimethylsilane	DCC.
Dichlorodimethylsilane	DCC.
Dichloromethylsilane	DCC.
Dichloromethylvinylsilane	DCC.
Ethyltrichlorosilane	UCC.
α-Glycidoxypropyltrimethoxysilane	UCC.
Mercaptopropyltrimethoxysilane	UCC.
α-Methacryloxypropyltrimethoxysilane	UCC.
Methyltrimethoxysilane and polymethyltrisiloxane	DCC, UCC.
Polyoxyalkene silicones	UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-SILICON COMPOUNDS--Continued	
*Silicone fluids-	DCC, RSA, SCM, SPD, SMS, UCC.
Trichloromethylsilane-	DCC.
Trichloropropylsilane-	DCC.
Trichlorovinylsilane-	DCC, UCC.
Vinyltriethoxysilane-	UCC.
Vinyltris(2-methoxyethoxy)silane-	UCC.
Organo-silicone compounds, all other-	PIC, SPD, UCC.
*ORGANO-TIN COMPOUNDS:	
Bis(tributyltin)oxide-	X.
Dibutyltin bis(isooctylmercaptoacetate)-	CCM, GCM, X, X.
Dibutyltin bis(mercaptoacetate)-	GCM.
Dibutyltin bis(mercaptolaurate)-	GCM, X.
Dibutyltin dichloride-	CCM, GCM, X.
Dibutyltin isooctyl mercaptoacetate-	X.
Dibutyltin methoxide (Dibutylmethoxytin)-	CCA.
Dibutyltin oxide-	X.
Diocetyl tin chloride-	X.
Octyltin-	X.
Tributyltin chloride-	X.
Tributyltin fluozide-	X.
Organo-tin compounds, all other-	CCM, COS, GCM, MHI.
ORGANO-ZINC COMPOUNDS:	
Diethylzinc-	MHI, TSA.
Perchloromethanethiol (Perchloromethyl mercaptan)	SFC.
*Phosgene (Carbonyl chloride)-	ACS, DUP, MOB, OMC, PPG, RUC, UCC, UPJ, VDM.
*Pine oil, synthetic-	ARZ, NCI, SCM.
Potassium 2-methyl-2-butanol-	X.
Potassium 2-methyl-2-propanol-	X.
Sodium ethoxide-	FMP.
Sodium formaldehyde bisulfite-	DAN, EK.
Sodium formaldehyde sulfoxylate-	DA.
*Sodium methoxide (Sodium methylate)-	DA, HSH, OMC.
Succinyl peroxide-	WTL.
Miscellaneous acyclic chemicals, all other-	AAC, ALD, ARA, CAD, CCL, CLC, COS, DA, DUP, DUP, EK, EK, EKT, GAF, GLY, HCF, HMY, ICI, KCH, NCI, OMC, PAS, PEL, SHP, TNA, UCC, USR, MCC, WTL, X, X.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1980--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*MIXTURES NOT SPECIFICALLY ITEMIZED:	
*Mixtures of miscellaneous acyclic chemicals not specifically itemized-	ACS, ALX, CCM, CEL, CHP, HMY, ICI, JCC, MON, NCI, PFZ, PG, PIC, PMP, SYP, TNA, TX, UCC, VND, MCC.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY OF MANUFACTURERS, 1980

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 1980 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.	CGY	Ciba-Geigy Corp.
ABB	Abbott Laboratories	CHG	Mobay Chemical Corp., Agricultural Chemicals Div.
ACS	Allied Chemical Corp., Chemicals Co. Div.	CHL	Chemol, Inc.
ACY	American Cyanamid Co.	CHP	C. H. Patrick & Co., Inc.
ADC	Anderson Development Co.	CHT	Chattem, Inc.
AFP	Allied Chemical Corp., Fibers & Plastics Co. Div.	CIN	Stockhausen, Inc.
AGC	Alberta Gas Chemicals, Inc.	CLC	Callery Chemical Co. Div. of Mine Safety Appliances Co.
AIC	Albany International Corp.	CLK	Clark Oil & Refining Corp.
AIP	Air Products & Chemicals, Inc.	CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.
ALB	Ames Laboratories, Inc.	CMP	Commercial Products Co., Inc.
ALD	Aldrich Chemical Co., Inc.	CNP	Nipro Inc.
ALI	Associated Lead, Inc.	CO	Conoco, Inc.
ALM	Allemania Chemical Co.	COC	Columbia Organic Chemicals
ALX	Alox Corp.	COS	Cosan Chemical Corp.
AMB	American Bio-Synthetics Corp.	CPS	CPS Chemical Co.
AMD	Alameda Laboratories, Inc., Cyclo Chemical Div.	CRN	CPC International, Inc., Amerchol Corp.
AMO	Standard Oil Co. (Indiana)	CRZ	Crown Zellerbach Corp., Chemical Products Div.
AMR	Pacific Resins & Chemicals, Inc.	CT	Chemetals Corp.
ARA	Arapahoe Chemicals, Inc., Sub/Syntex U.S.A., Inc.	CWN	Upjohn Co., Fine Chemical Div.
ARC	Armak Co., Industrial Chemical Div.	CXI	Chemical Exchange Industries, Inc.
ARS	Arsynco, Inc.	CYL	Cyclo Chemicals Corp.
ARZ	Arizona Chemical Co.	CYR	CY/RO Industries, Inc.
ASH	Ashland Oil, Inc.	DA	Diamond Shamrock Corp.
ASL	The Ansul Co.	DAN	Dan River, Inc., Chemical Products Div.
ATL	Atlantic Chemical Corp.	DBC	Badische Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.	DCC	Dow Corning Corp.
AZT	Dart Industries, Inc., Aztec Chemicals Div.	DIX	Dixie Chemical Co., Inc.
BAK	Baker International - Magna Corp.	DKA	Denka Chemical Corp.
BAS	BASF Wyandotte Corp.	DOM	Dominion Products
BCC	Buffalo Color Corp.	DOW	Dow Chemical Co.
BCK	Beckman Microbics	DUP	E. I. duPont de Nemours & Co., Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	DVC	Dover Chemical Corp., Sub. of ICC Industries, Inc.
BKM	J. T. Baker Chemical Co.	EFH	E. F. Houghton & Co.
BKL	Millmaster Onyx Group, Millmaster Chemical Co. Div.	EHC	Ethi Chem Corp.
BKM	Buckman Laboratories, Inc.	EK	Eastman Kodak Co.:
BLM	Balchem Corp., ARC Chemical Div.	EKT	Tennessee Eastman Co. Div.
BOC	Biocrafts, Inc.	EKX	Texas Eastman Co. Div.
BOR	Borden Co., Borden Chemical Div.	EMR	Emery Industries, Inc.
BRD	Lonza, Inc.	ENJ	Exxon Chemical Americas
BUK	Buckeye Cellulose Corp.	ESX	Essex Chemical Corp.
CAD	Noury Chemical Corp.	EVN	W.R. Grace & Co., Organic Chemicals Div., Evans Chemetics
CAU	Calcasieu Chemical Corp.	FER	Ferro Corp.:
CBD	Chembond Corp.		Grant Chemical Div.
CBY	Crosby Chemicals, Inc.		Keil Chemical Div.
CCA	Interstab Chemicals, Inc.	FKT	Frank Enterprises, Inc.
CCC	C.N.C. Chemical Corp.		FMC Corp.:
CCH	Pearsall Chemical Corp.	FMB	Industrial Chemical Group
CCL	Catawba-Charlab, Inc.	FMB	Specialty Chemicals Group
CCW	Carstab Corp.	FMP	Industrial Chemical Group
CEL	Celanese Corp.:	FMT	Fairmount Chemical Co., Inc.
	Celanese Chemical Co.	FOC	Handschy Industries, Inc., Farac Oil & Chemical Div.
	Celanese Fibers Co.		

TABLE 3.-- MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY
OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
FRO	Vulcan Materials Co., Chemicals Div.	MHI	Thiokol Corp., Ventron Div.
FTE	Footo Mineral Co.	MIL	Milliken & Co., Milliken Chemical Co.
FTX	Finetex, Inc.	MLS	Miles Laboratories, Inc., Biotechnology Group
		MMC	MCB Manufacturing Chemists, Inc.
GAF	GAF Corp.	MMM	Minnesota Mining & Manufacturing Co.
GAN	Gane's Chemicals, Inc.	MNO	Monochem, Inc.
GCM	Cardinal Chemical Co. & Cardinal Manufacturing Co., Inc.	MNR	Monroe Chemical, Inc.
GE	General Electric Co., Plastics Business Operations	MOB	Mobay Chemical Corp.
GIV	Givaudan Corp.	MON	Monsanto Co.
GLY	Glyco Chemicals, Inc.	MRK	Merck & Co., Inc.
GP	Georgia-Pacific Corp.: Plaquemine Div. Resins Operations	MTO	Montrose Chemical Corp. of California
GRD	W. R. Grace & Co., Polymers & Chemical Div.	NCC	Niacet Corp.
GTL	Great Lakes Chemical Corp.	NCI	Union Camp Corp., Terpenes & Aromatics Div.
GYR	Goodyear Tire & Rubber Co.	NEO	Norda, Inc.
		NES	Ruetgers-Nease Chemical Co.
HAL	C.P. Hall Co.	NEV	Neville Chemical Co.
HCF	Hercofina	NOC	Norac Co., Inc. and Mathe Div.
HCP	Honig Chemical & Processing Corp.	NPI	Stephan Chemical Co., Polychem Dept.
HDG	Hodag Chemical Corp.	NSC	National Starch & Chemical Corp.
HDW	Hardwicke Chemical Co.	NTB	National Biochemical Co.
HEX	Hexagon Laboratories, Inc.	NTL	NL Industries, Inc.
HFT	Syntex Agribusiness, Inc.	NWP	Northern Petrochemicals Co.
HK	Hooker Chemical Co.:		
HKD	Hooker Chemicals & Plastics Corp., Durez Div.	OCC	Oxirane Corp., Sub. of Atlantic Richfield Co.
HLI	Millmaster Onyx Group, Onyx Chemical Co. Div.	OH	Airco, Inc., Ohio Medical Products Div.
HML	Hummel Chemical Co.	OMC	Olin Corp.
HMP	W. R. Grace & Co., Organic Chemicals Div.	ORA	The ORA Corp.
HMY	Humphrey Chemical Co.	ORO	Chervon Chemical Co.
HN	Tenneco Chemicals, Inc.	ORT	Roehr Chemicals, Inc.
HOC	Halocarbon Products Corp.		
HOF	Hoffmann-LaRoche	PAC	Pacific Anchor Chemical Corp.
HPC	Hercules, Inc.	PAS	Pennwalt Corp.
HRT	Hart Products Corp.	PD	Warner-Lambert Co.
HSH	Harshaw Chemical Co.	PEL	Pelron Corp.
HUM	Kraft, Inc., Humko Sheffield Chemical	PEN	CPC International, Inc., Penick Corp.
HXL	Hexcel Corp., Hexcel Chemical Products	PFN	Pfanstiehl Laboratories, Inc.
		PFZ	Pfizer, Inc. & Pfizer Pharmaceuticals, Inc.
ICI	ICI Americas, Inc. & Chemical Specialties Group	PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co.
IMC	International Minerals & Chemicals Corp. Nitroparaffin Div.	PIC	Pierce Chemical, Inc.
IOC	Synbron Corp., Synbron Chemical Div.	PLC	Phillips Petroleum Co.
		PLS	Plastics Engineering Co.
JCC	Jefferson Chemical Co., Inc.	PMP	Premier Malt Products, Inc.
		PPG	PPG Industries, Inc.
KAI	Kaiser Aluminum & Chemical Corp., Kaiser Chemical Div.	PST	Perstorp, Inc.
KCC	Kennecott Minerals Co., Chino Mines Div.	PUB	Publicker Industries, Inc.
KCH	Joseph Ayers, Inc.	PVO	PVO International, Inc.
KF	Kay-Fries Inc., Member Dynamit Nobel Group		
KLM	Kalama Chemical, Inc.	QKO	Quaker Oaks Co.
KPT	Koppers Co., Inc., Organic Materials Group		
		RBC	Fike Chemicals, Inc.
LCP	LCP Chemicals - West Virginia, Inc.	RCI	Reichhold Chemicals, Inc.
LEM	Napp Chemicals, Inc.	RCN	Racon, Inc.
LIL	Eli Lilly & Co.	RDA	Rhone-Poulenc, Inc.
		REH	Reheis Chemical Co. Div. of Armour Pharmaceutical Co.
MAL	Mallinckrodt, Inc.	REM	Remington Arms Co., Inc.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	RH	Rohm & Haas Co.
MCI	Mooney Chemicals, Inc.	RPC	Millmaster Onyx Group, Refined Onyx Co. Div.
		RSA	R.S.A. Corp.
		RUC	Rubicon Chemicals, Inc.
		S	Sandoz, Inc., Colors & Chemicals Div.
		SAR	Leski, Inc.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY
OF MANUFACTURERS, 1980--CONTINUED

