

SYNTHETIC ORGANIC CHEMICALS

**United States Production
and Sales, 1979**



USITC PUBLICATION 1099

United States International Trade Commission / Washington, D.C. 20436

UNITED STATES INTERNATIONAL TRADE COMMISSION

**SYNTHETIC
ORGANIC CHEMICALS**

**United States Production
and Sales, 1979**

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INTRODUCTION

This is the 63rd 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 750 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, rubber-processing chemicals, and elastomers--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.

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

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

Table 1 of the Appendix is a directory, alphabetized by the names of the manufacturers reporting in all sections and includes their office addresses.

Table 2 of the Appendix summarizes and gives the competitive status of U.S. general imports in 1979 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 all 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.

Combined production of all synthetic organic chemicals, tar, and primary products from petroleum and natural gas in 1979 was 354,651 million pounds--an increase of 10.5 percent over the output in 1978. (see table 1). Sales of these materials in 1979, which totaled 186,647 million pounds, valued at \$53,074 million, were 9.5 percent larger than in 1978 in terms of quantity and 27.9 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 1979, production of all synthetic organic chemicals, including cyclic intermediates and finished products, totaled 228,191 million pounds, or 22.3 percent more than the output in 1978. All sections showed an increase in production in 1979 over 1978. Cyclic intermediates (49,574 million pounds) led the increase with a gain of 148.7 percent¹; medicinal chemicals (313 million pounds) increased 16.4 percent; organic pigments (88 million pounds) increased 14.3 percent; miscellaneous end-use chemicals and chemical products (22,342 million pounds) increased 8.5 percent; rubber-processing chemicals (395 million pounds) increased 7.9 percent; plastics and resin materials (41,871 million pounds) increased 7.7 percent; miscellaneous cyclic and acyclic chemicals (98,777 million pounds) increased 7.2 percent; dyes (266 million pounds) increased 6.0 percent; surface-active agents (4,948 million pounds) increased 4.4 percent; flavor and perfume materials (195 million pounds) increased 3.2 percent; plasticizers (2,133 million pounds) increased 2.3 percent; elastomers (5,860 million pounds) increased 1.7 percent; and pesticides and related products (1,429 million pounds) increased 0.9 percent.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS AND THEIR RAW MATERIALS:
U.S. PRODUCTION AND SALES, 1978 AND 1979

CHEMICAL	PRODUCTION			SALES					
				QUANTITY			VALUE		
	INCREASE			INCREASE			INCREASE		
	OR			OR			OR		
1978	1979	DECREASE	1978	1979	DECREASE	1978	1979	DECREASE	
(-), 1979:			(-), 1979:			(-), 1979:			
OVER			OVER			OVER			
1978 ²			1978 ²			1978 ²			
:Million:Million:			:Million:Million:			:Million:Million:			
:pounds :pounds :			:pounds :pounds :			:dollars:dollars :			
Percent			Percent			Percent			
Grand total ³	320,891	354,651	10.5	170,488	186,647	9.5	41,511	53,074	27.9
Tar	5,405	5,896	9.1	2,947	3,444	16.9	...	...	...
Primary products from petroleum and natural gas	128,829	120,564	-6.4	64,281	62,658	-2.5	6,160	7,175	16.5
Synthetic organic chemicals, total ³	186,657	228,191	22.3	103,260	120,545	16.7	35,351	45,899	29.8
Cyclic intermediates ¹	19,936	49,574	148.7	8,853	21,544	143.4	2,803	6,566	134.2
Dyes	251	266	6.0	233	241	3.4	734	797	8.6
Organic pigments	77	88	14.3	65	67	3.1	322	378	17.4
Medicinal chemicals	269	313	16.4	185	226	22.2	944	1,043	10.5
Flavor and perfume materials	189	195	3.2	140	145	-3.6	212	236	11.3
Plastics and resin materials	38,878	41,871	7.7	33,527	36,834	9.9	12,349	15,380	24.5
Rubber-processing chemicals	366	395	7.9	228	280	22.8	287	345	20.2
Elastomers (synthetic rubber)	5,761	5,860	1.7	3,640	4,002	9.9	1,875	2,325	24.0
Plasticizers	2,086	2,133	2.3	1,748	1,814	3.8	703	826	17.5
Surface-active agents	4,738	4,948	4.4	2,708	2,859	5.6	996	1,144	18.4
Pesticides and related products	1,416	1,429	.9	1,300	1,369	5.3	3,041	3,631	19.4
Miscellaneous end-use chemicals and chemical products	20,589	22,342	8.5	11,698	11,478	-1.9	2,713	3,032	11.8
Miscellaneous cyclic and acyclic chemicals	92,101	98,777	7.2	38,935	39,696	2.0	8,582	10,196	18.8

¹The 1979 totals are significantly higher than the 1978 totals because of the addition of the following cyclic intermediates: cumene, cyclohexane, cyclohexene, ethylbenzene, styrene, m-xylene, o-xylene, and p-xylene. The figures on U.S. production and sales of these eight cyclic intermediates were included in Section II, Primary Products from Petroleum and Natural Gas for Chemical Conversion, from 1976 through 1978.

²Percentages calculated from figures rounded to thousands.

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

SYNTHETIC ORGANIC CHEMICALS, 1979

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 1979 was 228,191 million pounds or 22.3 percent more than the output of 186,657 million pounds reported for 1978 and 117.9 percent more than the output of 104,711 million pounds reported in 1967 (see table 2). Sales of synthetic organic chemicals in 1979 amounted to 120,546 million pounds, valued at \$45,899 million, compared with 103,260 million pounds, valued at \$35,531 million in 1978 and 55,177 million pounds, valued at \$10,438 million in 1967. Production of all cyclic products (intermediates and finished products combined) in 1979 totaled 76,637 million pounds or 67.2 percent more than the 45,826 million pounds reported for 1978 and 128.9 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 1979 totaled 151,554 million pounds, or 7.6 percent more than the 140,831 million pounds reported for 1978 and 112.8 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, 1978, AND 1979

CHEMICAL	(Production and sales in thousands of pounds; sales value in thousands of dollars)			INCREASE OR DECREASE (-)	
	1967 ¹	1978	1979	1979 OVER 1967	1979 OVER 1978
				Percent	Percent
Organic chemicals, cyclic and acyclic, grand total:					
Production-----	104,711,357	186,657,007	228,191,343	117.9	22.3
Sales-----	55,176,823	103,260,322	120,545,589	118.5	16.7
Sales value-----	10,438,453	35,530,776	45,898,751	339.7	29.2
Cyclic, total:					
Production-----	33,479,469	45,825,737	76,637,176	128.9	67.2
Sales-----	19,328,628	26,527,904	40,330,744	108.7	52.0
Sales value-----	4,610,293	14,743,163	20,559,751	346.0	39.5
Acyclic, total:					
Production-----	71,231,888	140,831,270	151,554,167	112.8	7.6
Sales-----	35,848,195	76,732,418	80,214,845	123.8	4.5
Sales value-----	5,828,160	20,787,613	25,339,000	334.8	21.9
1. Cyclic Intermediates					
Production-----	20,793,132	19,935,769	49,574,216	138.4	148.7
Sales-----	9,461,180	8,852,650	21,544,445	127.7	143.4
Sales value-----	1,000,359	2,803,327	6,566,387	556.4	134.2
2. Dyes					
Production-----	206,240	250,780	265,881	28.9	6.0
Sales-----	198,592	232,711	241,396	21.6	3.7
Sales value-----	332,049	733,553	797,212	140.1	8.7
3. Organic Pigments					
Production-----	53,322	76,716	88,248	65.5	15.0
Sales-----	42,867	64,638	66,885	56.0	3.5
Sales value-----	108,354	321,882	377,509	248.4	17.3
4. Medicinal Chemicals					
Cyclic:					
Production-----	110,129	157,210	178,550	62.1	13.6
Sales-----	70,120	87,197	102,790	46.6	17.9
Sales value-----	348,873	850,199	923,879	164.8	8.7
Acyclic:					
Production-----	69,941	111,855	134,540	92.4	20.3
Sales-----	56,804	97,915	122,865	116.3	25.5
Sales value-----	36,402	93,915	119,266	227.6	27.0

See footnotes at end of table.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1978, AND 1979--CONTINUED