Code	Name of company	Code	Name of company
SBC	Scher Chemicals, Inc.	TLC	Twin Lake Chemical, Inc.
SCM	SCM Corp.:	TNA	Ethyl Corp.
	Organic Chemicals Div.	TNI	The Gillette Co., Chemical Div.
	PCR, Inc.	TRN	Trinity Chemical Corp.
SCP	Henkel Corp.	TRO	Troy Chemical Corp.
SDC	Martin-Marietta Corp., Sodeyco Div.	TSA	Texas Alkyls, Inc.
	Sterling Drug, Inc.:	TX	Texasco, Inc.
SDH	Hilton Davis Chemical Co. Div.	TZC	Magnesium Elektron, Inc.
SDW	Sterling Organics Div.		
	Stauffer Chemical Co.:	UCC	Union Carbide Corp.
SFA	Agricultural Div.	UOC	Union Oil Co. of California
SFC	Calhio Chemicals, Inc.	UPJ	Upjohn Co.
SFI	Industrial Div.	USB	U.S. Borax & Chemical Corp.
SFP	Plastics Div.	USI	National Distillers & Chemicals Corp., U.S.
SFS	Specialty Chemical Div.		Industrial Chemicals Co.
SHC	Shell Oil Co., Shell Chemical Co. Div.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SHF	Kraft, Inc., Sheffield Products	USS	USS Chemicals Div. of U.S. Steel Corp.
SHP	Shepherd Chemical Co.		
SHX	Sherex Chemical Co., Inc.	VDM	Van DeMark Chemical Co., Inc.
SK	SmithKline Corp., SmithKline Chemicals Div.	VEL	Velsicol Chemical Corp.
SKO	Getty Refining & Marketing Co.	VGC	Virginia Chemicals, Inc.
SM	Mobile Oil Corp., Mobile Chemical Co.:	VIK	Viking Chemical Co.
	Chemical Coatings Div.	VND	Van Dyk & Co., Inc.
	Phosphorus Div.		
SNO	SunOlin Chemical Co.	WAG	West Agro-Chemical, Inc.
SNW	Sun Chemical Corp., Chemicals Div.	WAY	Phillip A. Hunt Chemical Corp., Organic
SOC	Standard Oil Co. of California, Chevron		Chemical Div.
	Chemical Co.	WCC	White Chemical Corp.
SOH	Vistron Corp.	WCL	Wright Chemical Corp.
SOL	Southland Corp., Chemical Div.	WLN	Wilmington Chemical Corp.
SPD	General Electric Co., Silicone Products Dept.	WM	American Can Co., Inolix Chemicals Div.
STC	American Hoechst Corp., Sou-Tex Works	WPG	West Point-Pepperell, Inc., Griffitex Chemical
SW	Sherwin-Williams Co.		Co. Sub.
SWS	Stauffer Chemical Co., SWS Silicones Div.	WTC	Witco Chemical Corp.
SYL	Sylvachem Corp.	WTH	Union Camp Corp.
SYP	Dart Industries, Inc., Synthetic Products Co.	WTL	Pennwalt Corp., Lucidol Div.
	Div.	WVA	Westvaco Corp., Polychemicals Dept.
		WYC	Wycon Chemical Co.
TCC	Sybron Corp., Chemical Division/Tanatex	WYT	Wyeth Laboratories, Inc., Wyeth Laboratories
TCH	Emery Industries Inc., Trylon Div.		Div. of American Home Products Corp.
TKL	Thiokol Corp.		
		ZGL	Carolina Processing Corp.

Note.--Complete names and addresses of the above reporting companies are listed in table 1 of the appendix. The above codes identify those of the 286 reporting companies and company divisions for which permission to publish was not restricted.

APPENDIX

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980

[Names of synthetic organic chemicals manufacturers that reported production and/or sales to the U.S. International Trade Commission for 1980 are listed below alphabetically, together with their identification codes as used in table 2 of the 15 individual sections of this report]

Identifi- cation code	Name of company	Office address
AEP	: A & E Plastik Pak Co., Inc., A & E Plastics-----	: 14505 Proctor Ave., Industry, CA 91749.
AZS	: AZS Corp.:	:
	: AZ Products Co. Div-----	: 2525 So. Combee Rd., Lakeland, FL 33801.
	: AZS Chemical Co. Div-----	: 762 Marietta Blvd., Atlanta GA 30318.
ABB	: Abbott Laboratories-----	: 14th St. and Sheridan Rd., N. Chicago, IL 60064.
ABS	: Abex Corp., Friction Products Group-----	: P. O. Box 3250, Winchester, VA 22601.
ACO	: Adco Chemical Co-----	: Rutherford and Delancey Sts. Newark, NJ 07105.
WLC	: Agrico Chemical Co-----	: P. O. Box 3166, Tulsa, OK 74101.
AGY	: Agway, Inc., Olean Nitrogen Complex-----	: 1446 Buffalo St., Olean, NY 14760.
OH	: Airco, Inc., Ohio Medical Products Div-----	: 3030 Airco Dr., P. O. Box 7550, Madison, WI 53701.
AIP	: Air Products & Chemicals, Inc-----	: P. O. Box 538, Allentown, PA 18105.
AMD	: Alameda Laboratories, Inc., Cyclo Chemical Div-----	: 1922 E. Guth St., Los Angeles, CA 90001.
AIC	: Albany International Corp-----	: 4644 Kenny Rd., Columbus, OH 43220.
AGC	: Alberta Gas Chemicals, Inc-----	: 7 Century Dr., Parsippany, NJ 07054.
ALC	: Also Chemical Corp-----	: 909 Mueller Dr., Chattanooga, TN 37406.
AAC	: Alcolac, Inc-----	: 3440 Fairfield Rd., Baltimore, MD 21226.
ALD	: Aldrich Chemical Co., Inc-----	: 940 W. St. Paul Ave., Milwaukee, WI 53233.
ALE	: Alex Chemical Co-----	: 119 N. Union St., Shenandoah, PA 17976.
ALG	: Allegheny Chemical Corp-----	: Gillis Ave., Ridgway, PA 15853.
ALM	: Allemania Chemical Co-----	: P. O. Box 716, Plaquemine, LA 70764.
ALL	: Alliance Chemical Corp-----	: 33 Avenue P, Newark, NJ 07105.
	: Allied Chemical Corp.:	:
ACS	: Chemicals Co. Div-----	: P. O. Box 2251-R, Morristown, NJ 07960.
AFP	: Fibers & Plastics Co-----	: 1411 Broadway, New York, NY 10018.
ACU	: Union Texas Petroleum Corp-----	: P. O. Box 2120, Houston, TX 77001.
APA	: Allied Products Corp., Acme Chemicals & Insulation	: P. O. Box 1404, New Haven, CT 06505.
	: Div.:	:
ALX	: Alox Corp-----	: 3943 Buffalo Ave., Niagara Falls, NY 14303.
APH	: Alpha Corp-----	: P. O. Drawer A, Collierville, TN 38017.
ALP	: Alpha Laboratories, Inc-----	: 1685 S. Fairfax St., Denver, CO 80222.
AMB	: American Bio-Synthetics Corp-----	: 710 W. National Ave., P. O. Box 4275, Milwaukee, WI 53204.
	: American Can Co.:	:
WIL	: Inolex Pharmaceutical Div-----	: 2600 Bond St., Park Forest South, IL 60466.
WM	: Inolex Chemicals Corp-----	: Jackson & Swanson Sts., Philadelphia, PA 19148.
MAR	: Lignin Chemicals Div-----	: Greenwich Office Park #8, Greenwich, CT 06830.
AC	: American Color & Chemical Corp-----	: 6525 Morrison Blvd., Charlotte, NC 28211.
	: Petrochemicals Div-----	: Route 202-206 North, Somerville, NJ 08876.
HST	: American Hoechst Corp:	:
	: Industrial Chemicals Div-----	: 129 Quidnick St., Coventry, RI 02816.
STC	: Sou-Tex Works-----	: P. O. Box 886, Mount Holly, NC 28120.
ASY	: American Synthetic Rubber Corp-----	: P. O. Box 32960, Louisville, KY 40232.
ALB	: Ames Laboratories, Inc-----	: 200 Rock Lane, Milford, CT 06460.
HVG	: Ametek, Inc., Haveg Div-----	: 900 Greenbank Rd., Wilmington, DE 19808.
AMV	: Amvac Chemical Corp-----	: 4100 E. Washington Blvd., Los Angeles, CA 90023.
ADC	: Anderson Development Co-----	: 1415 E. Michigan St., Adrian, MI 49221.
ASL	: Ansul Co-----	: 1 Stanton St., Marinette, WI 54143.
APX	: Apex Chemical Co., Inc-----	: 200 S. 1st St., Elizabethport, NJ 07206.
APO	: Apollo Colors, Inc-----	: 899 Skokie Blvd., Northbrook, IL 60062.
ARA	: Arapahoe Chemicals, Inc., Sub/Syntex U.S.A., Inc-----	: 2075 N. 55th St., Boulder, CO 80302.
KPP	: ARCO/Polymers, Inc-----	: 1500 Market St., Philadelphia, PA 19101.
ARN	: Arenol Chemical Corp-----	: 40-33 23d St., Long Island City, NY 11101.
ARZ	: Arizona Chemical Co-----	: Berdan Ave., Wayne, NJ 07470.
AKS	: Arkansas Co., Inc-----	: 185 Foundry St., Newark, NJ 07105.
ARC	: Armak Co., Industrial Chemical Div-----	: 300 S. Wacker Dr., Chicago, IL 60606.
AGP	: Armour-Dial, Inc-----	: 2000 Aucutt Rd., Montgomery, IL 60538.
ARP	: Armour Pharmaceutical Co-----	: P. O. Box 511, Kankakee, IL 60901.
ARK	: Armstrong World Industries, Inc-----	: Charlotte & liberty Sts., Lancaster, PA 17604.
ARO	: ARNCO-----	: 5141 Firestone Place, South Gate, CA 90280.
ARL	: Arol Chemical Products Co-----	: 649 Ferry St., Newark, NJ 07105.
ARS	: Arsync, Inc-----	: P. O. Box 8, Carlstadt, NJ 07072.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
ASH	Ashland Oil Inc	P. O. Box 391, Ashland, KY 41101, and P. O. Box 2458, Columbus, OH 43216.
ALI	Associated Lead, Inc	2545 Aramango Ave., Philadelphia, PA 19125.
BLA	Astor Products, Inc., Blue Arrow Div	5244 Edgewood Ct., Jacksonville, FL 32205.
AST	Astra Pharmaceutical Products, Inc	Neponset St., Worcester, MA 01606.
ATL	Atlantic Chemical Corp	10 Kingsland Rd., Nutley, NJ 07110.
ATR	Atlantic Richfield Co., Arco Chemical Co	515 S. Flower St., Los Angeles, CA 90064.
ARI	Atlas Refinery, Inc	142 Lockwood St., Newark, NJ 07105.
APD	Atlas Powder Co., Sub. of Tyler Corp	P. O. Box 87, Joplin, MO 64801.
APR	Atlas Processing Co	P. O. Box 3099, Shreveport, LA 71103.
AUX	Auralux Corp	Main St., Hope Valley, RI 02832.
KCH	Joseph Ayers, Inc	R.D. #2, Bethlehem, PA 18017.
BAS	BASF Wyandotte Corp	100 Cherry Hill Rd., Parsippany, NJ 07054.
	Pigments Div	491 Columbia Ave., Holland, MI 49423.
DBC	Badische Corp	602 Copper Rd., Freeport, TX 77541.
BKC	J. T. Baker Chemical Co	222 Red School Lane, Phillipsburg, NJ 08865.
BAK	Baker International, Magna Corp	P. O. Box 33387, Houston, TX 77033.
BLM	Balchem Corp., ARC Chemical Div	P. O. Box 180, Slate Hill, NY 10973.
BLC	Ball Chemical Co	1486 Butler Plank Rd., Glenshaw, PA 15116.
BAX	Baxter Travenol Laboratories, Inc	6301 N. Lincoln Ave., Morton Grove, IL 60053.
BCK	Beckman Microbics	6200 El Camino Real, Carlsbad, CA 92008.
BEE	Beecham, Inc., Beecham Laboratories Div	101 Possumtown Rd., Piscataway, NJ 08854.
BCM	Belding Corticelli Industries	1430 Broadway, New York, NY 10018.
BLZ	Belzak Corp	800 Bloomfield Ave., Clifton, NJ 07012.
BEN	Bennett's	P. O. Box 1320, Salt Lake City, UT 84110.
PDC	Berncolors-Poughkeepsie, Inc	75 N. Water St., Poughkeepsie, NY 12601.
BME	Bendix Corp., Friction Materials Div	P. O. Box 238, Troy, NY 12180.
BNS	Binney and Smith, Inc	P. O. Box 431, 1100 Church Lane, Easton, PA 18042.
BOC	Biocraft Laboratories, Inc	12 Industrial Way, Waldwick, NJ 07463.
BNP	Bison Nitrogen Products Co	P. O. Box 1828, Sioux City, IA 51102.
BDS	Biddle Sawyer Corp	2 Penn Plaza - Suite 2355, New York, NY 10121.
LAK	Bofors Lakeway, Inc	5025 Evanston Ave., P. O. Box 328, Muskegon, MI 49443.
BHA	Boots Hercules Agrochemicals Co	Concord Plaza - 3411 Silverside Rd., Wilmington, DE 19803.
BOR	Borden, Inc.:	
	Borden Chemical Div	180 E. Broad St., Columbus, OH 43215.
	Printing Ink Div., Pigments Div	630 Glendale-Milford Rd., Cincinnati, OH 45215.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	International Center, Parkersburg, WV 26101.
BSC	Brand-S Corp., Cascade Resins, Inc. Div	P. O. Box 1989, Eugene, OR 97401.
BFP	Breddo Food Products Corp., Inc	18th and Kansas Avenue, Kansas City, KS 66105.
BRS	Bristol-Meyers Co	345 Park Ave., New York, NY 10022.
BRU	M. A. Bruder & Sons, Inc	52d St. and Grays Ave., Philadelphia, PA 19143.
BUK	Buckeye Cellulose Corp	2899 Jackson Ave., Memphis, TN 38108.
BKM	Buckman Laboratories, Inc	1256 N. McLean Blvd., Memphis, TN 38108.
BCC	Buffalo Color Corp	340 Elk St., P. O. Box 7027, Buffalo, NY 14210.
BJL	Burdick & Jackson Laboratories, Inc	1953 S. Harvey St., Muskegon, MI 49442.
BUR	Burroughs Wellcome Co	3030 Cornwallis Rd., Research Triangle Park, NC 27709.
CFI	CF Industries, Inc	Salem Lake Dr., Long Grove, IL 60047.
CCC	C.N.C. Chemical Corp	P. O. Box 997, Annex Station, Providence, RI 02901.
	CPC International, Inc.:	
ACR	Acme Resin Corp	1401 S. Circle Avenue, Forest Park, IL 60130.
CRN	Amerchol Corp	P. O. Box 351, Edison, NJ 08818.
PEN	Penick Corp	1050 Wall St. W., Lyndhurst, NJ 07071.
CPS	CPS Chemical Co., Inc	P. O. Box 162, Old Bridge, NJ 08857.
CYR	CY/RO Industries, Inc	697 Route 46, Clifton, NJ 07015.
CAU	Calcasieu Chemical Corp	P. O. Box 1522, Lake Charles, LA 70602.
CRC	California Resin and Chemical Co., Inc	501 Green Island Rd., Vallejo, CA 94590.
CLC	Callery Chemical Co. Div. of Mine Safety Appliances Co.	Callery, PA 16024.
GCM	Cardinal Chemical Co. & Cardinal Manufacturing Co., Inc.	P. O. Box 345, Columbia, SC 29202.
CGI	Cargill, Inc	P. O. Box 9300 CPD/30, Minneapolis, MN 55440.
GOR	Carl Gordon Industries, Inc	1001 Southbridge St., Worcester, MA 01610.
ZGL	Carolina Processing Corp	P. O. Box 195, Severn, NC 27877.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identifi- cation code	Name of company	Office address
CHC	Carpenter Chemical Co-----	P. O. Box 27205, Richmond, VA 23261.
CCW	Carstab Corp-----	West St., Reading, OH 45215.
DOL	Castle & Cooke, Inc., Castle & Cooke Foods, Hawaii : Pineapple Div.	650 Iwilei Rd., Honolulu, HI 96801.
CCL	Catawba-Charlab, Inc-----	5046 Old Pineville Rd., Charlotte, NC 28224.
CEL	Celanese Corp.:	