(Production and sales in thousands of pounds; sales value in thousands of dollars)						
CHEMICAL	1967 ¹	1978	1979	INCREASE OR DECREASE (-)		
				1979 OVER 1967	1979 OVER 1978	
<i>5. Flavor and Perfume Materials</i>						
				Percent	Percent	
Cyclic:						
Production-----	57,978	101,175	109,027	88.0	7.8	
Sales-----	47,285	83,565	76,756	62.3	-8.1	
Sales value-----	52,866	137,239	153,047	189.5	11.5	
Acyclic:						
Production-----	53,558	88,271	85,512	59.7	-3.1	
Sales-----	49,311	56,656	58,358	18.3	3.0	
Sales value-----	40,495	74,565	83,458	106.1	11.9	
<i>6. Plastics and Resin Materials</i>						
Cyclic:						
Production-----	5,033,497	11,819,919	12,867,081	155.6	8.9	
Sales-----	4,224,121	10,103,322	11,089,619	162.5	9.8	
Sales value-----	1,036,940	4,969,197	6,038,224	482.3	21.5	
Acyclic:						
Production-----	8,759,452	27,057,873	29,004,100	231.1	7.2	
Sales-----	7,753,242	23,423,832	25,744,137	232.0	9.9	
Sales value-----	1,635,690	7,380,227	9,341,575	471.1	26.6	
<i>7. Rubber-Processing Chemicals</i>						
Cyclic:						
Production-----	220,139	325,001	338,654	53.8	4.2	
Sales-----	169,970	200,514	233,994	37.7	16.7	
Sales value-----	116,318	258,254	316,285	171.9	22.5	
Acyclic:						
Production-----	43,994	40,802	56,083	27.5	37.5	
Sales-----	30,878	27,935	45,705	48.0	63.6	
Sales value-----	15,477	28,811	28,935	87.0	.4	
<i>8. Elastomers (Synthetic Rubber)</i>						
Cyclic:						
Production-----	2,297,637	3,209,951	3,267,457	42.2	1.8	
Sales-----	1,940,099	1,760,624	1,929,398	99.4	9.6	
Sales value-----	439,580	551,299	725,327	65.0	31.6	
Acyclic:						
Production-----	1,524,908	2,551,190	2,592,626	70.0	1.6	
Sales-----	1,321,945	1,879,749	2,072,836	56.8	10.3	
Sales value-----	434,657	1,323,807	1,599,326	268.0	20.8	
<i>9. Plasticizers</i>						
Cyclic:						
Production-----	929,871	1,781,612	1,825,925	96.4	2.5	
Sales-----	865,084	1,470,534	1,532,596	77.2	4.2	
Sales value-----	167,827	539,216	649,848	287.2	20.5	
Acyclic:						
Production-----	332,908	304,172	307,026	92.2	.9	
Sales-----	296,767	277,035	281,391	94.8	1.6	
Sales value-----	93,142	163,684	175,693	88.6	7.3	
<i>10. Surface-Active Agents</i>						
Cyclic: ²						
Production-----	1,418,444	1,099,120	1,235,265	87.1	12.4	
Sales-----	852,238	570,987	677,840	-20.5	18.7	
Sales value-----	95,810	228,476	296,902	209.9	29.9	
Acyclic:						
Production-----	2,060,851	3,638,733	3,713,174	80.2	2.0	
Sales-----	897,786	2,137,048	2,181,640	143.0	2.1	
Sales value-----	220,877	737,184	846,604	283.3	14.8	

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1979

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1978, AND 1979--CONTINUED

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

CHEMICAL	1967 ¹	1978	1979	INCREASE OR DECREASE (-)	
				1979 OVER	1979 OVER
				1967	1978
<i>11. Pesticides and Related Products</i>					
				Percent	Percent
Cyclic:					
Production-----	823,158	795,836	760,899	92.4	-4.4
Sales-----	681,532	747,054	773,868	13.5	3.6
Sales value-----	627,742	1,897,623	2,283,864	263.8	20.4
Acyclic:					
Production-----	226,505	620,648	668,509	195.1	7.7
Sales-----	215,831	553,057	595,201	175.8	7.6
Sales value-----	159,301	1,143,579	1,346,824	745.5	17.8
<i>12. Miscellaneous End-Use Chemicals and Chemical Products³</i>					
Cyclic:					
Production-----	(1,535,922)	4,002,939	3,810,382	158.1	-4.8
Sales-----	(775,540)	1,221,617	930,766	20.0	-23.8
Sales value-----	(283,575)	718,464	543,636	91.7	-24.3
Acyclic:					
Production-----	(58,159,771)	16,586,394	18,531,356	31.9	11.7
Sales-----	(25,225,631)	10,476,649	10,547,517	-58.2	.7
Sales value-----	(3,192,119)	1,994,612	2,488,552	-22.0	24.8
<i>13. Miscellaneous Cyclic and Acyclic Chemicals³</i>					
Cyclic:					
Production-----	...	2,269,712	2,315,591	...	2.0
Sales-----	...	1,132,491	1,130,391	...	-2.0
Sales value-----	...	734,434	887,632	...	20.9
Acyclic:					
Production-----	...	89,831,332	96,461,241	...	7.4
Sales-----	...	37,802,542	38,565,195	...	2.0
Sales value-----	...	7,847,229	9,308,767	...	18.6

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 1979 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-----	183	Elastomers (synthetic rubber)-----	30
Dyes-----	39	Plasticizers-----	57
Organic pigments-----	35	Surface-active agents-----	167
Medicinal chemicals-----	94	Pesticides and related products-----	84
Flavor and perfume materials-----	39	Miscellaneous end-use chemicals and chemical products-----	133
Plastics and resin materials-----	244	Miscellaneous cyclic and acyclic chemicals-----	271
Rubber-processing chemicals-----	29		

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 1979 amounted to 590 million gallons (see table 1). Production in 1979 was 9.3 percent more than the 540 million gallons of coal tar produced in 1978. Sales of coal tar in 1979 amounted to 344 million gallons compared with 295 million gallons in 1978. U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1978 or 1979; 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 1979 amounted to 1,673 million gallons--12.4 percent more than the 1,488 million gallons reported for 1978. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum refiners in 1979 amounted to 903 million gallons compared with 757 million gallons in 1978. In 1979 the output of toluene (including material produced for use in blending in aviation fuel) amounted to 1,010 million gallons--4.2 percent less than the 1,054 million gallons reported for 1978. Sales of toluene (Nitration grade, 1°) in 1979 were 597 million gallons compared with 695 million gallons in 1978. The output of xylene in 1979 (including that produced for blending in motor fuels) was 972 million gallons, compared with 845 million gallons in 1978. Over 99 percent of the 972 million gallons of xylene produced in 1979 was obtained from petroleum sources. Sales of xylene decreased slightly to 439 million gallons in 1979 compared with 446 million gallons in 1978.

SYNTHETIC ORGANIC CHEMICALS, 1979

Production and sales figures on crude naphthalene from coal-tar oils in 1979 could not be published without disclosing the operations of individual companies. Production of petroleum-derived naphthalene in 1979 amounted to 163 million pounds, compared with 156 million pounds in 1978. Production figures on road tar for 1979 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 1979 tar crudes were supplied by 10 companies and company divisions.

TABLE 1.--TAR AND TAR CRUDES: U.S. PRODUCTION AND SALES, 1979

[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--	589,553	344,412	...	...
Crude light oil: ³ Coke-oven operators-----	1,000 gal--	174,320	105,163	...	...
Light-oil distillates:					
Benzene, all grades, total ⁴ -----	1,000 gal--	1,672,660	903,323	1,195,399	\$1.32
Coke-oven operators-----	1,000 gal--	60,940	59,837	⁵ 78,985	1.32
Petroleum refiners ⁶ -----	1,000 gal--	1,611,720	843,486	1,116,414	1.32
Toluene, all grades, total ⁴ -----	1,000 gal--	1,009,903	597,140	627,401	1.05
Coke-oven operators-----	1,000 gal--	9,238	8,360	⁵ 8,611	1.03
Petroleum refiners-----	1,000 gal--	1,000,665	588,780	618,790	1.05
Xylene, all grades, total ⁴ -----	1,000 gal--	972,153	439,087	464,168	1.06
Coke-oven operators-----	1,000 gal--	1,364	1,288	⁵ 1,365	1.06
Petroleum refiners-----	1,000 gal--	970,789	437,799	462,803	1.06
Solvent naphtha: ³					
Coke-oven operators-----	1,000 gal--	1,377	1,406	...	...
Crude tar-acid oils: ³					
Coke-oven operators-----	1,000 gal--	19,018	3,598	...	...
Creosote oil (Dead oil) (tar distillers) ⁷ (100% : creosote basis), total-----	1,000 gal--	107,689	51,410	...	...
Distillate as such (100% creosote basis)-----	1,000 gal--	80,530	40,491	27,776	.69
Creosote content of coal tar solution (100% : creosote basis)-----	1,000 gal--	27,159	10,919	(⁸)	(⁸)
Tar, refined, for uses other than road tar-----	1,000 gal--	13,638	13,699	11,424	.83
Pitch of tar (tar distillers) ⁷ , total-----	1,000 tons-	955	952	120,711	126.80
Hard (water softening point above 160° F)-----	1,000 tons-	508	505	85,782	169.86
Other ³ -----	1,000 tons-	447	447	34,929	101.56

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 in December, 1979*, March 1980). 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.

⁵Sales value figures are estimated from Energy Data Reports, *Coke & Coal Chemicals in December, 1979*, March 1980.

⁶Benzene, specification grades (1°, 2°) only.

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

⁸In 1979, production of coal-tar solution containing creosote (100% solution basis) amount to 58,032 thousand gallons; sales were 36,084 thousand gallons, valued at 24,667 thousand dollars, with a unit value of \$0.68 per gallon.

Footnotes--Continued

⁹Includes pitch emulsion, medium and soft pitch.

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 1979 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 in December, 1979, March, 1980, as the annual publication data were not available to include in this report.

TABLE 1A.--TAR: U.S. PRODUCTION AND CONSUMPTION, 1978 AND 1979

(In thousands of gallons)

TAR	1978	1979
PRODUCTION		
Coal tar from coke-oven byproduct plants, total ¹ -----	540,628	589,553
CONSUMPTION		
Total-----	(2)	(2)
Tar consumed by distillation, total-----	(2)	(2)
Coal tar distilled or topped by coke-oven operators ¹ -----	(2)	(2)
Coal tar and oil-gas tar distilled by tar distillers ³ -----	277,079	341,863
Tar consumed by the producers chiefly as fuel ¹ -----	(2)	(2)
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, 1978, AND 1979

TAR AND TAR CRUDES	UNIT OF QUANTITY	1967 ¹	1978	1979	INCREASE, OR DECREASE (-)	
					1979 OVER 1967	1979 OVER 1978
					Percent	Percent
Coal tar ² -----	1,000 gal--	780,334	540,452	589,553	-24.4	9.1
Benzene: ³						
Coke-oven operators-----	1,000 gal--	90,642	53,472	60,940	-32.8	14.0
Petroleum refiners-----	1,000 gal--	878,704	1,434,957	1,611,720	83.4	12.3
Total-----	1,000 gal--	969,346	1,488,429	1,672,660	72.6	12.4
Toluene: ³						
Coke-oven operators-----	1,000 gal--	19,357	7,855	9,238	-52.3	17.6
Petroleum refiners-----	1,000 gal--	⁴ 624,454	1,046,107	1,000,665	60.2	-4.3
Total-----	1,000 gal--	643,811	1,053,962	1,009,903	56.9	-4.2
Xylene: ³						
Coke-oven operators-----	1,000 gal--	5,488	1,434	1,364	-75.1	-4.9
Petroleum refiners-----	1,000 gal--	⁴ 449,349	843,782	970,789	116.0	15.1
Total-----	1,000 gal--	454,837	845,216	972,153	113.7	15.0
Naphthalene:						
Crude ⁵ -----	1,000 lb---	520,991	(⁶)	(⁶)	(⁶)	(⁶)
Petroleum naphthalenes, all grades-----	1,000 lb---	376,679	156,801	163,367	-56.6	4.2
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	⁸ 51,343	80,530	(⁹)	(⁹)
Creosote content of coal tar solution (100% creosote basis)-----	1,000 gal--	17,402	⁸ 34,961	27,159	(⁹)	(⁹)
Total-----	1,000 gal--	126,234	⁸ 86,304	107,689	(⁹)	(⁹)

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 for 1978 and 1979 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.

⁸Includes data for creosote oil produced by tar distillers only in wood preserving.

⁹Comparison not possible because 1979 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, 1979

[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: Refined-----	: ACS, 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 4, 1979, entitled "Coke Producers in the United States in 1978."

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1979

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 1979 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
FER	Ferro Corp., Productol Chemical Div.	NEV	Roads Materials Div.
HUS	Husky Industries, Inc.	RIL	Neville Chemical Co.
JEN	Jennison-Wright Corp.	WTC	Reilly Tar & Chemical Corp.
			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

13

STATISTICAL HIGHLIGHTS

Louis N. DeToro

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 120,564 million pounds in 1979. Production in 1978 was 128,947 million pounds. The output of aromatic and naphthenic products from petroleum amounted to 31,222 million pounds in 1979, compared with 54,638 million pounds in 1978. Production and sales data for cumene, cyclohexane, ethylbenzene, styrene, o-xylene, and p-xylene were dropped from section II and added to section III of this report, accounting for the large decrease in production data for 1979. Sales amounted to \$2,517 million in 1979 and \$2,663 million in 1978. Production of benzene, toluene, and xylene from petroleum increased in 1979 by about 2 billion pounds, while the unit values of these products were up markedly from last year's unit values (table 1).

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 89,341 million pounds in 1979, compared with 74,308 million pounds in 1978. Sales of these products were valued at \$4,659 million in 1979, compared with \$3,497 million in 1978. Production of ethylene was 29,904 million pounds in 1979. The output of 1,3-butadiene in 1979 (3,583 million pounds) increased from the production in 1978 (3,515 million pounds).

Data for 1979 crude products from petroleum and natural gas for chemical conversion were supplied by 70 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, 1979

[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-----	120,563,539	62,658,333	7,175,973	\$0.12
AROMATICS AND NAPHTHENES ²				
Total-----	31,222,406	17,994,954	2,516,806	.14
Benzene (1° and 2°)-----	11,797,794	6,174,317	1,116,414	.18
Dicyclopentadiene (including cyclopentadiene)-----	68,410	62,103	6,907	.11
Naphthalene, all grades-----	163,367	96,341	19,066	.20
Naphthenic acid-----	17,261	16,583	2,431	.15
Toluene, all grades, total-----	7,214,795	4,245,102	618,790	.15
Nitration grade, 1°-----	4,690,764	3,459,988	507,573	.15
Pure commercial grade, 2°-----	700,713	...	...	...
All other ^{3 4} -----	1,823,318	785,114	111,217	.14
Xylenes, mixed, total-----	7,377,996	3,327,276	462,803	.14
3° grade-----	3,997,767	2,110,939	295,309	.14
5° grade-----	1,427,812	605,033	82,402	.14
All other ⁴ -----	1,952,417	611,304	85,092	.14
All other aromatics and naphthenes ⁵ -----	4,582,783	4,073,232	290,395	.07
ALIPHATIC HYDROCARBONS				
Total-----	89,341,133	44,663,379	4,659,167	.10
C ₂ Hydrocarbons, total-----	37,787,370	15,346,747	1,801,692	.12
Ethane-----	7,883,702	3,705,249	196,121	.05
Ethylene-----	29,903,668	11,641,498	1,605,571	.14
C ₃ Hydrocarbons, total-----	24,209,267	15,255,542	1,199,869	.08
Propane-----	10,010,851	7,891,199	467,979	.06
Propylene ⁶ -----	14,198,416	7,364,343	731,890	.10
C ₄ Hydrocarbons, total-----	12,274,183	6,863,615	958,927	.14
Butadiene and butylene fractions-----	712,854	438,068	90,824	.21
1,3-Butadiene, grade for rubber (elastomers)-----	3,582,642	2,504,473	550,991	.22
n-Butane-----	2,439,645	1,037,345	104,382	.10
1-Butene-----	108,051	99,398	19,428	.20
1-Butene and 2-Butene, mixed ⁷ -----	1,069,304	645,444	68,895	.11
Isobutane-----	1,535,430	379,571	22,963	.06
Isobutylene, 2-butene and mixed butylenes-----	1,687,905	1,255,728	56,999	.04
All other ⁸ -----	1,138,352	503,588	44,445	.09
C ₅ Hydrocarbons, total-----	985,659	696,883	85,305	.12
Dibutanized aromatic concentrate-----	201,532	133,129	15,053	.11
Isoprene (2-Methyl-1,3-butadiene)-----	547,976	197,278	31,227	.16
n-Pentane-----	71,745	...	...	...
Pentenes, mixed-----	164,406	...	...	...
All other ⁹ -----	...	366,476	39,025	.11
All other aliphatic hydrocarbons, derivatives and mixtures, total-----	14,084,654	6,500,592	613,374	.09
Alpha olefins ¹⁰ -----	800,595	470,951	122,273	.26

See footnotes at end of table.

TABLE 1.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL
CONVERSION: U.S. PRODUCTION AND SALES, 1979--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ALIPHATIC HYDROCARBONS--Continued				
All other aliphatic hydrocarbons, derivatives, and mixtures--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Dodecene (Tetrapropylene)-----	323,907	89,357	12,568	\$0.14
Heptenes, mixed-----	124,670	94,389	12,796	.14
Hexane-----	387,594	313,562	41,120	.13
Nonene (Tripropylene)-----	477,216	345,057	47,339	.14
n-Paraffins ¹¹ -----	1,509,797	879,588	105,883	.12
All other ¹² -----	10,460,875	4,307,688	271,395	.06

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 piperylenes.

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, 1979

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

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AROMATICS AND NAPHTHENES	
ALKYL AROMATICS:	
Cyclosols	SHC.
Alkyl aromatics: all other	AMO, BFG, UCC.
*BENZENE:	
Benzene 10 (99-100 %)	AMO, APR, ASH, ATR, CPI, CSD, CSO, CSP, ENJ, GOC, GRS, HES, MOC, MON, PLC, PPR, QH, SHC, SKO, SM, SOC, SOG, SUN, SWR, TID, TOC, TX, UCC, UOC.
Benzene 20 (98-98.9%)	DOM.
Benzene 90-97.9% (Non-fuel)	KLM.
Cresylic acid (Less than 75 percent distilling over 215° C)	FER.
Cresylic acid, refined	ATR, ENJ.
*Dicyclopentadiene (Including cyclopentadiene)	DOM, ENJ, GOC, MON.
Methylcyclopentane	PLC.
*Naphthalene	ASH, MON, TID, UOC.
*NAPHTHENIC ACID:	
Naphthenic acid, acid number 150-199	GOC, SOC, SUN.
Naphthenic acid, acid number 200-224	FER.
Naphthenic acid, acid number less than 150	ATR, SUN, TX.
Petroleum phenols	SKO.
*TOLUENE ALL GRADES, TOTAL:	
*Toluene, 10 (99.5-100%)	ASH, ATR, CPI, ENJ, GOC, GRS, HES, MOC, MON, PLC, QH, SHC, SKO, SOG, SUN, SWR, TID, TOC, TX, UCC, UOC.
*Toluene, 20 (98.5-99.4%)	ATR, DOM, ELP, PPR, SUN.
*Toluene, 90-98.4% (Non-fuel)	CSD, CSP, HST, MON, PPR, PPX, SHO, SKO, SM.

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, 1979--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AROMATICS AND NAPHTHENES--CONTINUED	
*Xylenes, mixed:	
**Xylene, 30 (99-100%)	AMO, ATR, CPI, CSO, GOC, HES, SHC, SOG, SNR, UCC.
**Xylene, 50 (98-98.9%)	CSD, ENJ, GRS, HCF, MOC, PPR, QH, UOC.
**Xylene, 90-97.9% (Non-fuel)	AMO, ASH, CSP, MON, SOC, SUN, TOC.
*ALL OTHER AROMATICS AND NAPHTHENES:	
Carbon black feedstock	ENJ.
Hydrocarbon polymer	JCC.
Polyethylbenzene	HST.
All other products from petroleum and natural gas, cyclic	EKX, ENJ, NWP, SHC, SUN, TNA, TX.
ALIPHATIC HYDROCARBONS	
C/1 HYDROCARBONS:	
Methane	MON, QH, SHO.
C/2 HYDROCARBONS:	
Acetylene (For chemical use only)	DOM, MNO, MON, RH, UCC.
*Ethane	ACU, AMO, ENJ, MON, OMC, PLC, SHO, SM, TX, USI.
*Ethylene	ACU, AMO, ATR, BAS, BFG, CBN, CO, CPX, DOM, DUP, EKX, ELP, ENJ, GOC, MCB, MON, NWP, OMC, PLC, SHC, SM, SNO, TX, UCC, USI, USS.
C/3 HYDROCARBONS:	
Hydrocarbons, C2-C3, mixtures	CSO.
Methyl acetylene propadiene	MON.
*Propane (Commercial and hd-5)	AMO, ASH, CCP, CLK, CO, COR, CPI, CSD, CSO, CSP, ENJ, GRS, MOC, OMC, PLC, SHO, SM, SOG, SUN, TX, UCC, UOC, USI.
*Propylene	ACU, AMO, ASH, ATR, BFG, CBN, CLK, CO, CPX, CSD, CSO, DOM, DUP, EKX, ELP, ENJ, GOC, JCC, MCB, MOC, MON, NWP, PLC, SHC, SIO, SKO, SM, SOC, SOG, SUN, TX, UCC, USS, SUN.
Propylene tetramer	SUN.
C/4 HYDROCARBONS:	
*Butadiene and butylene fractions	ACU, CO, CPX, CSD, DOM, EKX, GOC, NWP, TX.
*1,3-Butadiene, grade for rubber (Elastomers)	AMO, ATR, BFG, CPY, DOM, ELP, ENJ, FRS, MON, PLC, PTT, SHC, SM, TUS, UCC, USS.
*n-Butane	AMO, APR, ASH, COR, CSD, CSO, CSP, ELP, PLC, SHO, SM, SUN, UCC, 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, 1979--CONTINUED

PRIMARY 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, GOC, SHC, SOG.
Butylenes, mixed	MON, SM.
Hydrocarbons, C4, fraction	JCC.
* Isobutane (2-Methylpropane)	AMO, CSO, CSP, ELP, ENJ, PLC, SHO, SM, SUN, TX, USI.
* Isobutylene (2-Methylpropene)	AMO, CSD, ENJ, OCC, SHC.
Hydrocarbons, C4, all other	BFG, CBN, ELP, ENJ, GOC, MCB, QH, SHC, SM, TNA.
C/5 HYDROCARBONS:	
Amylenes	SHC, SHO.
* Dibutanized aromatic concentrate	CO, DUP, ELP, JCC.
Isopentane (2-Methylbutane)	PLC, SHO.
* Isoprene (2-Methyl-1,3-butadiene)	ATR, DOM, ENJ, MON, SHC.
* n-Pentane	APR, ASH, PLC, SHO.
1-Pentene	PLC.
* Pentenes, mixed	DOM, ENJ, SHO.
Piperylene (1,3-pentadiene)	DOM, MON.
Hydrocarbons, C5, all other	ATR, CSO, GOC, PLC, QH.
* ALL OTHER ALIPHATIC HYDROCARBONS, DERIVATIVES, AND MIXTURES:	
C/6 HYDROCARBONS:	
* Hexane	APR, ASH, ENJ, HNY, PLC, SHO, SOG, UOC.
Hydrocarbons, C5-C6, mixtures	COR.
Methylcyclopentadiene	ENJ.
Neohexane (2,2-Dimethylbutane)	PLC.
Hydrocarbons, C6, all other	CPI, SHO, SWC.
C/7 HYDROCARBONS:	
n-Heptane	EKX, UOC.
* Heptenes, mixed	AIP, AMO, ENJ, SOG, TID.
Hydrocarbons, C7, all other	ENJ.
C/8 HYDROCARBONS:	
Cyclooctadiene	CBN.
Di-isobutylene (Di-isobutene)	PTT, TX.
n-Octane	SOG.
Hydrocarbons, C8, all other	AIP, ENJ, SHC, TID.

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, 1979--CONTINUED

PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ALIPHATIC HYDROCARBONS--CONTINUED	
C/9 AND ABOVE HYDROCARBONS (EXCEPT ALPHA OLEFINS):	
*Dodecene	ATR, CO, ENJ, SOC, SUN, TX, UOC.
Eicosane	HNY.
*Nonene (Tripropylene)	AIP, ATR, CSP, ENJ, TID, UOC.
*ALPHA OLEFINS:	
Alpha olefins, C6-C7-	GOC, SOC, TNA.
Alpha olefins, C8-C10	GOC, SHC, SOC, TNA.
Alpha olefins, C11-C15	GOC, SHC, SOC, TNA.
Alpha olefins, C15-C20	SOC.
Alpha olefins: all other	SHC.
*N-PARAFFINS - CARBON CHAIN LENGTH:	
n-Paraffins, C6-C9-	CPX, SOG.
n-Paraffins, C9-C15	SHO, SOG.
n-Paraffins, C10-C14-	ENJ, SHO, SOG.
n-Paraffins, C10-C16-	CO.
n-Paraffins-	CSP, ENJ, GOC, SHC.
Hydrocarbons, C5-C9, mixtures-	PPR.
Polybutene	AMO, CSD, SOC.
Tri-isobutylene-	TX.
HYDROCARBON DERIVATIVES:	
n-Butyl mercaptan (1-Butanethiol)-	PAS, PLC.
tert-Butyl mercaptan (2-Methyl-2-propanethiol)	PAS, PLC.
Decyl mercaptans	PAS.
Di-tert-butyl disulfide-	PLC.
Ethyl mercaptan (Ethanolthiol)	PAS, PLC.
Hexadecyl mercaptans	PAS.
Isopropyl mercaptan (2-Propanethiol)	PAS.
Methyl mercaptan (Methanethiol)-	DOW, PAS.
t-Nonyl mercaptan-	PAS.
tert-Octyl mercaptan (2,4-Trimethyl-2-pentane-thiol)	PAS.
Octyl mercaptans	PAS.
n-Propyl mercaptan (1-Propanethiol)-	PAS, PLC.
Hydrocarbon derivatives: all other hydrocarbon derivatives-	PAS, PLC, TX.
Hydrocarbons, C9 and above, all other, including mixtures	BFG, CO, ENJ, MOC, QH, SOC, SOG.

TABLE 3.--PRIMARY PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of crude products from petroleum and natural gas for chemical conversion to the U.S. International Trade Commission for 1979 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 Div.	MCB	Borg-Warner Corp., Borg-Warner Chemicals
AIP	Air Products & Chemicals, Inc.	MNO	Monochem, Inc.
AMO	Standard Oil Co. (Indiana)	MOC	Marathon Oil Co., Texas Refining Div.
APR	Atlas Processing Co.	MON	Monsanto Co.
ASH	Ashland Oil, Inc.	NWP	Northern Petrochemical Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.	OCC	Oxirane Chemical Co.
BAS	BASF Wyandotte Corp.	OMC	Olin Corp.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	PAS	Pennwalt Corp.
CBN	Cities Service Co., Petrochemicals Div.	PLC	Phillips Petroleum Co.
CCP	Crown Central Petroleum Corp.	PPR	Phillips Puerto Rico Core, Inc.
CLK	Clark Oil & Refining Corp.	PPX	Phillips Paraxylene, Inc.
CO	Conoco, Inc.	PTT	Petro-Tex Chemical Corp.
COR	Commonwealth Oil & Refining Co., Inc.	PUE	Puerto Rico Olefins Co.
CPI	Commonwealth Petrochemicals, Inc.	QH	Quintana-Howell Joint Venture
CPX	Chemplex Co.	RH	Rohm & Haas Co.
CPY	Copolymer Rubber & Chemical Corp.	SHC	Shell Oil Co., Shell Chemical Co. Div.
CSD	Cosden Oil & Chemical Corp.	SHO	Shell Oil Co.
CSO	Cities Service Co., Petroleum Products Group	SIO	Standard Oil Co.
CSP	Coastal States Petrochemical Co.	SKO	Getty Refining & Marketing Co. & Delaware Refinery
DOW	Dow Chemical Co.	SM	Mobil Oil Corp.: Gas Liquids Dept.
DUP	E. I. duPont de Nemours & Co., Inc.	SNO	Mobil Chemical Co., Petrochemicals Div.
EKK	Eastman Kodak Co., Texas Eastman Co. Div.	SOC	SunOlin Chemical Co.
ELP	El Paso Products Co.	SOG	Standard Oil Co. of California, Chevron Chemical Co.
ENJ	Exxon Chemical Co. U.S.A.	SUN	Charter International Oil Co.
FER	Ferro Corp., Productol Chemical Div.	SWC	Sun Company, Inc.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.	SWR	Corco Cyclohexane, Inc.
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.	TID	Southwestern Refining Co.
GRS	Champlin Petroleum Co.	TNA	Getty Refining & Marketing Co.
HCF	Hercofina	TOC	Ethyl Corp.
HES	Amerada Hess Corp. (Hess Oil Virgin Islands Corp.)	TUS	Tenneco Oil Co., P & M
HMY	Humphrey Chemical Co.	TX	Texas-U.S. Chemical Co.
HST	American Hoechst Corp.	UCC	Texaco, Inc.
JCC	Jefferson Chemical Co., Inc.	UOC	Union Carbide Corp.
KLM	Kalama Chemical, Inc.	USI	Union Oil Co. of California & Chemicals Div.
		USR	National Distillers & Chemicals Corp., U.S. Industrial Chemicals Co.
		USS	Uniroyal, Inc., Uniroyal Chemical Div.
			USS Chemicals Div. of U.S. Steel Corp.

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 1979 about 43 percent of the total output of cyclic intermediates was sold; the rest was consumed chiefly in the producing plants in the manufacture of more advanced intermediates and finished products.

Total production of cyclic intermediates in 1979 amounted to 49,574 million pounds, compared, with 19,936 million pounds produced in 1978. Sales of cyclic intermediates in 1979 were 21,544 million pounds, valued at \$6,566 million, compared with 8,853 million pounds, valued at \$2,803 million in 1978. The 1979 totals are significantly higher than the 1978 totals because of the addition of the following cyclic intermediates: cumene, cyclohexane, cyclohexene, ethylbenzene, styrene, m-xylene, o-xylene, and p-xylene. The figures on U.S. production and sales of these eight cyclic intermediates were included in Section II, Primary Products from Petroleum and Natural Gas for Chemical Conversion, from 1976 through 1978.

Intermediates which were produced in excess of 2 billion pounds in 1979 were ethylbenzene (8,448 million pounds), styrene (7,484 million pounds), dimethyl terephthalate (6,159 million pounds), p-xylene (4,650 million pounds), cumene (3,917 million pounds), phenol (2,981 million pounds), and cyclohexane (2,425 million pounds).

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1979

[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	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	49,574,216	21,544,445	6,566,387	\$0.31
Acetoacetanilide-----	10,053	9,131	7,300	.80
o-Acetoacetanisidide-----	1,663	1,414	2,386	1.69
o-Acetoacetotoluidide-----	1,797	1,269	1,196	.94
Alkylbenzenes ² -----	626,732	492,087	168,907	.34
1-Amino-2-bromo-4-hydroxyanthraquinone-----	808	...	...	...
p-[(p-Aminophenyl)azo]benzenesulfonic acid-----	302	...	...	...
Aniline (Aniline oil)-----	689,783	269,316	69,798	.26
Anilinomethanesulfonic acid and salt-----	308	...	...	...
Benzoic acid, tech-----	77,043	34,334	11,056	.32
2-Benzothiazolethiol, sodium salt-----	14,753	8,088	3,332	.41
Biphenyl-----	58,180	31,823	5,708	.18
Butylphenols, mixed-----	7,978	5,861	2,497	.43
Chlorobenzene, mono-----	323,402	114,166	31,395	.27
4-Chloro-3-nitrobenzenesulfonamide-----	761	...	...	...
Cresols, total ³ -----	108,166	108,499	62,472	.58
o-Cresol-----	24,235	28,788	12,239	.43
All other ⁴ -----	83,931	79,711	50,233	.63
Cresylic acid, refined ³ -----	...	45,488	13,868	.31
Cumene-----	3,917,416	1,743,126	319,324	.18
Cyclohexane-----	2,425,280	2,397,160	519,230	.22
Cyclohexanone-----	874,995	46,491	17,017	.37
o-Dichlorobenzene-----	57,113	56,503	17,559	.31
p-Dichlorobenzene-----	83,462	83,753	25,770	.31
2,4-Dichlorophenol-----	...	9,017	4,178	.46
N,N-Diethylaniline-----	2,554	2,419	2,636	1.09
1,4-Dihydroxyanthraquinone (Quinizarin)-----	1,337	...	...	...
N,N-Dimethylaniline-----	13,714	11,349	7,650	.67
N,N-Dimethylbenzylamine-----	288	249	543	2.18
N-Ethylaniline, refined-----	2,369	1,839	1,860	1.01
Ethylbenzene-----	8,448,362	364,854	59,358	.16
Isocyanic acid derivatives, total-----	1,342,905	1,159,912	679,846	.59
Polymethylene polyphenylisocyanate-----	487,725	421,231	237,703	.56
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)---	687,045	619,980	337,491	.54
Other isocyanic acid derivatives-----	168,135	118,701	104,652	.88
4,4'-Isopropylidenediphenol (Bisphenol A)-----	575,849	186,552	73,192	.39
Leuco quinizarin (1,4,9,10-Anthratetrol)-----	128	...	...	...
Metanilic acid (m-Aminobenzenesulfonic acid)-----	1,173	...	...	...
3-(N-Methylanilino)propionitrile-----	110	...	...	...
α-Methylstyrene-----	81,595	63,181	13,636	.22
o-Nitroaniline-----	10,424	5,333	5,893	1.11
p-Nitroaniline-----	16,282	...	...	...
Nitrobenzene-----	952,414	22,098	5,281	.24
Nonylphenol-----	154,666	63,259	19,224	.30
Phenol, total ³ -----	2,981,210	1,626,559	435,282	.27
From cumene-----	2,900,626	...	...	...
Other ⁵ -----	80,584	...	...	...

See footnotes at end of table.

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1979--CONTINUED

CYCLIC INTERMEDIATES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanol-amine)	...	358	273	\$0.76
Phthalic anhydride	1,012,857	551,504	166,885	.30
Salicylic acid, tech	40,247	5,060	4,439	.88
Styrene	7,484,233	3,266,336	933,191	.29
Terephthalic acid, dimethyl ester ⁶	6,159,244	...	...	...
Tetrahydrofuran	120,296	44,183	34,901	.79
Toluene-2,4-diamine (4-m-Tolylenediamine)	228,871	109,116	27,548	.25
o-Xylene	1,081,529	903,259	166,790	.18
p-Xylene	4,649,787	2,701,404	593,486	.22
All other cyclic intermediates	4,931,777	4,998,095	2,051,480	.41

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 and some m-cresol and p-cresol.

⁵The 1978 production figure was incorrect.

⁶The 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. The 1978 production figure was incorrect.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979

[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)azo]-1,5-naphthalenedisulfonic acid	TRC.
2,2'-[(5-Acetamido-2-methoxyphenyl)imino]diethanol	TCH.
3-Acetamido-N-(2-succinimidoethyl)-N-ethylaniline	EKT.
Acetanilide, tech.	ARA, SAL.
*Acetoacetanilide	SDC.
*o-Acetoacetanilide	BRD, EKT, HST.
*o-Acetoacetotoluidide	BRD, EKT, HST.
2',4'-Acetoacetoxylidide	BRD, EKT, HST.
Acetoacet-m-xylidide	BRD, EKT.
1'-Acetonaphthone	GIV.
Acetophenone, tech.	CLK, MON, SKO, UCC.
p-Acetotoluidide	EK.
α-Acetylamino-p-toluenesulfonamide	SDW.
p-Acetylbenzenesulfonamide	LIL.
p-Acetylbenzenesulfonic acid, sodium salt	LIL.
p-Acetylbenzenesulfonurethane	LIL.
N-Acetylsulfanilyl chloride	ACY, ARA.
2-Acetylthiophene	PD.
*ALKYLBENZENES:	
Alkylbenzene straight-chain (Except dodecyl and tri decyl)	MON, WTC.
DODECYLBENZENE (INCLUDING TRIDECYLBENZENE):	
Dodecylbenzene, straight-chain	CO, MON, UCC, WTC.
Dodecylbenzene, other	CO, MIL, SOC, TCH, WTC.
Alkylbenzene all other (Except dodecyl, tridecyl and straight -chain)	MON, PLC, TCH, WTC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Alkylphenols, mixed-	FER.
Alkylpyridines, mixed-	RIL.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid, sodium salt-	DUP.
1-Amino-4-(4-acetaminoanilino)-9,10-dihydro-9, 10-dioxo-	VPC.
2-anthracenesulfonic acid-	AC, TRC.
3'-Aminoacetanilide-	DUP, TRC.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-	HST, SDC.
3'-Amino-p-acetanisidide-	TRC.
5-Amino-2-(p-aminoanilino)benzenesulfonic acid-	TRC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-	PCW.
3-Amino-p-anisaniidide-	AC, SDC, TRC.
1-Aminoanthraquinone and salt-	TRC.
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9)-	TRC.
p-Aminobenzamide	SDH.
2-Aminobenzamide	SM.
1-Amino-4-benzamidoanthraquinone	ACY.
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid-	TRC.
o-Aminobenzenethiol-	FMT.
2-Amino-6-benzothiazolecarboxylic acid	DUP.
2-Amino-6-benzothiazolecarboxylic acid, monosodium salt	X.
2(4'-Aminobenzoylamino)-6-naphthol-8-sulfonic acid	TRC.
1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2-anthracenesul- fonic acid and sodium salt	TRC, VPC.
*1-Amino-2-bromo-4-hydroxyanthraquinone	AC, DUP, VPC.
1-Amino-5-chloroanthraquinone	TRC.
2-Amino-1-chloroanthraquinone	EKT.
2-Amino-5-chlorobenzophenone	GNW.
1-Amino-2-chloro-4-hydroxyanthraquinone	TRC.
3-Amino-6-chloropyridazine	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1]	AC, BAS, DUP.
6-Amino-5-chloro-m-toluenesulfonic acid [SO ₃ H=1] Acid)-	DUP.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Amino-p-cresol	SM.
1-Aminocyclohexanecarboxylic acid, chloride	KF.
1-Amino-2,4-dibromoanthraquinone	DUP, VPC.
1-Amino-2,4-dichloroanthraquinone	TRC.
2-Amino-5,6-dichlorobenzothiazole	SAL.
Aminodichloro-m-cresol, hydrochloride	EK.
1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2-anthracenesulfonic acid, sodium salt	TRC.
4-Amino-N,N-di(β-hydroxyethyl)aniline sulfate	WAY.
5-Amino-4,5'-dihydroxy-3,4'-[(2-methoxy-5-methyl-p-phenylene)bis(azo)]-di-2,7-naphthalenedisulfonic acid, 5'-benzenesulfonate	TRC.
5-Amino-2,3-dimethylbenzenesulfethanamide	TRC.
3-Amino-9-ethylcarbazole	SDC.
3-Amino-α-ethylhydrocinamic acid	SDM.
4-Amino-N-ethyl-N-(β-methylsulfonamidoethyl)-m-toluidine phosphate	WAY.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate	TRC.
4-Amino-3-hydroxy-1-naphthalenesulfonic acid	ACY, TRC.
6-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt	TRC.
3-Amino-2-hydroxy-5-nitroacetanilide	TRC.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid	TRC.
4-Amino-5-methoxy-2-methylbenzenesulfonic acid	ATL, X.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid	AC, DUP, TRC.
3-[(4-Amino-3-methoxyphenyl)azo]1,5-naphthalene disulfonic acid	TRC.
4-[(4-Amino-5-methoxy-o-tolyl)azo]-4-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate	TRC.
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.
2-Amino-4'-methylidiphenylsulfone-4-sulfonic acid	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-Amino-4-(4-methyleneaminomethylamino)-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.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid	TRC.
2-Amino-6-methylpyridine	RII.
2-Amino-4-(methylsulfonyl)phenol	TRC.
2-Amino-5-methyl-1,3,4-thiadiazole	ACY.
3-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)	AC, DUP, TRC.
2-Amino-1,5-naphthalenedisulfonic acid, sodium salt	X.
2-Amino-1-naphthalenesulfonic acid (Tobias acid)	ACY, SM.
6-Amino-2-naphthalenesulfonic 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-5-naphthol)	BUC, TRC.
Amino-4-hydroxy-2-naphthalenesulfonic acid sodium salt	AC, TRC.
2-Amino-4-nitroacetanilide	SDC.
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	AC, ATL, TRC.
2-Amino-5-nitrothiazole	PCM.
3'-Aminooxanilic acid	ATL.
4'-Aminooxanilic acid	ATL.
3-Amino-2-oxazolidinone	NOR.
6-Aminopenicillanic acid	TRD, WYT.
o-Aminophenol	TRC.
p-Aminophenol	SCN.
m-(p-Aminophenyl)azobenzenesulfonic acid	AC, TRC.
*p-(p-Aminophenyl)azobenzenesulfonic acid	AC, TRC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid	ACY, DUP, TRC.
5-[(p-Aminophenyl)azo]salicylic acid	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

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

2-(p-Aminophenyl)-6-methylbenzothiazole	DUP.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt	DUP, TRC.
m-Aminophenylphosphonic acid	ICI.
S-(4-Aminophenyl)thiosulfuric acid, sodium salt	MAL.
4-Aminopyrazolo(3,4-d)pyrimidine	KF.
2-Aminopyridine	NEP, RIL.
3-Aminopyridine	RIL.
3-Amino-p-toluamide	SDH.
4-Amino-m-toluenesulfonic acid [SO ₃ H=1]	DUP.
6-Amino-m-toluenesulfonic acid [SO ₃ H=1]	DUP.
m-[(4-Amino-3-tolyl)azo]benzenesulfonic acid	TRC.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid	TRC.
*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, DUP, TRC.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	EK.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid) potassium salt	SDC.
o-Anisidine	DUP.
o-Anisidinomethanesulfonic acid	TRC.
Anisole, tech.	DUP.
9,10-Anthracenedicarboxaldehyde	EK.
Anthra[1,9]pyrazol-6(2H)-one (Pyrazoleanthrone)	SM, TRC.
Anthraquinone, 100%	TRC.
1,1'-[1,5(and 1,8)-Anthraquinonylene]diamino[<i>o</i> -bismaphthyl-2,3-C]acridan-5,8,14-trione	EKT.
N,N'-(1,5-Anthraquinonylene)dianthranilic acid	TRC.
(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt	TRC.
Benzaldehyde, tech.	HN, KLM, MNR.
1-Benzamido-5-chloroanthraquinone	TRC.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid	TRC.

TABLE 2.---CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Benzanilide	DUP.
7H-Benzide [anthracen-7-one (Benzanthrone)-	TRC.
p-Benzenedisulfonic acid, 2,5-dihydroxy-dipotassium salt	EK.
Benzenesulfonic acid	EK.
Benzenesulfonamide	TRC.
Benzenesulfonic acid	UPF.
Benzenesulfonic acid, propyl ester	CMN.
Benzenesulfonyl chloride	UPF, USR.
1,2,4-Benzenetricarboxylic acid 1,2-anhydride (Trimelitic anhydride)	AMO.
1,3,5-Benzenetricarboxylic acid, tri-2-propenyl ester	TNA.
Benzhydrol (Diphenylmethanol)	UOP.
Benzil	LEM.
Benzimidazole	EK.
*Benzoic acid, tech.	HN, KLM, PFZ, VEL.
Benzoin	SFS.
Benzoinoxime	RSA.
Benzonitrile	SM.
Benzophenone	X.
2-Benzothiazolethiol	USR.
*2-Benzothiazolethiol, sodium salt	ACY, GYR, USR.
1H-Benzotriazole	SM.
2-Benzoxazolethiol	EK.
Benzoyl chloride	HK, VEL.
N-Benzylacetamide	SDM.
Benzylamine	ARS, HXL.
2-(Benzylamino)ethanol	HXL.
4-Benzyl-6-chloro-3-keto-2-methyl-7-sulfamyl-1,2,4-benzylthiadiazine-1,1-dioxide	ABB.
4-Benzyl-6-chloro-3-keto-7-sulfamyl-1,2,4-benzylthiadiazine-1,1-dioxide	ABB.
Benzyl ether (Dibenzyl ether)	UOP.
3-(Benzylethylamino)acetanilide	EKT.
4,4'-Benzylidenedi-o-toluidine	ACY.
1-Benzyl-4-phenylisonipecotic acid	SDM.
1-Benzyl-4-phenylisonipecotnitrile	SDM.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Benzyltrimethylammonium hydroxide	HXL.
Benzyltrimethylammonium methoxide	HXL.
[3,3'-Bianthral[1,9-cd]pyrazole]-6,6'(2H,2'H)-dione (Pyrazoleanthrone Yellow)	TRC.
[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione	ACY, TRC.
*Biphenyl	CHL, DOW, GOC, MON, SUN, TCC.
3-[Bis(2-acetoxyethyl)amino]-p-acetoanilide	TCH.
3-[N,N-Bis(2'-acetoxyethyl)amino-4-methoxyacetanilide	MIL.
N,N-Bis-(2-acetoxyethyl)-aniline	VPC.
Bis(p-aminocyclohexyl)methane	DUP.
1,4-Bis[1-anthraquinonylamino]anthraquinone	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)benzophenone (Ethyl ketone base)	X.
4,4'-Bis(dimethylamino)benzhydrol (Michler's hydrol)	X.
Bis(β-dimethylaminoethyl)phenylacetone trile	WYT.
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]lanthracen-7-one (3-Bromobenzanthrone)	ACY, TRC.
Bromobenzene, mono	GTL.
o-Bromobenzoic acid	PD.
2-Bromo-6-chloro-4-nitroaniline	HST.
4-Bromo-3,5-dihydroxybenzamide	PCW.
2-Bromo-4,6-dinitroaniline	HST, SDC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Bromoethylbenzene	RS.A.
N-(4-Bromopentyl)phthalimide	SDM.
(p-Bromophenyl)acetone	SFS.
2-Bromopyridine	OMC.
8-Bromotheophylline	CHT.
p-Bromotoluene	SFS.
2-Bromo-1,3,5-triethylbenzene	DUP.
p-Butylaniline	HDM, TNA.
n-Butylaniline	HDM.
3-(N-Butylanilino)propionitrile	MIL.
2-tert-Butylanthraquinone	DUP.
p-tert-Butylbenzaldehyde	GIV.
n-Butylbenzene	PLC.
sec-Butylbenzene	PLC.
tert-Butylbenzene	UOP.
p-tert-Butylbenzoic acid	SHC.
o-(p-tert-Butylbenzoyl)benzoic acid	DUP.
2-tert-Butyl-p-cresol	ACY.
6-tert-Butyl-m-cresol	KPT.
2'-tert-Butyl-4',6'-dimethylacetophenone	GIV.
2-tert-Butyl-4-ethylphenol	ACY.
tert-Butylhydroquinone	X.
2-tert-Butyl-5-methylanisole	GIV.
o-sec-Butylphenol	SCN, TNA.
o-tert-Butylphenol	TNA.
p-tert-Butylphenol	DOM, FER, SCN.
*Butylphenols, mixed	DOM, FER, SCN, TNA.
p-tert-Butyltoluene	GIV, PIC, SHC.
5-tert-Butyl-1,2,3-trimethylbenzene	GIV.
5-tert-Butyl-m-xylene	GIV.
6-tert-Butyl-2,4-xylene	FER, PIT.
d-10-Camphorsulfonic acid	KF.
(3-Carbanoyl-3,3-diphenylpropyl)diisopropylmethyl- ammonium iodide	SK.
3'-Carboxy-2-chloro-4'-nitro-4-(trifluoromethyl)diphenyl ether	OMC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3'-Carboxy-2-chloro-4'-nitro-4-(trifluoromethyl)diphenyl ether, sodium salt		OMC.
o-Chloranil		UPJ.
2-Chloroacetamido-5-chlorobenzophenone		WYT.
2'-Chloroacetacetanilide		EKT, HST.
4'-Chloroacetophenone		LIL.
4'-(Chloroacetyl)acetanilide		DUP.
9-Chloroacridine		EK.
o-Chloroaniline		DUP.
m-Chloroaniline		DUP.
p-Chloroaniline		MON.
3-(o-Chloroanilino)propionitrile		DUP, TCH.
5-Chloro-o-anisidine [NH ₂ =1] (4-Chloro-o-anisidine [OCH ₂ =1])		ALL.
1-Chloroanthraquinone		ACY, TRC.
2-Chloroanthraquinone		ACY.
o-Chlorobenzaldehyde		SDH.
p-Chlorobenzaldehyde		HN.
o-Chlorobenzamide		PD.
Chloro-7H-benz[e]anthracen-7-one (Chlorobenzanthrone)		TRC.
*Chlorobenzene, mono-		DOM, MON, MTO, PPG, SCC.
p-Chlorobenzenesulfonic acid		TRC.
p-Chlorobenzenesulfonic acid		UPF.
p-Chlorobenzenethiol		SFA.
o-Chlorobenzoic acid		HN.
o-Chlorobenzoyl chloride		PD.
Chloro(p-chlorophenyl)phenylmethane		OPC.
1-Chloro-2,5-dibutoxy-4-nitrobenzene		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		WYT.
7-Chloro-1,3-dihydro-5-phenyl-2H-1,4-benzodiazepin-2-one-4-oxide		WYT.
4'-Chloro-2',5'-dimethoxyacetanilide		HST, PCM.
4-Chloro-2,5-dimethoxyaniline		PCM.
5-Chloro-2,4-dimethoxyaniline		ALL, PCM.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Chloro-1,4-dimethoxybenzene	PCW.
4-Chloro-2,5-dimethoxynitrobenzene	PCW.
2-[p-Chloro- α -(2-dimethylaminoethyl)benzyl]pyridine	SK.
2-Chloro-10-[3-(dimethylamino)propyl]phenothiazine	SK.
4-Chloro-N,N-dimethyl-3-nitrobenzenesulfonamide	EKT.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	SDC.
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt	SDC.
3-Chlorodiphenylamine	SK.
Chlorodiphenylmethane	OPC.
2-Chloroethanol, p-toluenesulfonate	TCH.
4-Chloro-5'-ethyl-2'-hydroxybenzamide	LIL.
p-[(2-Chloroethyl)methylamino]benzaldehyde	DUP.
2-Chloro-4'-fluorobenzophenone	LIL.
7-Chloro-4-hydroxyquinidine hydrochloride	PD.
4-Chloro-N-isopropyl-3-nitrobenzenesulfonamide	TRC.
4-Chlorometanilic acid	DUP.
1-Chloro-2-methylanthraquinone	ACY, TRC.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide	TRC.
ar-Chloromethylstyrene	DOM.
5-Chloro-2-(N-methyl)sulfamyl-4-sulfamyl-N-benzylaniline	ABB.
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)	DUP.
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)	DUP, VPC.
1-Chloro-5-nitroanthraquinone	TRC.
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.
Chloronitrobenzene mixture	DUP.
2-Chloro-5-nitrobenzenesulfonic acid	TRC.
*4-Chloro-3-nitrobenzenesulfonamide	AC, DUP, EKT, TRC.
4-Chloro-3-nitrobenzenesulfonamide	TRC.
2-Chloro-5-nitrobenzenesulfonic acid	TRC.
4-Chloro-3-nitrobenzenesulfonic acid	TRC.
4-Chloro-3-nitrobenzenesulfonamide	TRC.
2-Chloro-4-nitrobenzoic acid	DUP, EKT, SDC.
2-Chloro-5-nitrobenzoic acid	SAL.
2-Chloro-4-nitrobenzoic acid, potassium salt	TRC.

TABLE 2. --CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
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.
(p-Chlorophenyl)acetone	UOP.
4-Chloro- α -phenyl-o-cresol	MON.
(m-Chlorophenyl)diethanolamine	HST.
o-Chlorophenyl-1-hydroxycyclopentyl-N-methylketamine	PD.
2,2'-(m-Chlorophenyl)imino]diethanol	TCH.
2,2'-(o-Chlorophenyl)imino]diethanol, diacetate ester	SDC.
3-(o-Chlorophenyl)-5-methyl-4-isoxazole carboxylic acid chloride	ARS.
1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	TRC.
p-Chlorophenyl methyl sulfone	TRC.
4-Chlorophthalic acid	AC, SW.
(3-Chloropropenyl)benzene	SDM.
2-Chloropyridine	OMC.
4-Chlororesorcinol	AC, PCW.
5-Chloro-4-sulfamyl-2-(N-methylsulfamyl)aniline	ABB, HN.
o-Chlorotoluene	HN.
p-Chlorotoluene	HN.
α -Chlorotoluene (Benzyl chloride)	MON, SFS.
3-Chloro-p-toluidine [NH ₂ =1]	DUP.
4-Chloro-o-toluidine [NH ₂ =1] and hydrochloride	PCM.
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one	TRC.
p-Chloro- α , α -trifluorotoluene	HK.
6-Chloro- α , α -trifluoro-m-toluidine	PCW.
4-Chloro-3,5-xyleneol	FER.
Cholic acid	MIL.
Cinnamoyl chloride	EK.
*CRESOLS:	
m-Cresol	KPT.
*o-CRESOL:	
o-Cresol, from coal tar	FER, KPT.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CREOLS--Continued:	
*O-CRESOL--Continued:	
o-Cresol, from petroleum	FER, MER, NPC, SW.
p-Cresol	SM.
CREOLS, MIXED:	
(M,P)-CRESOL:	
(m,p)-Cresol, from coal tar	FER, KPT.
(m,p)-Cresol, from petroleum	FER, MER, NPC.
(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	FER, MER.
* Cumene (Isopropyl benzene)	AMO, ASH, CLK, GOC, GP, MON, SHC, SKO, SUN, TX, UCC.
p-Cumylphenol	MON.
2-[p-(Cyanacetamido)phenyl]-6-methyl-7-benzothiazole-sulfonic acid	DUP.
4-(Cyanocetyl)morpholine	PCM.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde	DUP.
p-[(2-Cyanoethyl)methylamino]benzaldehyde	DUP.
N-Cyano-s-methyl-N-2(4-methyl-5-imidazolyl)-methylthio-ethylisothiourea	SK.
1,5,9-Cyclododecatriene (CDDT)	DUP.
*Cyclohexane	CSD, ENJ, GOC, GRS, PLC, PPR, SUN, SMC, TX, UOC.
1,3-Cyclohexanedione	PD.
Cyclohexanol	ALF, DBC, DUP, MON.
*Cyclohexanone	ALF, CEL, CNP, DBC, DUP, MON, UCC.
Cyclohexanone oxime	CNP.
Cyclohexene	PLC, USR.
4-Cyclohexene-1,2-dicarboximide	SFC.
4-Cyclohexene-1,2-dicarboxylic anhydride	DKA.
Cyclohexene oxide	MON, USR.
6-(1-Cyclohexenyl)ethylamine	HXL.
Cyclohexylamine	ABB, VGC.
N-Cyclohexyltaurine, sodium salt	ABB, VGC.
2-Cyclopentanone-6-(2,5-dihydroxybenzene) ethyl ketone	X.
(2-Cyclopenten-1-yl)-2-propanone	LIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
P-Cymene	
Deoxycholic acid	HPC.
Diacenaphthol[1,2-j:1',2'-1]fluoranthene (Decacyclene)	MIL.
3,5-Diacetamido-2,4,6-triiodobenzoic acid	SDC.
3'-(2-acetoxyethyl)amino]-p-acetophenethide	SDW.
Diallylphthalate	AC.
1,4-Diaminoanthraquinone	TNA.
2,6-Diaminoanthraquinone	DUP, TRC.
2,4-Diaminobenzenesulfonic acid [SO ₃ H=1]	AC, TRC.
1,3 Diaminocyclohexane	DUP, 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.
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracenedicarboximide	TRC.
1,5-Diamino-4,8-dihydroxyanthraquinone	DUP.
4,4'-Diamino-2,2'-stilbenedisulfonic acid	VPC.
2-Diazo-1-naphthol-5-sulfonic acid, sodium salt	CGY, SDH, TRC.
4,5'-Dibenzamido-1,1'-iminodianthraquinone	HST.
Dibenzo(b,de)chrysen-7,14-dione	ACY, TRC.
1,5-Dibenzoylnaphthalene	TRC, VPC.
N,N'-Dibenzylethylenediamine	TRC, VPC.
N,N'-Dibenzylethylenediamine diacetate	MYT.
N,N'-Dibenzylidenetoluene-α,α-diamine	MYT.
4,10-Dibromo-anthranone	SDH.
3,9-Dibromo-7H-benz[e]lanthracen-7-one	SDH.
4,4'-Dibromobiphenyl	VPC.
2,6-Dibromo-4-nitroaniline	TRC.
3,5-Dibromo-3'-trifluoromethylsalicylanilide (Fluorophene)	EK.
p-Dibutoxybenzene (DBB)	HST, SDC.
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate salt (DBB Sulfate)	PCW.
2,6-Di-tert-butyl-o-dimethylamino-p-cresol	ALL.
	ALL.
	TNA.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2,6-Di-tert-butyl-4-nonylphenol	GAF.
2,4-Di-tert-butylphenol	FER, PIT.
2,6-Di-sec-butylphenol	TNA.
3,4-Dichloroaniline	DUP, MON.
1,5-Dichloroanthraquinone	TRC.
2,6-Dichlorobenzaldehyde	DUP.
Dichlorobenzanthrone	ACY.
o-(and p)-Dichlorobenzene	MTO.
*o-Dichlorobenzene	DOM, MON, PPG, SCC.
*p-Dichlorobenzene	DOM, DVC, MON, PPG, SCC.
4,6-Dichloro-m-benzenedisulfonamide	ABB.
4,6-Dichloro-m-benzenedisulfonyl chloride	ABB.
3,3'-Dichlorobenzidine base and salts	CMN, X.
4,4'-Dichlorobenzil	MTO.
2,4-Dichlorobenzoic acid	HN.
Dichlorobenzyl chloride	SFS.
Dichlorodiphenylsilane	DCC.
cis-(and trans)-3-(2,2-Dichloroethyl)-2,2-dimethylcy- clopropanecarboxylic 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	BUC, CMN, HST.
1,2-Dichloro-4-nitrobenzene	DUP.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	ALL, DUP.
*2,4-Dichlorophenol	DOM, MON, RDA.
2,6-Dichloropyrazine	ACY.
3,6-Dichloropyridazine	ACY.
4,7-Dichloroquinoline	SDM, X.
2,5-Dichlorosulfanilic acid [SO ₃ H=1]	TRC, VPC.
2,5-Dichloro-4-sulfobenzenediazonium sulfate	TRC.
2,3-Dichloro-4-(2-thienyl-carbonyl)phenoxyacetic acid sodium salt monohydrate	SK.
p,c-Dichlorotoluene	HK.
a,c-Dichlorotoluene (Benzal chloride)	SFS.
Dicyclohexylamine	ABB, VGC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Dicyclopentadiene (includes Cyclopentadiene)	: VFL.
Dicyclopentadiene diepoxide	: VIK.
Dicyclopentadiene dioxide	: VEL.
Didodecylbenzene	: CO.
α,α-Diethoxyacetophenone	: UCC.
p-Diethoxybenzene	: ALL.
3-Diethylaminoacetanilide	: DUP.
p-(Diethylamino)benzaldehyde	: ALL, DUP.
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide	: PD.
α-[2-(Diethylamino)ethyl]-α-phenylcyclohexanemethanol, hydrochloride	: ACY.
7-Diethylamino-4-methylcoumarin, crude	: PCM.
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)	: ACY, SDH.
3-[(4'-N,N-Diethylamino)phenylazo]-1H-1,2,4-triazole	: TRC.
3-(Diethylamino)propiphenone	: ACY.
4-(Diethylamino)-o-tolualdehyde	: DUP.
*N,N-Diethylaniline	: ACY, BCC, DUP.
2,6-Diethylaniline	: TNA.
N,N-Diethyl-m-anisidine	: DUP.
Diethylbenzene	: DOM.
N,N-Diethylcyclohexylamine	: DUP.
N ¹ ,N ¹ -Diethyl-4-methoxymetaniilamide	: PCM.
N,N-Diethyl-p-phenylenediamine oxalate	: EK.
N,N-Diethyl-m-toluidine	: DUP.
N,N-Diethyl-p-toluidine	: RSA.
2,4-Difluoroaniline	: OMC.
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.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
9, 10-Dihydro-5-nitro-9, 10-dioxo-1-anthracenesulfonic acid		TRC.
1, 2-Dihydro-2, 2, 4, 7-tetramethylquinoline		EKT.
1, 2-Dihydro-2, 2, 4, 7-tetramethylquinoline		X.
* 1, 4-Dihydroxyanthraquinone		AC, ACY, DUP, EKT, HSH, TRC.
1, 5 (and 1, 8)-Dihydroxyanthraquinone		TRC.
1, 8-Dihydroxyanthraquinone		TRC.
2, 5-Dihydroxybenzenesulfonic acid, potassium 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(6-hydroxyethyl)-m-chloroaniline		MIL.
3, 5-Dihydroxy-N-(2-hydroxyethyl)benzamide		PCW.
17 α , 21-Dihydroxy-16 β -methylpregna-1, 4, 9(11)-triene-3, 20-dione, 21 benzoate		X.
6, 7-Dihydroxy-2-naphthalenesulfonic acid		WAY.
3, 3'-Dihydroxy-2-naphthaliide		WAY.
11 β , 21-Dihydroxypregna-1, 4, 16-triene-3, 20-dione, 21 acetate		X.
16, 17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)		ACY, TRC.
m-Diiodobenzene		EK.
Diisopropylbenzene		GP.
N, N-Diisopropyl-p-phenylenediamine		DUP.
2, 5-Dimethoxyaniline		ALL, EKT.
1, 5 (and 1, 8)-Dimethoxyanthraquinone		TRC.
2, 5-Dimethoxybenzaldehyde		CWN, UPJ.
m-Dimethoxybenzene		ARS.
3, 3'-Dimethoxybenzidine hydrochloride		CWN, TCH.
2, 6-Dimethoxybenzoic acid		ARS.
2, 6-Dimethoxybenzoyl chloride		X.
2, 5-Dimethoxy-c-methylphenethylamine		X.
1, 4-Dimethoxy-2-nitrobenzene		ALL, EKT.
2, 5-Dimethoxytetrahydrofuran		HEX.
p-(Dimethylamino)benzaldehyde		ATL, DUP, EK, TRC.
m-(Dimethylamino)benzoic acid		X.
6-Dimethylamino-2-[2-(2, 5-dimethyl-1-phenyl-3-pyrryl)-vinyl]-1-methylquinoline		X.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
6-Dimethylamino-2-[2-(2,5-dimethyl-1-phenyl-3-pyrryl)-vinyl]-1-methyl-1-quinolinium methyl sulfate	X.
6-Dimethylamino-1-methylquinaldiniummethyl sulfate	EK.
m-Dimethylaminophenol	ACY.
1-(3-Dimethylaminopropylamino)-4-(4-methylanylino)-9,10-dioxoanthracene	VPC.
11-[3-(Dimethylamino)propyl]-11-hydroxydibenz(b,e)-oxepin	PFZ, SK.
6-(Dimethylamino)quinaldine	EK.
*N,N-Dimethylaniline	ACY, BCC, DUP, TNA.
7,12-Dimethylbenz(a)anthracene	EK.
3,3'-Dimethylbenzidine hydrochloride	EK.
*N,N-Dimethylbenzylamine	ARS, HXL, SW.
α,α-Dimethylbenzyl hydroperoxide	USS.
2,2'-Dimethyl-1,1'-bianthraquinone	ACY, TRC.
5,5-Dimethyl-1,3-cyclohexanedione	EKI.
N,N-Dimethylcyclohexylamine	ABB.
5,5-Dimethylhydantoin	GLY.
2,3-Dimethylindole	DUP.
2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride	TRC, WAY.
N,N-Dimethyl-p-nitrosaniline	EK.
2,6-Dimethylol-p-cresol	SM.
N,N-Dimethyl-p-phenylenediamine monohydrochloride	EK.
4,4-Dimethyl-1-phenyl-3-pyrazolidinone	EK.
1,4-Dimethylpiperazine	JCC.
3,5-Dimethylpyrazole	UPJ.
N,N-Dimethyl-o-toluidine	RSA.
N,N-Dimethyl-p-toluidine	RSA.
2,4-Dinitroacetanilide	SDC.
2,4-Dinitroaniline	HST, SDC.
p-(2,4-Dinitroanilino)phenol	SDC.
1,5-(and 1,8)-Dinitroanthraquinone	TRC.
m-Dinitrobenzene	DUP.
2,4-Dinitrobenzenesulfonic acid	TRC.
3,5-Dinitrobenzoic acid	SAL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
3,5-Dinitrobenzoyl chloride	Ek.
Dinitrocacrylphenol	BH.
4,4'-Dinitrodiphenyl ether	DUP.
1-(3,5-Dinitro-2-hydroxyphenylazo)-2-hydroxynaphthalene	TRC.
2,6-Dinitro-4-isopropylphenol	SDC, VPC.
2,4-Dinitrophenol, tech.	Ek.
(2,4-Dinitrophenyl)hydrazine	SAL.
3,5-Dinitrosalicylic acid	AC, CGY.
4,4'-Dinitrostilbene-2,2'-disulfonic acid	ACS, DUP, RUC, X.
2,4-Dinitrotoluene	DUP, MOB.
2,4-(and 2,6)-Dinitrotoluene	SAL.
3,5-Dinitro-o-toluic acid	GAF, JCC, MON.
Dinonylphenol	Ek.
2,4-Di-tert-pentylphenol	FER, PAS.
Di-tert-pentylphenoxycetyl chloride	Ek.
2-(2,4-Di-tert-pentylphenoxy)butyric acid	Ek.
1,5-Diphenoxyanthraquinone	VPC.
Diphenylamine	ACY, DUP, ORO, RUC, USR.
2,5-Diphenyl-p-benzoquinone	Ek.
N,N'-Diphenylethylenediamine	RPC.
Diphenylmethane	PD.
2,5-