	: Celanese Chemical Co-----	1250 W. Mockingbird Lane, Dallas, TX 75247.
	: Celanese Fibers Co-----	P. O. Box 1414, Charlotte, NC 28201.
	: Celanese Plastics & Specialties Co-----	12 Main St., Chatham, NJ 07928, and One Riverfront Plaza, Louisville, KY 40202.
CNT	Certainteed Corp-----	P. O. Box 860, Valley Forge, PA 19482.
CRP	Certified Processing Corp-----	U.S. Highway #22, Hillside, NJ 07205.
GRS	Champlin Petroleum Co-----	P. O. Box 9176, Corpus Christi, TX 78408.
SOG	Charter International Oil Co-----	P. O. Box 5008, Houston, TX 77012.
CHT	Chattrem, Inc-----	1715 W. 38th St., Chattanooga, TN 37409.
CBD	Chembond Corp-----	P. O. Box 270, Springfield, OR 97477.
GRL	Chemed Corp, Vestal Laboratories Div-----	5035 Manchester Ave., St. Louis, MO 63110.
CT	Chemetals Corp-----	711 Pittman Rd., Baltimore, MD 21226.
CI	Chem-Fleur, Inc-----	200 Pulaski St., Newark, NJ 07105.
CXI	Chemical Exchange Industries, Inc-----	P. O. Box 812, Houston, TX 77001.
CHF	Chemical Formulators, Inc-----	3260 Powers Ferry Rd., S.E., Suite A140, Marietta, GA 30067.
CPC	Chemical Products Corp-----	P. O. Box 360, Elmwood Park, NJ 07407.
CMT	Chemithon Corp-----	5430 W. Marginal Way, S.W., Seattle, WA 98106.
CHL	Chemol, Inc-----	P. O. Box 20687, Greenboro, NC 27420.
CPX	Chemples Co-----	300 Golf Rd., Rolling Meadows, IL 60008.
ORO	Chevton Chemical Co-----	575 Market St., Rm. 3280, San Francisco, CA 94105.
CHH	CHR. Hansen's Laboratory, Inc-----	9015 W. Maple St., West Allis, WI 53214.
CGY	Ciba-Geigy Corp-----	444 Saw Mill River Rd., Ardsley, NY 10502.
	: Agricultural Div-----	P. O. Box 11422, Greensboro, NC 27409.
	: Resin Dept-----	444 Saw Mill River Rd., Ardsley, NY 10502.
	: Cities Service Co.:	
TEN	Copperhill Operations-----	Copperhill, TN 37317.
CRN	Petrochemicals Div-----	P. O. Box 1522, Lake Charles, LA 70602, and 250 North Belt East, Houston, TX 77060.
CSO	Petroleum Products Group-----	P. O. Box 1562, Lake Charles, LA 70602.
CLK	Clark Oil & Refining Corp-----	131st St. & Kedzie Ave., Blue Island, IL 60406.
CLY	W. A. Clearly Corp-----	P. O. Box 10, Somerest, NJ 08873.
CLI	Clintwood Chemical Co-----	4341 S. Wolcott Ave., Chicago, IL 60609.
CSP	Coastal States Petroleum Co-----	P. O. Drawer 521, Corpus Christi, TX 78403.
CP	Colgate-Palmolive Co-----	300 Park Ave., New York, NY 10022.
CLD	Colloids, Inc-----	394 Frelinghuysen Ave., Newark, NJ 07114.
CCS	Colorado Chemical Specialties, Inc-----	4295 McIntrye St., Golden, CO 80401.
CLO	Colorado Organic Chemical, Inc-----	5321 Dahloa St., Commerce City, MO 80022.
CNC	Columbia Nitrogen Corp-----	P. O. Box 1483, Augusta, GA 30913.
COC	Columbia Organic Chemicals Co., Inc-----	P. O. Box 9096, Columbia, SC 29290.
CAC	Cominco American, Inc., Camex Operations-----	P. O. Box 5067, Borger, TX 79007.
CMP	Commercial Products Co., Inc-----	117 Ethel Ave., Hawthorne, NJ 07506.
COR	Commonwealth Oil Refining Co., Inc-----	Petrochemical Complex, Ponce, PR 00731.
CPI	Commonwealth Petrochemical, Inc-----	Petrochemical Complex, Ponce, PR 00731.
CON	Concord Chemical Co., Inc-----	17th & Federal Sts., Camden, NJ 08105.
CO	Conoco, Inc-----	P. O. Box 1267, 100 S. Pine, Ponca City, OK 74603.
CWP	Consolidated Papers, Inc-----	231 1st Ave. N., Wisconsin Rapids, WI 54494.
CTL	Continental Chemical Co-----	270 Clifton Blvd., Clifton, NJ 07015.
CTP	Continental Polymers, Inc-----	2225 E. Del Amo Blvd., Compton, CA 90220.
CPV	Cook Paint & Varnish Co-----	919 E. 14th Ave., N. Kansas City, MO 64116.
CFA	Cooperative Farm Chemicals Association-----	P. O. Box 308, Lawrence, KS 06044.
COP	Coopers Creek Chemical Corp-----	River Rd., W. Conshohocken, PA 19428.
CPY	Copolymer Rubber & Chemical Corp-----	P. O. Box 2591, Baton Rouge, LA 70821.
SWC	Corco Cyclohexane, Inc-----	Petrochemical Complex, Ponce, PR 00731.
CLU	Core-Lube, Inc-----	P. O. Box 811, Danville, IL 61832.
CRP	Corpus Christi Petrochemicals Co-----	707 McKinney St., SW Tower, Suite 1400, Houston, TX 77002.
COS	Cosan Chemical Corp-----	400 - 14th St., Carlstadt, NJ 07072.
CSD	Cosden Oil & Chemical Co-----	8350 N. Central, Dallas, TX 75206.
CRT	Crest Chemical Corp-----	225 Emmet St., Newark, NJ 07114.
CRD	Croda, Inc-----	51 Madison Ave., New York, NY 10010. 311
CK	Crompton & Knowles Corp., Dyes & Chemical Div-----	500 Pear St., Reading, PA 19603.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
CBY	: Crosby Chemicals, Inc-----	: P. O. Box 460, Picayune, MS 39466.
CCP	: Crown Central Petroleum Corp-----	: 1 N. Charles St., Baltimore, MD 21203.
USM	: Crown Metro, Inc-----	: P. O. Box 5695, Greenville, SC 29606.
CRZ	: Crown Zellerbach Corp., Chemical Products Div-----	: P. O. Box 4266, Vancouver, WA 98662.
CYT	: Crystal Chemical Co-----	: 1525 N. Post Oak Rd., Houston, TX 77055.
CUS	: Custom Color Works-----	: 2124 W. Rice St., Chicago, IL 60622.
CTR	: Custom Resins Div. of Bemis Co., Inc-----	: P. O. Box 933, Henderson, KY 42420.
CYL	: Cuclo Chemicals Corp-----	: 7500 N.W. 66th St., Miami, FL 33166.
	:	:
DAT	: Daitom, Inc-----	: 5200 Speaker Rd., Kansas City, KS 66101.
DAN	: Dan River, Inc., Chemical Products Div-----	: P. O. Box 261, Danville, VA 24541.
	: Dart Industries, Inc.:	:
AZT	: Aztec Chemicals Div-----	: P. O. Box 250, Elyria, OH 44035.
SYP	: Synthetic Products Co. Div-----	: 1636 Wayside Rd., Cleveland, OH 44112.
DYS	: Davies-Young Co-----	: 2700 Wagner Place, Maryland Heights, MO 63043.
DYO	: Dayco Corp-----	: 333 W. First St., Dayton, OH 45402.
DGO	: Day-Glo Color Corp-----	: 4732 St. Clair Ave., Cleveland, OH 44103.
DPW	: Deepwater Chemical Co., Ltd-----	: P. O. Box 17599, Irvine, CA 92713.
DEG	: Degen Oil & Chemical Co-----	: 200 Kellogg St., Jersey City, NJ 07305.
DGC	: Degussa Corp-----	: Theodore Industrial Park, P. O. Box 606, Theodore,
	:	: AL 36582.
DKA	: Denka Chemical Corp-----	: 8701 Park Place Blvd., Houston, TX 77017.
DNS	: Dennis Chemical Co-----	: 2701 Papin St., St. Louis, MO 63103.
DRB	: The Derby Co., Inc-----	: P. O. Box 146, Megunko Rd., Ashland, MA 01721.
DSO	: DeSoto, Inc-----	: 1700 S. Mt. Prospect Ave., Des Plaines, IL 60018.
DEX	: Dexter Chemical Corp-----	: 845 Edgewater Rd., Bronx, NY 10474.
HYC	: Hysol Div-----	: 15051 E. Don Julian Rd., City of Industry,
	:	: CA 91749.
MID	: Midland Div-----	: 1-7 E. Water St., Waukegan, IL 60085.
DA	: Diamond Shamrock Corp-----	: 717 N. Harwood St., Dallas, TX 75201.
	: Agricultural Chemicals, Inc-----	: 1 Warrior Rd., Holt, AL 35404.
	: D.S.C. Acquisition Co., Alabama Western Chemicals	: 1 Warrior Rd., Holt, AL 35404.
	: Div.	:
PLN	: Disogrin Industries Corp-----	: Grenier Industrial Airpark, Manchester, NH 03130.
DIX	: Dixie Chemical Co., Inc-----	: 3635 W. Dallas Ave., Houston, TX 77019.
DPP	: Dixie Pine Chemicals, Inc-----	: P. O. Box 470 Hattiesburg, MS 39401.
DRC	: Dock Resins Corp-----	: 1512 W. Elizabeth Ave., Linden, NJ 07036.
DOM	: Dominion Products-----	: 882 3d Ave., Brooklyn, NY 11232.
DVC	: Dover Chemical Corp., Sub. of ICC Industries, Inc-----	: W. 15th & Davis Sts., Dover, OH 44622.
DOW	: Dow Chemicals Co-----	: 2020 Dow Center, Midland, MI 48650.
DCC	: Dow Corning Corp-----	: P. O. Box 1767, Mail Code #C02216, Midland,
	:	: MI 48640.
DUP	: E. I. duPont de Nemours & Co., Inc-----	: DuPont Bldg., Wilmington, DE 19898.
BAL	: Dutch Boy Paints, Consumer Div., Sherwin-Williams	: 2325 Hollins Ferry Rd., Baltimore, MD 21230.
	: Co.	:
DSC	: Dye Specialties, Inc-----	: 100 Plaza Center, Box 1532, Secausus, NJ 07094.
	:	:
EPI	: Eagle Pitcher Industries, Ohio Rubber Co. Div-----	: P. O. Box 1398, Denton, TX 76201.
ECC	: Eastern Color & Chemical Co-----	: 35 Livingston St., Providence, RI 02904.
EK	: Eastman Kodak Co-----	: 343 State St., Rochester, NY 14650.
EKT	: Tennessee Eastman Co. Div-----	: P. O. Box 511, Kingsport, TN 37662.
EKX	: Texas Eastman Co. Div-----	: P. O. Box 511, Kingsport, TN 37662.
ESA	: East Shore Chemical Co., Inc-----	: 1221 Barney Ave., Muskegon, MI 49443.
EEP	: Eaton Corp., Engineered Polymer Products Div-----	: Main & Orchard, Mantua, OH 44255.
ELN	: Elan Chemical Co-----	: 268 Doremus Ave., Newark, NJ 07105.
ELC	: Elco Corp., Sub. of Detrex Industries, Inc-----	: P. O. Box 09168, Cleveland, OH 44109.
ELP	: El Paso Products Co-----	: P. O. Box 3986, Odessa, TX 79760.
EMR	: Emery Industries, Inc-----	: 1300 Carew Tower, Cincinnati, OH 45202.
TCH	: Trylon Div-----	: P. O. Box 628, Mauldin, SC 29662.
USM	: Emhart Corp., Sub. of Bostik U.S. Div-----	: Boston St., Middleton, MA 01949.
EMK	: Emkay Chemical Co-----	: 319 2d St., Elizabeth, NJ 07206.
EN	: Endo Laboratories, Inc-----	: 1000 Stewart Ave., Garden City, NY 11743.
ENO	: Enenco, Inc-----	: P. O. Box 125, Memphis, TN 38101.
ECI	: Energy Cooperative, Inc-----	: 6300 Rive Rd., Rosemont, IL 60018.
EPC	: Enterprise Products Co., Enterprise Petrochemicals	: P. O. Box 4324, Houston, TX 77210.
	: Co., Sub.	:
ESS	: Essential Chemicals Group-----	: 28391 Essential Rd., Merton, WI 53056.
ESX	: Essex Chemical Corp-----	: 1401 Broad St., Clifton, NJ 07015.
SWT	: Estech Specialty Chemicals Corp-----	: 419 Ridge Rd., Suite-M, Munster, IN 46321.
	:	:

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identifi- cation code	Name of company	Office address
EHC	: Ethichem Corp-----	: 150 Grand St., Carlstadt, NJ 07072.
TNA	: Ethyl Corp-----	: 330 S. 4th St., Richmond, VA 23231.
TNA	: Polymer Div-----	: 8000 G.S.R.I. Rd., Baton Rouge, LA 70808.
ENJ	: Exxon Chemical Americas-----	: P. O. Box 3272, Houston, TX 77001.
	: FMC Corp.:	
FMN	: Agricultural Chemical Group-----	: 2000 Market St., Philadelphia, PA 19103.
FMB	: Industrial Chemical Group-----	: 2000 Market St., Philadelphia, PA 19103.
FMP	: Industrial Chemical Group-----	: 2000 Market St., Philadelphia, PA 19103.
FMB	: Specialty Chemicals Div-----	: Sawyer Ave. & River Rd., Town of Tonawanda, NY 14150.
FRP	: FRP Co-----	: P. O. Box 349, Baxley, GA 31513.
FAB	: Fabricolor Manufacturing Corp-----	: 24-1/2 Van Houten St., Paterson, NJ 07509.
FMT	: Fairmount Chemical Co., Inc-----	: 117 Blanchard St., Newark, NJ 07105.
FRI	: Farmland Industries, Inc-----	: P. O. Box 7305, Kansas City, MO 64116.
FEL	: Felton International, Inc-----	: 599 Johnson Ave., Brooklyn, NY 11237.
FER	: Ferro Corp.:	
	: Grant Chemical Div-----	: P. O. Box 263, Baton Rouge, LA 70821.
	: Keil Chemical Div-----	: 3000 Sheffield Ave., Hammond, IN 46320.
	: Ottawa Chemical Div-----	: 700 N. Wheeling St., Toledo, OH 43605.
	: Productol Chemical Div-----	: 10051 Romandel Ave., Santa Fe Springs, CA 90670.
FND	: Fiber Industries, Inc-----	: P. O. Box 10038, Charlotte, NC 28201.
RBC	: Fike Chemicals, Inc-----	: P. O. Box 546, Nitro, WV 25143.
FTX	: Finetex, Inc-----	: 418 Falmouth Ave., Elmwood Park, NJ 07407.
	: Firestone Tire & Rubber Co.:	
FRF	: Firestone Synthetic Fibers Co-----	: P. O. Box 450, Hopewell, VA 23869.
FRS	: Firestone Synthetic Rubber & Latex Co. Div-----	: 381 W. Wilbeth Rd., Akron, OH 44301.
FST	: First Chemical Corp-----	: P. O. Box 1427, Pascagoula, MS 39567.
FSN	: Fisons Inc-----	: 2 Preston Ct., Bedford, MA 01730.
FOC	: Flambeau Paper Corp-----	: 200 First Ave., N., Park Falls, WI 54552.
CIK	: Flint Ink Corp., Cal/Ink Div-----	: 1404 4th St., Berkeley, CA 94710.
FTE	: Foote Mineral Co-----	: Route #100, Exton, PA 19341.
FOM	: Formica Corp., Sub. of American Cyanamid Co-----	: 10155 Reading Dr., Cincinnati, OH 45241.
FJI	: Foy-Johnston, Inc-----	: 1776 Mentor Ave., Cincinnati, OH 45212.
FKE	: Frank Enterprises, Inc-----	: 700 Rose Ave., Columbus, OH 43219.
FRE	: Freeman Chemical Corp-----	: P. O. Box 247, Port Washington, WI 53074.
FB	: Fritzsche Dodge & Olcott, Inc-----	: 76 9th Ave., New York, NY 10011.
CNI	: Frye Copysystems, Conap Div-----	: 1405 Buffalo St., Olean, NY 14760.
FLH	: H. B. Fuller Co., Polymer Div-----	: 4450 Malsbary Rd., Blue Ash, OH 45242.
	: GAF Corp., Chemical Group-----	: P. O. Box 12, Linden, NJ 07036.
GBF	: GB Fermentation Industries, Inc-----	: 1 N. Broadway, Des Plaines, IL 60016.
GLX	: Galaxie Chemical Corp-----	: 26 Piercy St., Paterson, NJ 07524.
GAN	: Gane's Chemicals, Inc-----	: 1144 Avenue of the Americas, New York, NY 10036.
GE	: General Electric Co-----	: 1350 S. Second St., Coshocton, OH 43812.
GEI	: Laminated & Insulating Materials Business Dept-----	: 1 Campbell Rd., Schenectady, NY 12306.
GE	: Plastic Business Operations-----	: 1 Plastics Ave., Pittsfield, MA 01201.
SPD	: Silicone Products Dept-----	: Mechanicville Rd., Bldg. 11-24, Waterford, NY 12188.
GNF	: General Foods Corp., Maxwell House Coffee Div-----	: 1125 Hudson St., Hoboken, NJ 07030.
GLC	: General Latex & Chemical Corp-----	: 666 Main St., Cambridge, MA 02139.
GNT	: General Tire & Rubber Co., Chemical Div-----	: 1 General St., Akron, OH 44329.
GRG	: P. D. George Co-----	: 5200 N. 2d St., St. Louis, MO 63147.
	: Georgia-Pacific Corp.:	
PSP	: Bellingham Div-----	: P. O. Box 1236, Bellingham, WA 98225.
GP	: Houston Div-----	: P. O. Box 1959, Pasadena, TX 77501.
GP	: Plaquemine Div-----	: P. O. Box 629, Plaquemine, LA 70764.
GP	: Resins Operations-----	: P. O. Box 105042, Atlanta, GA 30348.
SKO	: Getty Refining & Marketing Co-----	: P. O. Box 1650, Oil Center Bldg., Tulsa, OK 74102.
TID	: Delaware Refinery-----	: Delaware City, DE 19706.
TNI	: The Gillette Co., Chemical Div-----	: 3500 W. 16th St., N. Chicago, IL 60064.
GIV	: Givaudan Corp-----	: 100 Delawanna Ave., Clifton, NJ 07014.
GLY	: Glyco Chemicals, Inc-----	: 51 Weaver St., Greenwich, CT 06830.
GHR	: Good Hope Refineries, Inc-----	: P. O. Box 247, Port Washington, WI 53074.
GPI	: Goodpasture, Inc-----	: P. O. Drawer 921, Brownfield, TX 79316.
BFG	: B. F. Goodrich Co., B. F. Goodrich Chemical Group-----	: 6100 Oak Tree Blvd., Cleveland, OH 44131.
GYR	: Goodyear Tire & Rubber Co-----	: 1144 E. Market St., Akron, OH 44316.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
GCC	E. R. Grace & Co	P. O. Box 27147, Memphis, TN 38127.
HMP	Organic Chemicals Div	Poissou Ave., Nashua, NH 03060.
EVN	Evans Chemetics	90 Tokeneke Rd., Darien, CT 06820.
GRD	Polymers & Chemicals Div	55 Hayden Ave., Lexington, MA 02173.
GPC	Grain Processing Corp	P. O. Box 349, Muscatine, IA 52761.
GRA	Great American Chemical Corp	P. O. Box 2150, Fitchburg, MA 01420.
GTL	Great Lakes Chemical Corp	P. O. Box 2200, Highway 52 NW., West Lafayette, IN 47906.
GNW	Greenwood Chemical Co	P. O. Box 26 - State Highway #690, Greenwood, VA 22943.
GDC	Gresto Dyes & Chemicals, Inc	216 E. Holly Hill Rd., Thomasville, NC 27360.
GRO	A. Gross & Co., Millmaster Onyx Group, Kewanee Industries, Inc.	625 Doremus Ave., Newark, NJ 07105.
GRV	Guardsman Chemical, Inc	1350 Steele Ave., S.W., Grand Rapids, MI 49507.
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.	P. O. Box 3766, Houston, TX 77001.
GTH	Guth Corp	322 S. Center St., Hillside, IL 60162.
HNC	H & N Chemicals Co	90 Maltese Dr., Totowa, NJ 07512.
HAL	C. P. Hall Co	7300 S. Central Ave., Chicago, IL 60638.
HAR	Haarmann and Reimer Corp	111 U.S. Highway 22, Springfield, NJ 07081.
HOC	Halocarbon Products Corp	82 Burlews Ct., Hackensack, NJ 07601.
FOC	Handschy Industries, Inc., Farac Oil and Chemical Div.	13601 S. Ashland Ave., Riverdale, IL 60627.
HAN	Hanna Chemical Coatings Corp	1313 Windsor Ave., Columbus, OH 43211.
HDW	Hardwicke Chemical Co	Route 2, Box 50A, Elgin, SC 29045.
HRC	Harmon Colors Corp	P. O. Box 419, Hawthorne, NJ 07502.
HSR	Harshaw Chemical Co	1945 E. 97th St., Cleveland, OH 44106.
HRT	Hart Products Corp	173 Sussex St., Jersey City, NJ 07302.
HCC	Hatco Chemical Corp	King George Post Rd., Fords, NJ 08863
HKY	Hawkeye Chemical Co	P. O. Box 899, Clinton, IA 52733.
HAP	Helmerich and Payne, Inc., Natural Gas Odoxizing Div.	3601 Decker Dr., P. O. Box 4176, Baytown, TX 77520.
SCP	Henkel Corp	4620 W. 77th St., Minneapolis, MN 55435.
HCF	Hercofina	310 N. Front St., Wilmington, DE 28402.
HCR	Hercor Chemical Corp	Petrochemical Complex, Ponce, PR 00731.
HPC	Hercules, Inc	910 Hercules Tower, Wilmington, DE 19899.
PFW	PFW Div	33 Sprague Ave., Middletown, NY 10940.
HER	Heresite-Saekaphen, Inc	822 S. 14th St., Manitowoc, WI 54220.
HTN	Heterene Chemical Co	790 21st Ave., Paterson, NJ 07513.
HET	Heterochemical Corp	111 E. Hawthorne Ave., Valley Stream, NY 11580.
HEC	Hewchem	2500 - 33rd Ave., P. O. Box 188, Gulfport, MS 39501.
HEW	Hewitt Soap Co., Inc	333 Linden Ave., Dayton, OH 45403.
HEX	Hexagon Laboratories, Inc	4166 Boston Rd., Bronx, NY 10475.
HXL	Hexcel Corp., Hexcel Chemical Products	205 Main St., Lodi, NJ 07644.
HIP	High Point Chemical Corp	P. O. Box 2316, High Point, NC 27261.
HAG	Hill & Griffith Co., Mar-Cam Sub	861 13th st., N.E., Hickory, NC 28601.
HDG	Hodag Chemical Corp	7247 N. Central Park Ave., Skokie, IL 60076.
HOF	Hoffman-LaRoche, Inc	340 Kingsland St., Nutley, NJ 07110.
HCP	Honig Chemical & Processing Corp	414 Wilson Ave., Newark, NJ 07105.
HK	Hooker Chemical Corp	MPO Box 8, Niagara Falls, NY 14302.
HKD	Hooker Chemicals & Plastics Corp.:	
HKD	Durez Div	Walck Rd., N. Tonawanda, NY 14121.
HKP	Plastics Div	P. O. Box 699, Pottstown, PA 19464.
RUB	Ruco Div	P. O. Box 456, River Rd., Burlington, NJ 08016.
EFH	E. F. Houghton & Co	Madison & Van Buren Aves., P. O. Box 930, Valley Forge, PA 19482.
HML	Hummel Chemical Co	P. O. Box 250, So. Plainfield, NJ 07080.
HMY	Humphrey Chemical Co	Devine St., North Haven, CT 06473.
WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.	One Wellington Rd., Lincoln, RI 02865.
HNT	Huntington Laboratories, Inc	968 E. Tipton St., Huntington, IN 46750.
HGC	Huntsman-Goodson Chemical Corp	3760 Highland Dr., Suite #500, Salt Lake City, UT 84106.
HUS	Husky Industries, Inc	62 Perimeter Center East, Atlanta, GA 30346.
HYN	Hynson, Westcott & Dunning, Inc	Charles and Chase Sts., Baltimore, MD 21202.
ICI	ICI Americas, Inc	Wilmington, DE 19897.
ICI	Agricultural Chemicals Div	Wilmington, DE 19897.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
	Chemical Specialties Co-----	Wilmington, DE 19897.
ICI	Films Div-----	Concord Pike & New Murphy Rd., Wilmington, DE 19897.
RAY	ITT Rayonier, Inc-----	1177 Summer St., Stamford, CT 06904.
IRC	Independent Refining Corp-----	1502 Augusta, Houston, TX 77057.
IND	Indol Color Co., Inc-----	Leffert St., Carteret, NJ 07008.
IDC	Industrial Color, Inc-----	P. O. Box 944, Joilet, IL 60434.
INL	Inland Steel Co., Inland Steel Container Co-----	4300 W. 130th St., Chicago, IL 60658.
ICC & ICF	Inmont Corp-----	1255 Broad St., Clifton, NJ 07015, and 150 Wagaraw Rd., Hawthorne, NJ 07506.
SPC	Insilco corp., Sinclair Paint Co. Div-----	2500 Washington Blvd., Los Angeles, CA 90023.
IFF	International Flavor and Fragrances, Inc-----	521 W. 57th St., New York, NY 10019.
IMC	International Minerals & Chemical Corp-----	P. O. Box 207, Terra Haute, IN 47808, and P. O. Box 149, Orrington, ME 04474.
	Foundry Products Div-----	17350 Ryan Rd., Detroit, MI 48200.
	McWorter Resins-----	P. O. Box 308, Cottage Place, Carpentersville, IL 60110.
	Nitroparaffins Div-----	666 Garland Pl., Des Plaines, IL 60016.
IPP	International Pigment & Processing Corp-----	200 Sheridan Ave., Paterson, NJ 07502.
IPC	Interplastic Corp-----	2015 N.E. Broadway St., Minneapolis, MN 55413.
CCA	Interstab Chemicals, Inc-----	500 Jersey Ave., New Brunswick, NJ 08903.
IRI	Ironsides Co-----	270 W. Mount St., Columbus, OH 43215.
JCC	Jefferson Chemical Co., Inc-----	P. O. Box 52332, Houston, TX 77052.
JFR	George A. Jeffreys & Co., Inc-----	P. O. Box 709, Salem, VA 24153.
JEN	Jennison-Wright Corp-----	P. O. Box 691, Toledo, OH 43694.
JRG	Andrew Jergens Co-----	2535 Spring Grove Ave., Cincinnati, OH 45214.
JTO	Jetco Chemicals, Inc-----	P. O. Box 1898, Corsicana, TX 75110.
UPF	Jim Walker Resources, Inc-----	3300 1st Ave. N., Birmingham, AL 35222.
JNS	S. C. Johnson & Son, Inc-----	1525 Howe St., Racine, WI 52403.
JOB	Jones-Blair Co-----	2729 Empire Central, Dallas, TX 75235.
JOR	Jordan Chemical Co-----	1830 Columbia Ave., Folcraft, PA 19032.
	Kaiser Aluminum & Chemical Corp.:	
SNI	Kaiser Agricultural Chemicals Div-----	P. O. Box 246 Savannah, GA 31402.
KAI	Kaiser Chemicals-----	P. O. Box 337, Gramercy, LA 70052.
KLM	Kalama Chemical, Inc-----	Suite 1110, Bank of California Center, Seattle, WA 98164.
KF	Kay-Fries Inc., Member Dynamit Nobel Group-----	200 Summit Ave., Montvale, NJ 07645.
KMP	Kelly-Moore Paint Co., Inc-----	987 Commercial St., San Carlos, CA 94070.
	Kennecott Minerals Co.:	
KCC	Chino Mine Div-----	Hurley, NM 88043.
KCU	Utah Cooper Div-----	P. O. Box 11299, Salt Lake City, UT 84111.
KPT	Kenrich Petrochemicals, Inc-----	P. O. Box 32 Bayonne, NJ 07002.
AMP	Kerr-McGee Chemical Corp-----	1406 McGee Tower, Oklahoma City, OK 73102.
CBM	Kesco-----	P. O. Box 477, Niagara Falls, NY 14302.
KYS	Keysor Corp-----	P. O. Box 308, Saugus, CA 91350.
KCW	Keystone Color Works, Inc-----	151 W. Gay Ave., York, PA 17403.
KNP	Knapp Products, Inc-----	187 Garibaldi Ave., Lodi, NJ 07644.
KON	H. Kohnstamm & Co., Inc-----	161 Avenue of the Americas, New York, NY 10013.
KMC	Komac Paint, Inc-----	P. O. Box 546, Denver, CO 80201.
KPT	Koppers Co., Inc., Organic Materials Group-----	Koppers Bldg., Pittsburgh, PA 15219.
	Kraft, Inc.:	
HUM	Humko Sheffield Chemical-----	P. O. Box 398, Memphis, TN 38117.
SHF	Sheffield Products-----	5050 Poplar Ave., Memphis, TN 38157.
LCP	LCP Chemicals--West Virginia, Inc-----	State Rt. No. 2, P. O. Drawer "5", Moundsville, WV 26041.
LKY	Lake States Div. of Rhinelander Paper Corp-----	515 W. Davenport St., Rhinelander, WI 54501.
LUR	Laurel Products Corp-----	2600 E. Tioga St., Philadelphia, PA 19134.
LEA	Leatex Chemical Co-----	2722 N. Hancock St., Philadelphia, PA 19133.
LLI	Lee Laboratories, Inc-----	2999 Frontage Rd., P. O. Box 1658, Petersburgs, VA 23803.
SAR	Leksi, Inc-----	Gov. Printz Blvd. & Wanamaker Ave., Essington, PA 19029.
LEL	Leland Chemical Co-----	P. O. Box 399, Salisbury, NC 28144. 315
LEV	Lever Brothers Co-----	390 Park Ave., New York, NY 10022.
LVR	C. Lever Co., Inc-----	736 Dunks Ferry Rd., Bensalem, PA 19020.
BLS	Life Savers, Inc-----	Church St., Canajoharies, NY 13317.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
LIL	: Eli Lilly & Co-----	: 307 E. McCarty St., Indianapolis, IN 46285, and : G.P.O. Box 4388, San Juan, PR 00936.
LIC	: Lilly Industrial Coatings, Inc-----	: 546 Abbott St., Indianapolis, In 46225.
BRD	: Lonza, Inc-----	: 22-10 Route 208, Fair Lawn, NJ 07410.
LC	: Lord Corp., Hughson Chemical Div-----	: 2000 W. Grandview Blvd., Erie, PA 16512.
MAK	: MAK Chemical Corp-----	: 1200 Rochester Ave., Muncie, IN 47302.
MMC	: MCB Manufacturing Chemists, Inc-----	: 2909 Highland Ave., Norwood, Oh 45212.
SOR	: M.W. Manufacturing, Southern Resin Div-----	: P. O. Box 68, Thomasville, NC 27360.
TZC	: Magnesium Elektron, Inc-----	: Star Route A, Box 202-1, Flemington, NJ 08822.
MGR	: Magruder Color Co., Inc-----	: 1029 Newark Ave., Elizabeth, NJ 07201.
MAL	: Mallinckrodt, Inc-----	: 675 McDonnell Blvd., St. Louis, MO 63134.
MOR	: Marathon Morco Co-----	: P. O. Drawer C, Dickinson, TX 77539.
MOC	: Marathon Oil Co., Texas Refining Div-----	: 539 S. Main St., Findlay, OH 48540.
MRD	: Marden-Wild Corp-----	: P. O. Box 499, 500 Columbia St., Somerville, : MA 02143.
MRV	: Marlowe-Van Loan Corp-----	: P. O. Box 1851, High Point, NC 27261.
SDC	: Martin-Marietta Corp., Sodyeco Div-----	: P. O. Box 33429, Charlotte, NC 28233.
MRX	: Max Marx Color & Chemical Co-----	: 192 Coit St., Irvington, NJ 07111.
MCA	: Masonite Corp., Alpine Chemical Div-----	: P. O. Box 2392, Gulfport, MS 39503.
MYO	: Mayo Chemical Co., Inc-----	: 5544 Oakdale Rd., Smyrna, GA 30080.
MCC	: McCloskey Varnish Co-----	: 7600 State Rd., Philadelphia, PA 19136.
MCC	: McCloskey Varnish Co. of the Northwest-----	: 4155 N.W. Yeon Ave., Portland, OR 97210.
MCC	: McCloskey Varnish Co. of the West-----	: 5501 E. Slauson, Los Angeles, CA 90040.
MGK	: McLaughlin Gormley King Co-----	: 8810 10th Ave., N., Minneapolis, MN 55427.
MLC	: Melamine Chemicals, Inc-----	: P. O. Box 748, Donaldsonville, LA 70346.
MRK	: Merck & Co., Inc-----	: 126 E. Lincoln Ave., P. O. Box 2000, Rahway, : NJ 07065.
MER	: Merichem Co-----	: 1914 Haden Rd., Houston, TX 77015.
MLS	: Miles Laboratories, Inc., Biotechnology Group-----	: P. O. Box 932, Elkhart, IN 46515.
MIL	: Milliken & Co., Milliken Chemical Co-----	: P. O. Box 817, Inman, SC 29349.
	: Millmaster Onyx Corp.:	:
BKL	: Millmaster Chemical Co. Div-----	: 99 Park Ave., New York, NY 10016.
HLI	: Onyx Chemical Co., Kewanee Industries, Inc-----	: 1400 S. Seeley Ave., Blue Island, IL 60406.
RPC	: Refined Onyx Co. Div-----	: 624 Schuylin Ave., Lyndhurst, NJ 07071.
MMM	: Minnesota Mining & Manufacturing Co-----	: 3M Center, St. Paul, MN 55144.
MIR	: Miranol Chemical Co., Inc-----	: P. O. Box 411 Dayton, NJ 08810.
MSC	: Mississippi Chemical Corp-----	: P. O. Box 388, Yazoo City, MS 39194.
MOB	: Mobay Chemical Corp-----	: Penn Lincoln Parkway, W. Pittsburgh, PA 15205.
CHG	: Agricultural Chemicals Div-----	: P. O. Box 4913, Hawthorne Rd., Kansas City, : MO 64120.
VPC	: Dyestuff Div-----	: Iorio Ct., Union, NJ 07083.
SM	: Mobil Oil Corp.:	:
	: Gas Liquids Dept-----	: P. O. Box 900, Dallas, TX 75221.
	: Mobil Chemical Co-----	: P. O. Box 726, Paramus, NJ 07652.
	: Chemical Coatings Div-----	: P. O. Box Box M-1, Short Hills, NJ 07078.
	: Petrochemicals Div-----	: One Greenway Plaza - Suite 1100, Houston, TX 77046.
	: Phosphorus Div-----	: P. O. Box 26683, Richmond, VA 23261.
MOA	: Mona Industries, Inc-----	: 76 E. 24th St., Paterson, NJ 07544.
MNO	: Monochem, Inc-----	: P. O. Box 488, Geismar, La 70734.
MNR	: Monroe Chemical, Inc-----	: 1296 N.W. 3d, Kalama, WA 98625.
MON	: Monsanto Co-----	: 800 N. Lindbergh Blvd., St. Louis, MO 63166.
MTO	: Montrose Chemical Corp. of California-----	: 2401 Morris Ave., P. O. Box 219, Union, NJ 07083.
MCI	: Mooney Chemicals, Inc-----	: 2301 Scranton Rd., Cleveland, OH 44113.
MCP	: Moretex Chemical Products, Inc-----	: 314 W. Henry St., P. O. Box 1799, Spartanburg, : SC 29304.
	: Morton Norwich Products, Inc.:	:
MRT	: Morton Chemicals Co. Div-----	: 2 N. Riverside Plaza, Chicago, IL 60606.
NOR	: Norwich Eaton Pharmaceutical Div-----	: 17 Eaton Ave., Norwich, NY 13815.
TCI	: Texize Div-----	: P. O. Box 368, Greenville, SC 29602.
MOT	: Motomco, Inc-----	: 267 Vreeland Ave., P. O. Box 300, Paterson, : NJ 07513.
MTP	: Mount Pleasant Chemical Co-----	: Mt. Joy Rd., P. O. Box 69, Mt. Pleasant, TN 38474.
PNX	: Murphy-Phoenix Co-----	: P. O. Box 22930, Beechwood, OH 44122.
	:	:
NTL	: NL Industries, Inc-----	: 1230 Avenue of the Americas, New York, NY 10020.
CHN	: N-ReN Corp., Cherokee Nitrogen Div-----	: P. O. Box 429, Pryor, OK 74361.
LEM	: Napp Chemicals, Inc-----	: 199 Main St., Lodi, NJ 07644.
	:	:

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1980--CONTINUED

Ident- fication code	Name of company	Office address
NTB	: National Biochemical Co-----	: 3127 W. Lake St., Chicago, IL 60612.
NTC	: National Casein Co-----	: 601 W. 80th St., Chicago, IL 60620.
NCJ	: National Casein of New Jersey-----	: P. O. Box 226, Riverton, NJ 08077.
USI	: National Distillers & Chemicals Corp.:	:
	: U.S. Industrial Chemicals Co-----	: 99 Park Ave., New York, NY 10016.
	: National Petro Chemicals Corp-----	: 99 Park Ave., New York, NY 10016.
NMC	: National Milling & Chemical Co-----	: 4601 Flat Rock Rd., Philadelphia, PA 19127.
NSC	: National Starch & Chemical Corp-----	: 10 Finderne Ave., Bridgewater, NJ 08876.
NEP	: Nepera Chemical Co., Inc-----	: Route 17, Harriman, NY 10926.
NEV	: Neville Chemical Co-----	: Neville Island P. O., Pittsburgh, PA 15225.
NCC	: Niacet Corp-----	: 400 47th St., Niagara Falls, NY 14302.
NLO	: Niklor Chemical Co., Inc-----	: 2060 E. 220th St., Long Beach, CA 90810.
NCP	: Niles Chemical Paint Co., Kordell Industries Div-----	: P. O. Box 930, Mishawaka, IN 46544.
NIL	: Nilok Chemicals, Inc-----	: 2235 Langdon Farm Rd., Cincinnati, OH 45230.
CNP	: Nipro, Inc-----	: P. O. Box 1483, Augusta, GA 30903.
NOC	: Norac Co., Inc-----	: 405 S. Motor Ave., Azusa, CA 91703.
	: Mathe Div-----	: 169 Kennedy Dr., Lodi, NJ 07644.
NEO	: Norda, Inc-----	: 140 Route 10, E. Hanover, NJ 07936.
NPV	: Norris Paint & Varnish Co., Inc-----	: P. O. Box 2023, Salem, OR 97308.
LMI	: North American Chemical Co-----	: 19 S. Canal St., Lawrence, MA 01843.
NWP	: Northern Petrochemical Co-----	: 2223 Dodge St., Omaha, NB 68102.
NW	: Northwestern Chemical Co-----	: 120 N. Aurora St., W. Chicago, IL 60185.
NPC	: Northwest Petrochemical Corp-----	: P. O. Box 99, Anacortes, WA 98221.
NCW	: Nostrip Chemical Works, Inc-----	: P. O. Box 160, Pedricktown, NJ 08067.
CAD	: Noury Chemical Corp-----	: 2153 Lockport-Olcott Rd., Burt, NY 14028.
QH	: Nueces Petrochemical Co-----	: P. O. Box 4656, Corpus Christi, TX 78404.
	:	:
OBC	: O'Brien Corp-----	: 450 E. Grand Ave., S. San Francisco, CA 94080.
OMC	: Olin Corp-----	: 120 Long Ridge Rd., Stamford, CT 06904.
	: Agricultural Products Dept-----	: P. O. Box 991, Little Rock, AR 72203.
ONX	: Onyx Chemical Co-----	: 190 Warren St., Jersey City, NJ 07302.
ORA	: The Ora Corp-----	: P. O. Box 6970, Greenville, SC 29606.
OPC	: Orbis Products Corp-----	: 140 Route 10, E. Hanover, NJ 07936.
ORG	: Organics, Inc./Lagrange Labs, Inc-----	: 7125 N. Clark St., Chicago, IL 60626.
BSW	: Original Bradford Soap Works, Inc-----	: 200 Providence St., W. Warwick, RI 02893.
CJO	: C.J. Osborn Chemicals, Inc-----	: P. O. Box 1310, Merchantville, NJ 08109.
OCF	: Owens-Corning Fiberglas Corp-----	: Fiberglas Tower, Toledo, OH 43659.
OCC	: Oxirane Corp., Sub. of Atlantic Richfield Co-----	: 515 S. Flower St., Los Angeles, CA 90015.
	:	:
PBI	: PBI Gordon Corp-----	: 300 S. Third St., P. O. Box 2276, Kansas City, KS 66110.
PLB	: P-L Biochemicals, Inc-----	: 1037 W. McKinley Ave., Milwaukee, WI 53201.
PPG	: PPG Industries, Inc-----	: 1 Gateway Center, Pittsburgh, PA 15222.
PVO	: PVO International, Inc-----	: 416 Division St., Boonton, NJ 07005.
PAC	: Pacific Anchor Chemical Corp-----	: 6055 E. Washington Blvd., Suite 700, Los Angeles, CA 90040.
	:	:
AMR	: Pacific Resins & Chemicals, Inc-----	: 1754 Thorne Rd., Tacoma, WA 93421.
PNT	: Pantasote, Inc., Film/Compound Div-----	: 26 Jefferson St., Passaic, NJ 07056.
PSC	: Passaic Color & Chemical Co-----	: 28-36 Paterson St., Paterson, NJ 07501.
CHP	: C. H. Patrick & Co., Inc-----	: P. O. Box 2526, Greenville, SC 29602.
CCH	: Pearsall Chemical Corp-----	: P. O. 437, Houston, TX 77001.
PEK	: Peck's Products Co-----	: 610 E. Clarence Ave., St. Louis, MO 63147.
PWL	: Pelron Corp-----	: 7847 W. 47th St., Lyons, IL 60534.
AES	: Penetone Corp-----	: 74 Hudson Ave, Tenafly, NJ 07670.
PAS	: Pennwalt Corp-----	: 3 Parkway, Philadelphia, PA 19102.
WTL	: Lucidol Div-----	: 1740 Military Rd., Buffalo, NY 14240.
PAR	: Pennzoil Co., Penreco Div-----	: Union Bank Bldg., Butler, PA 16001.
PER	: Perry & Derrick Co., Inc-----	: 2510 Highland Ave., Norwood, OH 45212.
PST	: Perstorp. Inc-----	: 238 Nonotuck St., Florence, MA 01060.
UDI	: Petrochemicals Co., Inc-----	: 500 E. Central St., P. O. Box 2199, Fort Worth, TX 76113.
	:	:
PRL	: Petrolite Corp-----	: 100 N. Broadway, St. Louis, MO 63102.
PTT	: Petro-Tex Chemical Corp-----	: P. O. Box 2584, Houston, TX 77001.
PFN	: Pfanstiehl Laboratories, Inc-----	: 1219 Glen Rock Ave., Waukegan, IL 60085.
PCW	: Pfister Chemical, Inc-----	: Linden Ave., Ridgefield, NJ 07657.
PFZ	: Pfizer, Inc-----	: 235 E. 42d St., New York, NY 10017.
	: Pfizer Pharmaceuticals, Inc-----	: P. O. Box 628, Barceloneta, PR 00617.
PHR	: Pharmachem Corp-----	: 719 Stefko Blvd., Bethlehem, PA 18018.
	:	:

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
PDI	Phelps Dodge Industries, Inc., Phelps Dodge Magnet Wire Co. Div.	132 E. Creighton Ave., Fort Wayne, IN 46861.
PPX	Phillips Paraxylene, Inc.	G.P.O. Box 4129, San Juan, PR 00936.
PLC	Phillips Petroleum Co.	15 Al Phillips Bldg., Bartlesville, OK 74004.
PPR	Phillips Puerto Rico Core, Inc.	G.P.O. Box 4129, San Juan, PR 00936.
PHC	Phthalchem, Inc.	6675 Beechlands Dr., Cincinnati, OH 45237.
PIC	Pierce Chemical Co.	3747 N. Meridian Rd., Rockford, IL 61103.
PIL	Pilot Chemical Co.	11756 Burke St., Santa Fe Springs, CA 90670.
PPL	Pioneer Plastics Div. of LOP Plastics, Inc.	Pionite Rd., Auburn, ME 04210.
PIT	Pitt-Consol Chemical Co.	P. O. Box 1267, Ponca City, OK 74601.
PKL	Plaskolite, Inc.	1770 Joyce Ave., Columbus, OH 43216.
PKP	Plaskon Products, Inc.	2829 Glendale Ave., Toledo, OH 43614.
PSL	Plaslok Corp.	3155 Broadway, Buffalo, NY 14227.
PLS	Plastics Engineering Co.	3518 Lakeshore Rd., Sheboygan, WI 53081.
PMC	Plastics Manufacturing Co.	2700 S. Westmoreland, Dallas, TX 75224.
PLX	Plex Chemical Corp.	1205 Atlantic St., Union City, CA 94487.
PCL	Polychemical Laboratories, Inc.	490 Hunts Point Ave., Bronx, NY 10474.
PAI	Polymer Applications, Inc.	3445 River Rd., Tonawanda, NY 14150.
PYZ	Polyrez Co., Inc.	P. O. Box 320, Woodbury, NJ 08096.
PLR	Polysar, Inc.	29 Fuller St., Leominster, MA 01453.
	Polysar Latex Div.	2200 Polymer Dr., Chattanooga, TN 37421.
PVI	Polyvinyl Chemical Industries	730 Main St., Wilmington, MA 01887.
POP	Pope Chemical Corp.	33 6th Ave., Paterson, NJ 07524.
PRT	Pratt & Lambert, Inc.	P. O. Box 22, Buffalo, NY 14240.
PMP	Premier Malt Products, Inc.	917 W. Juneau Ave., Milwaukee, WI 53201.
PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.	P. O. Box 599, Cincinnati, OH 45201.
PC	Proctor Chemical Co.	P. O. Box 399, Salisbury, NC 28144.
PRC	Products Research & Chemical Corp.	P. O. Box 1800, Glendale, CA 91209.
PUB	Publicker Industries, Inc.	777 W. Putnam Ave., Greenwich, CT 06830.
PRX	Purex Corp.	5101 Clark Ave., Lakewood, CA 90712.
QCC	Quad Chemical Corp.	2779 E. El Presidio Ave., Long Beach, CA 90810.
QCP	Quaker Chemical Corp.	Lime & Elm Sts., Conshohocken, PA 19428.
QKO	Quaker Oats Co.	Merchandise Mart Plaza, Chicago, IL 60654.
QUN	K. J. Quinn & Co., Inc.	195 Canal St., Malden, MA 02148.
RSA	R.S.A. Corp.	690 Saw Mill River Rd., Ardsley, NY 10502.
RLS	Rachelle Laboratories, Inc.	700 Henry Ford Ave., Long Beach, CA 90801.
RCN	Racon, Inc.	P. O. Box 198, Wichita, KS 67201.
RAS	Raffi and Swanson, Inc.	100 Eames St., Wilmington, MA 01887.
RAB	Raybestos-Manhattan, Inc., Raybestos Friction Materials Co.	75 E. Main St., Stratford, CT 06497.
REH	Reheis Chemical Co. Div. of Armour Pharmaceutical Co.	235 Snyder Ave., Berkeley Hgts., NJ 07922.
RCI	Reichhold Chemicals, Inc.	525 N. Broadway, White Plains, NY 10603.
RIL	Reilly Tar & Chemical Corp.	1510 Market Square Center, 151 N. Delaware St., Indianapolis, IN 46204.
REL	Reliance Universal, Inc., Louisville Resins Operation.	P. O. Box 37510, Louisville, KY 40233.
REM	Remington Arms Co., Inc.	939 Barnum Ave., Bridgeport, CT 06602.
RCC	Rexene Co.	W. 115 Century Rd., Paramus, NJ 07652.
RDA	Rhone-Poulenc, Inc.	120 Jersey Ave., New Brunswick, NJ 08903.
RCD	Richardson Co.	2400 E. Devon Ave., Des Plaines, IL 60018.
	Polymeric Systems Div.	15 Meigs Ave., Madison, CT 06443.
LKL	Richardson-Merrell, Inc., Merrell-National Laboratories Div.	2110 E. Galbraith Rd., Cincinnati, OH 45215.
RCO	Rico Chemical Corp.	P. O. Box 387, Magas Ward, Guayanilla, PR 00656.
AMS	Ridgway Color Co.	75 Front St., Ridgway, PA 15853.
RTC	Riegel Textile Corp., H.I.T. Chemicals Div.	Ware Shoals, SC 29692.
RIK	Riker Laboratories, Inc., Sub. of 3M Co.	19901 Nordhoff St., Northridge, CA 91324.
RSN	Rilsan Corp.	139 Harristown Rd., Glen Roc, NY 07452.
RT	Ritter International	4001 Goodwin, Los Angeles, CA 90039.
RIV	Riverdale Chemical Co.	220 E. 17th St., Chicago Heights, IL 60411.
ROB	Robeco Chemicals, Inc.	99 Park Ave., New York, NY 10016.
ORT	Roehr Chemicals, Inc. Div of Aceto	52-20 37th St., Long Island City, NY 11101.
RGC	Rogers Corp.	P. O. Box 550, Rogers, CT 06263.
RH	Rohm & Haas Co.	Independence Mall West, Philadelphia, PA 19105.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
RUC	Rubicon Chemicals, Inc-----	P. O. Box 517, Geismar, LA 70734.
NES	Ruetgers-Nease Chemical Co-----	P. O. Box 221, State College, PA 16801.
SCM	SCM Corp.:	
	: Glidden Coatings & Resin Div-----	: 900 Union Commerce Bldg., Cleveland, OH 44115.
	: Organic Chemicals Div-----	: P. O. Box 389, Jacksonville, FL 32201.
	: PCR, Inc-----	: P. O. Box 1466, Gainesville, FL 32602.
SOS	SSC Industries, Inc-----	: 1550 E. Taylor Ave., East Point, GA 30344.
NPR	Safeway Stores, Inc-----	: 2800 Ygnacio Valley Rd., Walnut Creek, CA 94621.
STX	St. Croix Petrochemical Corp-----	: P. O. Box 6801, Christainsted, St. Croix, U.S., : VI 00820.
SLM	Salem Oil & Grease Co-----	: 60 Grove St., Salem, MA 01970.
SAL	Salsbury Laboratories-----	: 2000 Rockford Rd., Charles City, IA 50616.
S	Sandoz, Inc.:	
	: Colors & Chemicals Div-----	: Route #10, E. Hanover, NJ 07936.
	: Crop Protection-----	: 480 Camino Del Rio South, San Diego, CA 92108.
SCN	Schenectady Chemicals, Inc-----	: P. O. Box 1046, Schenectady, NY 12301.
SBC	Scher Chemicals, Inc-----	: 1 Styertowne Rd., Clifton, NJ 07012.
SCH	Schering Corp-----	: 1011 Morris Ave., Union, NJ 07083.
SCO	Scholler, Inc-----	: Collins and Westmoreland Sts., Philadelphia, : PA 19134.
SPR	Scientific Protein Laboratories, Inc-----	: P. O. Box 158, Waunakee, WI 53597.
SPA	Scott Paper Co-----	: 2600 Federal Ave., Everett, WA 98201.
SEA	Seaboard Chemicals, Inc-----	: 30 Foster St., Salem, MA 01970.
SRL	G. D. Searle & Co., Searle Chemicals, Inc-----	: P. O. Box 8526, Chicago, IL 60680.
SKP	Shakespeare Co., Monofilament Div-----	: P. O. Box 246, Columbia, SC 29204.
SHO	Shell Oil Co-----	: P. O. Box 2463, Houston, TX 77001.
SHC	Shell Chemical Co. Div-----	: P. O. Box 2463, Houston, TX 77001.
SHP	Shepherd Chemical Co-----	: 4900 Beech St., Cincinnati, OH 45212.
SHX	Sherex Chemical Co., Inc-----	: P. O. Box 646, Dublin, OH 43017.
SW	Sherwin-Williams Co., Chemical Div-----	: 1370 Ontario St., P. O. Box 6520, Cleveland, : OH 44113.
SHT	Shintech, Inc-----	: 3800 Buffalo Speedway-Suite 210, Houston, TX 77098.
SID	George F. Siddal Co., Inc-----	: P. O. Box 925, Spartanburg, SC 29304.
VLN	SimCal Chemical Co-----	: 1221 Van Ness Ave., Fresno, CA 93721.
SMP	J. R. Simplot Co-----	: P. O. Box 912, Pocatello, ID 83210.
SIM	Simpson Timber Co., Chemicals Div-----	: 2301 N. Columbia Blvd., Portland, OR 97217.
GFS	G. Frederick Smith Chemical Co-----	: 867 McKinley Ave., P. O. Box 23214, Columbia, : OH 43223.
SK	SmithKline Corp., SmithKline Chemicals Div-----	: 1500 Spring Garden St., P. O. Box 7929, : Philadelphia, PA 19101.
SLT	Soltex Polymer Corp-----	: P. O. Box 1000, Deer Park, TX 77536.
SLC	Soluol Chemical Co., Inc-----	: Green Hill and Market Sts., W. Warwick, RI 02893.
SAC	Southeastern Adhesive Co-----	: P. O. Box 791, Lenoir, NC 28645.
SOP	Southern Chemical Products Co., Inc-----	: 430 Lower Boundary St., P. O. Box 205, Macon, : GA 31202.
	: Southland Corp.:	
ACT	: Chemical Div-----	: 7666 W. 63d St., Summit, IL 60501.
SOL	: Chemical Div-----	: 2841 Pierce St., Dallas, TX 75233.
SWR	Southwestern Refining Co-----	: P. O. Box 9217, Corpus Christi, TX 78408.
SPL	Spaulding Fibre Co., Inc., Industrial Plastics Div--	: 310 Wheeler St., Tonawanda, NY 14150.
SOI	Specialty Organics, Inc-----	: 5623 N. 4th St., Irwindale, CA 91706.
OMS	E. R. Squibb & Sons, Inc-----	: 40 W. 57th St., New York, NY 10019.
TRD	Squibb Manufacturing, Inc., Renesa, Inc., Ersana, : Inc.	: P. O. Box 609, Humacao, PR 00661.
STA	A.E. Staley Manufacturing Co-----	: 2200 E. Eldorado St., Decatur, IL 62521.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. : Div.	: 1251 Beaver Channel Parkway, Clinton, IA 52733.
SCC	Standard Chlorine of Delaware, Inc-----	: 1035 Belleville Turnpike, Kearny, NJ 07032.
SIO	Standard Oil Co-----	: 307 Midland Bldg., Cleveland, OH 44115.
AMO	Standard Oil Company (Indiana)-----	: P. O. Box 5910-A, Mail Code 3501, Chicago, : IL 60680.
SOC	Standard Oil Co. of California, Chevron Chemical : Co.	: 575 Market St., San Francisco, CA 94105.
STT	Standard T Chemical, Inc-----	: P. O. Box A-3351, Chicago, IL 60690.
STG	Stange Co-----	: 342 N. Western Ave., Chicago, IL 60612.
	: Stauffer Chemical Co.:	
SFA	: Agricultural Div-----	: 636 California St., San Francisco, CA 94108.
SFC	: Calhio Chemicals, Inc-----	: 636 California St., San Francisco, CA 94108.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
SFF	Food Ingredients Div	636 California St., San Francisco, CA 94108.
SFI	Industrial Div	636 California St., San Francisco, CA 94108.
SFP	Plastics Div	636 California St., San Francisco, CA 94108.
SFS	Specialty Div	636 California St., San Francisco, CA 94108.
SWS	SWS Silicones Div	636 California St., San Francisco, CA 94108.
STP	Stephan Chemical Co	RR #1, Elwood, IL 60421, and 100 West Hunter Ave., Maywood, NJ 07607.
NPI	Polychem Dept	51 Eames St., Wilmington, MA 01887.
	Sterling Drug. Inc.:	
SDH	Hilton Davis Chemical Co. Div	2235 Langdon Farm Rd., Cincinnati, OH 45237.
SDW	Sterling Organics Div	90 Park Ave., New York, NY 10016.
TMS	Thomasset Colors Div	2235 Langdon Farm Rd., Cincinnati, OH 45237.
SVC	Stokely-Van Camp, Inc., Capital City Products Co., Armstrong Chemical Plant Div.	525 W. 1st St., Columbus, OH 43216.
CIN	Stockhausen, Inc	P. O. Box 16025, Greensboro, NC 27406.
SBP	Sugar Beet Products Co	302 Waller St., P. O. Box 1387, Saginaw, MI 48605.
SNA	Sun Chemical Corp	411 Sun Ave., Cincinnati, OH 45232.
SNW	Chemicals Div	P. O. Box 70, Chester, SC 29706.
SUN	Sun Company, Inc	100 Matsonford Rd., Radnor, PA 19087.
SKG	Sunkist Growers, Inc	14130 Riverside Dr., Sherman Oaks, CA 91432.
SNO	SunOlin Chemical Co	P. O. Box F, Claymont, DE 19703.
	Sybron Corp.:	
TCC	Chemical Div/Tanatex	P. O. Box 125, Wellford, SC 29385.
IOC	Sybron Chemical Div	Birmingham, NJ 08011.
JSC	Sybron Chemical Div	Birmingham Rd., Birmingham, NJ 08011.
SYL	Sylvachem Corp	2110-A W. 23rd St., Panama City, FL 32405.
INP	Synair Corp	2003 Amnicola Highway, Chattanooga, TN 37406.
BUC	Synalloy Corp., Blackman Uhler Chemical Div	P. O. Box 5627, Spartanburg, SC 29304.
FAR	Syncon Resins, Inc	77 Jacobus Ave., S. Kearny, NJ 07032.
FCD	Synres Chemical Corp	209 N. Michigan Ave., Kenilworth, NJ 07032.
HFT	Syntex Agribusiness, Inc	P. O. Box 1246 S.S.S., Springfield, MO 65805.
SYT	Synthron, Inc	P. O. Box 1111, Morganton, NC 28655.
TRA	Talleyrand Chemicals, Inc	129 John Ventente Blvd., New Bedford, MA 02745.
TEK	Teknor Apex Co	505 Central Ave., Pawtucket, RI 02661.
HN	Tenneco Chemicals, Inc	Park Eighty Plaza West-One, Saddle Brook, NJ 07662.
TOC	Tenneco Oil Co., P & M	P. O. Box 2511, Houston, TX 77018.
TVA	Tennessee Valley Authority, Chemical Accounting Brand.	Muscle Shoals, AL 35660.
TER	Terra Chemicals International, Inc	P. O. Box 1828, Sioux City, IA 51102.
TER	Terra Nitrogen, Inc	P. O. Box 1828, Sioux City, IA 51102.
COO	Terrell Corp	820 Woburn St., Wilmington, MA 01887.
TX	Texaco, Inc	2000 Westchester Ave., White Plains, NY 10650.
TSA	Texas Alkyls, Inc	P. O. Box 600, Deer Park, TX 77536.
TCR	Texas City Refining, Inc	P. O. 1271, Texas City, TX 77590.
TUS	Texas-U.S. Chemical Co	P. O. Box 667, Port Neches, TX 77651.
TXS	Texstyrene Plastics, Inc	3607 N. Sylvania Ave., Fort Worth, TX 76111.
SKT	Textron, Inc., Spencer Kellogg Div	120 Delaware, Ave., Buffalo, NY 14240.
TKL	Thiokol Corp	P. O. Box 1000, Newtown, PA 18940.
MHI	Ventron Div	150 Andovin St., Danvers, MA 01923.
TMH	Thompson Hayward Chemical Co	5200 Speaker Rd., Kansas City, MO 66110.
TRC	Toms River Chemical Corp	P. O. Box 71, Tom River, NJ 08753.
TRI	Triad Chemical	P. O. Box 310, Donaldsonville, LA 70346.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identification code	Name of company	Office address
PDI	Phelps Dodge Industries, Inc., Phelps Dodge Magnet Wire Co. Div.	132 E. Creighton Ave., Fort Wayne, IN 46861.
PPX	Phillips Paraxylene, Inc	G.P.O. Box 4129, San Juan, PR 00936.
PLC	Phillips Petroleum Co	15 Al Phillips Bldg., Bartlesville, OK 74004.
PPR	Phillips Puerto Rico Core, Inc	G.P.O. Box 4129, San Juan, PR 00936.
PHC	Phthalchem, Inc	6675 Beechlands Dr., Cincinnati, OH 45237.
PIC	Pierce Chemical Co	3747 N. Meridian Rd., Rockford, IL 61103.
PIL	Pilot Chemical Co	11756 Burke St., Santa Fe Springs, CA 90670.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1980--CONTINUED

Identifi- cation code	Name of company	Office address
UOC	: Union Oil Co. of California-----	: 1650 E. Golf Rd., Schaumburg, IL 60196.
	: Union Chemicals Div-----	: P. O. Box 60455, Los Angeles, CA 90060.
USR	: Uniroyal, Inc., Uniroyal Chemical Div-----	: Emic Bldg., Spencer St., Naugatuck, CT 06770.
UNN	: United Chemical Corp. of Norwood-----	: P. O. Box 367, Norwood, MA 02766.
UNO	: United-Erie, Inc-----	: 438 Huron St., Erie, PA 16512.
ROM	: United Merchants & Manufacturers, Inc., Roma : Chemical Div.	: 749 Quequechan St., Fall River, MA 02721.
USB	: U.S. Borax & Chemical Corp-----	: 3075 Wilshire Blvd., Los Angeles, CA 90005.
USO	: U.S. Oil Co-----	: P. O. Box 4228, E. Providence, RI 02914.
UPJ	: Upjohn Co-----	: 7000 Portage Rd., Kalamazoo, MI 49002.
CWN	: Fine Chemical Div-----	: 410 Sackett Point Rd., North Haven, CT 06473.
VAL	: Valchem Div. of United Merchants & Manufacturers, : Inc.	: 1407 Broadway, New York, NY 10018.
VSV	: Valentione Sugars, Inc., Valite Div-----	: 726 Whitney Bldg., New Orleans, LA 70130.
MNP	: The Valspar Corp-----	: 1101 S. 3d St., Minneapolis, MN 55440.
VNC	: Vanderbilt Chemical Corp-----	: 31 Taylor Ave., Bethel, CT 06801, and Rt. 5 - : Box 54, Murray, KY 42071.
VDM	: Van De Mark Chemical Co., Inc-----	: 1 N. Transit Rd., Lockport, NY 14094.
VND	: Van Dyk & Co., Inc-----	: Main and Williams Sts., Belleville, NJ 07109.
VEL	: Velsicol Chemical Corp-----	: 341 E. Ohio St., Chicago, IL 60611.
VTC	: Vertac Chemical Corp-----	: P. O. Box 3, Vicksburg, MS 39180.
VIK	: Viking Chemical Co-----	: 838 Baker Bldg., Minneapolis, MN 55402.
VIN	: Vineland Chemical Co., Inc-----	: W. Wheat Rd., Vineland, NJ 08360.
VCC	: Vinings Chemical Co-----	: 2555 Cumberland Pkwy., Suite 200, Atlanta, : GA 30339.
VGC	: Virginia Chemicals, Inc-----	: 3340 W. Norfolk Rd., Portsmouth, VA 23703.
SOH	: Vistron Corp-----	: Midland Bldg., Cleveland, OH 44115.
SIC	: Silmar Div-----	: 12333 S. Van Ness Ave., Hawthorne, CA 90250.
VTM	: Vitamins, Inc-----	: 200 E. Randolph Dr., Chicago, IL 60601.
PRO	: Vulcan Materials Co., Chemicals Div-----	: P. O. Box 7689, Birmingham, AL 35223.
WJ	: Warner-Jenkinson Co-----	: 2526 Baldwin St., St. Louis, MO 63106.
PD	: Warner-Lambert-----	: 201 Tabor Rd., Morris Plains, NJ 07950.
WAG	: West Agro-Chemical, Inc-----	: P. O. Box 1386, Shawnee Mission, KS 66205.
WCA	: West Coast Adhesives Co-----	: 11104 N.W. Front Ave., Portland, OR 97231.
EW	: Westinghouse Electric Corp., Industrial Materials : Div.	: Manor, PA 15665.
WPG	: West Point-Pepperell, Inc., Griffitex Chemical Co. : Sub.	: 1900 Cunningham Dr., Opelika, AL 36801.
WVA	: Westvaco Corp., Polychemicals Dept-----	: P. O. Box 70848, Charleston Heights, SC 29405.
WRD	: Weyerhaeuser Co-----	: 1185 Palmetto Ave., Marshfield, WI 54449.
WBG	: The White and Bagley Co-----	: P. O. Box 706, Worcester, MA 01613.
WHI	: White and Hodges, Inc-----	: 576 Lawrence St., Lowell, MA 01852.
WCC	: White Chemical Corp-----	: Foot of E. 22nd St., Bayonne, NJ 07002.
WHL	: Whitmoyer Laboratories, Inc-----	: 19 N. Railroad St., Myerstown, PA 17067.
APT	: Whittaker Corp., Whittaker Coatings & Chemicals-----	: 3134 California St., NE., Minneapolis, MN 55418.
WHW	: Whittemore-Wright Co., Inc-----	: 62 Alford St., Boston, MA 02129.
WLN	: Wilmington Chemical Corp-----	: P. O. Box 66, Wilmington, DE 19899.
WTC	: Witco Chemical Corp-----	: P. O. Box 305, Paramus, NJ 07652.
WBC	: Worthington Diagnostics Div. of Millipore Corp-----	: Halls Mill Rd., Freehold, NJ 07728.
WCL	: Wright Chemical Corp-----	: Acme Station, Riegelwood, NC 28456.
WYC	: Wycon Chemical Co-----	: 9 Greenway Plaza, Houston, TX 77046.
WYT	: Wyeth Laboratories, Inc., Wyeth Laboratories Div. : of American Home Products Corp.	: P. O. Box 831, Paoli, PA 19301.

U.S. IMPORTS OF BENZENOID CHEMICALS AND PRODUCTS

U.S. general imports of benzenoid chemicals and products entered under the Tariff Schedules of the United States (TSUS), schedule 4, part 1, subparts B and C are analyzed by the U.S. International Trade Commission annually and published in detail in a separate report.¹ General imports of benzenoid items entered in parts 1B and 1C totaled 5,591 million pounds with a foreign invoice value of \$1,075.6 million in 1980 compared with 6,641 million pounds with a foreign invoice value of \$1,108.7 million in 1979.

Benzenoid products that are "competitive" with similar domestic products, because they accomplish results substantially equal to those accomplished by the similar domestic product when used in substantially the same manner, are subject to a special basis of valuation for customs purposes known as the "American selling price." If "noncompetitive," the benzenoid products are valued for customs purposes on the basis of the "United States value." The essential difference between these two values is that "American selling price" is based on the wholesale price in the United States of the "competitive" domestic product, whereas "United States value" is based on the wholesale price in the United States of the imported product less most of the expenses incurred in bringing the product to the United States and selling it. When neither of these two valuation bases applies, then the "export value," "foreign value," or "constructed value" is used as the valuation basis under section 402 and 402a of the Tariff Act of 1930, as amended. The competitive status² of benzenoid imports in 1980 is shown in table 2.

Industrial organic chemicals that are entered under part 1B consist chiefly of benzenoid intermediates and small quantities of acyclic compounds which are derived in whole or in part from benzenoid compounds. Also included are mixtures and small quantities of finished products not specially provided for in part 1C (e.g., rubber-processing chemicals). In terms of value, 31.6 percent of all the benzenoid imports under part 1B in 1980 came from West Germany; 19.1 percent, from Japan; 9.1 percent, from Switzerland; and 7.7 percent, from the United Kingdom.

Finished organic chemical products entered under part 1C include dyes, pigments, medicinals, flavor and perfume materials, pesticides, plastics materials, and certain other specified products. In terms of value 25.7 percent of all finished benzenoid imports under part 1C in 1980 came from West Germany; 18.0 percent, from Japan; 12.2 percent, from Switzerland; and 11.5 percent, from the United Kingdom.

¹ *Imports of Benzenoid Chemicals and Products, 1980*, USITC Publication 1163, July 1981.

² Competitive status of imports valued for duty purposes for January-June only. As of July 1, 1980, the American selling price method of duty valuation was discontinued.

TABLE 2.--BENZENOID CHEMICALS AND PRODUCTS: SUMMARY OF U.S. GENERAL IMPORTS ENTERED UNDER SCHEDULE 4, PARTS 1B AND 1C OF THE TSUS, AND ANALYSIS BY COMPETITIVE STATUS,¹ JANUARY-JUNE 1980

PART AND COMPETITIVE STATUS	NUMBER OF ITEMS	QUANTITY	PERCENT OF TOTAL QUANTITY	FOREIGN INVOICE VALUE	PERCENT OF FOREIGN VALUE	UNIT FOREIGN VALUE
		1,000		1,000		Per pound
		pounds		dollars		
<u>SCHEDULE 4, PART 1B</u>						
Total-----	719	215,422	100.0	247,746	100.0	\$1.15
Competitive:						
Duty based on ASP ² -----	204	79,057	36.7	76,186	30.8	.96
Other ³ -----	79	71,555	33.2	72,570	29.3	1.01
Noncompetitive:						
Duty based on U.S. value-----	198	5,133	2.4	17,933	7.2	3.49
Duty based on export value-----	170	13,459	6.2	34,932	14.1	2.60
Other ⁴ -----	57	8,773	4.1	20,475	8.3	2.33
Competitive status not available-----	11	37,444	17.4	25,650	10.4	.69
<u>SCHEDULE 4, PART 1C</u>						
Total-----	1,757	139,786	100.0	458,753	100.0	3.28
Competitive:						
Duty based on ASP ² -----	311	15,180	10.9	47,486	10.4	3.13
Other ³ -----	204	39,748	28.4	103,625	22.6	2.61
Noncompetitive:						
Duty based on U.S. value-----	811	8,408	6.0	46,770	10.2	5.56
Duty based on export value-----	244	33,465	23.9	126,649	27.6	3.78
Other ⁴ -----	122	14,836	10.6	52,542	11.5	3.54
Competitive status not available-----	65	28,150	20.1	81,681	17.8	2.90
<u>SUMMARY (SCHEDULE 4, PART 1B AND 1C)</u>						
Total-----	2,476	355,208	100.0	706,498	100.0	1.99
Competitive:						
Duty based on ASP ² -----	515	94,237	26.5	123,672	17.5	1.31
Other ³ -----	283	111,303	31.3	176,195	24.9	1.58
Noncompetitive:						
Duty based on U.S. value-----	1,009	13,541	3.8	64,703	9.2	4.78
Duty based on export value-----	414	46,924	13.2	161,580	22.9	3.44
Other ⁴ -----	179	23,609	6.6	73,017	10.3	3.09
Competitive status not available-----	76	65,594	18.5	107,331	15.2	1.64

¹Competitive status of imports valued for duty purposes for January-June only. As of July 1, 1980, the American selling price method of duty valuation was discontinued.

²All import entries in this group were "competitive" as defined in secs. 402 and 402a of the Tariff Act of 1930, as amended.

³Imports in this group are also "competitive." However, for each of the items in this group, there are some import entries which were appraised by the U.S. Customs Services as "noncompetitive" with like or similar U.S. products because at the time of exportation from the foreign country, the U.S. products were not freely offered for sale in the principal U.S. markets.

⁴Assessment of duties on import entries of items in this group were based on two or more import values during the year. Under the provisions of secs. 402 and 402a of the Tariff Act of 1930, as amended, each import shipment was valued wither at the U.S. value, the export value, or the foreign value.

Source: Compiled by the U.S. International Trade Commission from records of the U.S. Bureau of Customs.

Note 1.--The totals shown in this table differ from those given in the official statistics of the U.S. Department of Commerce chiefly because of difference in coverage and in the methods used in compiling the data.

Note 2.--Imports entered under Schedule 4, part 1B, in 1980 was 337,994,235 pounds with an invoice value of \$384,458,936, part 1C totaled 221,065,431, pounds with an invoice value of \$691,130,458.

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

TABLE 3.--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'-azodibzenesulfonic acid.
p-Aminobenzenesulfonic acid-----	: Sulfanilic acid and salt.
m-Aminobenzoyl J acid-----	: 4-Hydroxy-7-(m-aminobenzamido)-2-naphthalenesulfonic acid.
Aminoepsilon acid-----	: 8-Amino-1,6-naphthalenedisulfonic acid.
Amino G acid-----	: 7-Amino-1,3-naphthalenedisulfonic acid.
Amino J acid-----	: 6-Amino-1,3-naphthalenedisulfonic acid.
Amino R salt-----	: 3-Amino-2,7-naphthalenedisulfonic acid.
Aniline oil-----	: Aniline
Anthraflavic acid-----	: 2,6-Dihydroxyanthraquinone.
Anthrarufin-----	: 1,5-Dihydroxyanthraquinone.
Armstrong & Wynne's acid-----	: 4-Hydroxy-2-naphthalenesulfonic acid.
B Acid-----	: 5-Amino-4-hydroxy-1,7-naphthalenedisulfonic acid.
2B Acid-----	: 6-Amino-4-chloro-m-toluenesulfonic acid.
4B Acid-----	: 6-Amino-m-toluenesulfonic acid.
Benzal chloride-----	: α,α -Dichlorotoluene.
Benzanthrone-----	: 7H-Benz[de]anthracen-7-one.
Benzotrichloride-----	: α,α,α -Trichlorotoluene.
Bisphenol A-----	: 4,4'-Isopropylidenediphenol.
B.O.N.-----	: 3-Hydroxy-2-naphthoic acid.
Broenner's acid-----	: 6-Amino-2-naphthalenesulfonic acid.
Bromamine acid-----	: 1-Amino-4-bromo-2-anthraquinonesulfonic acid.
Bromobenzanthrone-----	: 3-Bromo-7H-benz[de]anthracen-7-one
C Acid (Cassella 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.
Chicago Acid (SS acid)-----	: 4-Amino-5-hydroxy-1,3-naphthalenedisulfonic acid.
Chlorobenzanthrone-----	: Chloro-7H-benz[de]anthracen-7-one.
Chromotropic acid-----	: 4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
Chrysazin-----	: 1,8-Dihydroxyanthraquinone.
1,6-Cleve's acid-----	: 5-Amino-2-naphthalenesulfonic acid.
1,7-Cleve's acid-----	: 8-Amino-2-naphthalenesulfonic acid.
Crocein acid-----	: 7-Hydroxy-1-naphthalenesulfonic acid.
2-Cyanopyridine-----	: Picolinonitrile.
3-Cyanopyridine-----	: Nicotinonitrile.
Cyanuric chloride-----	: 2,4,6-Trichloro-s-triazine.
D Acid-----	: 6-Amino-1-naphthalenesulfonic acid.
DADI-----	: Dianisidine diisocyanate
DDB-----	: p-Dibutoxybenzene.
Decacyclene-----	: Diacenaphtho[1,2-j:1',2'-l]fluoranthene.
Dehydrothio-p-toluidine-----	: 2-(p-Aminophenyl)-6-methylbenzothiazole.
Developer Z-----	: 3-Methyl-1-phenyl-2-pyrazolin-5-one.
o-Dianisidine-----	: 3,3'-Dimethoxybenzidine.
1,1'-Dianthrimide-----	: 1,1'-Iminodianthraquinone.
Dibenzanthrone-----	: Violanthrone.
4,4'-Dihydroxydiphenylsulfone-----	: 4,4'-Sulfonyldiphenol.
Dimethyl POPOP-----	: 1,4-Bis[2-(4-methyl-5-phenyloxazolyl)]benzene.
4,5-Dinitrochrysazin-----	: 1,8-Dihydroxy-4,5-dinitroanthraquinone.
Dioxy S acid-----	: 4,5-Dihydroxy-1-naphthalenesulfonic acid.
Diphenyl Epsilon Acid-----	: 6,8-Dianilino-1-naphthalenesulfonic acid.
Durene-----	: 1,2,4,5-Tetramethylbenzene.
Epsilon Acid (Andresen's acid)-----	: 8-Hydroxy-1,6-naphthalenedisulfonic acid.
F Acid-----	: 7-Hydroxy-2-naphthalenesulfonic acid.
Fast Red G base-----	: 2-Nitro-p-toluidine [$\text{NH}_2=1$].
Fast Scarlet R base-----	: 5-Nitro-o-anisidine [$\text{NH}_2=1$].
Fischer's aldehyde-----	: 1,3,3-Trimethyl- δ^2,α -indolineacetaldehyde.
Fischer's base-----	: 1,3,3-Trimethyl-2-methyleneindoline.
Freund's acid-----	: 4-Amino-2,7-naphthalenedisulfonic acid.

TABLE 3.--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.
MVP	5-Vinyl-2-picoline.
Naphthionic acid	4-Amino-1-naphthalenesulfonic acid.
o-Naphthionic acid	1-Amino-2-naphthalenesulfonic acid.
β-Naphthol	2-Naphthol, tech.
Naphthol AS	3-Hydroxy-2-naphthanilide.
α-Naphthylamine	1-Naphthylamine.
Neville & Winther's acid	4-Hydroxy-1-naphthalenesulfonic acid.
m-Nitrobenzoyl J acid	4-Hydroxy-7-(m-nitrobenzamido)-2-naphthalenesulfonic acid.
Oxy Koch's acid	1-Naphthol-3,6,8-trisulfonic acid.
Pentaanthrimide	1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone.
Peri Acid	8-Amino-1-naphthalenesulfonic acid.
Phenylbiphenyl	Terphenyl.
N-Phenyldiethanolamine	2,2'-[(Phenyl)imino]diethanol.
Phenyl Gamma acid	6-Anilino-4-hydroxy-2-naphthalenesulfonic acid.
Phenyl J acid	7-Anilino-4-hydroxy-2-naphthalenesulfonic acid.
Phenyl peri acid	8-Anilino-1-naphthalenesulfonic acid.
Picric acid	2,4,6-Trinitrophenol.
POPOP	1,4-Bis[2-(5-phenyloxazolyl)]benzene.
Pseudocumene	1,2,4-Trimethylbenzene.
Pyrazoleanthrone	Anthra[1,9-cd]pyrazol-6(2H)-one.
Pyrazoleanthrone yellow	[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione.
Pyrazolone T	5-Oxo-1-(p-sulfophenyl)-2-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 3.--CYCLIC INTERMEDIATES: GLOSSARY OF SYNONYMOUS NAMES--CONTINUED

COMMON NAME	STANDARD (CHEMICAL ABSTRACTS) NAME
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
Vinyltoluene-----	: ar-Methylstyrene.
Violet acid (RG Acid)-----	: 4-Hydroxy-2,7-naphthalenedisulfonic acid.

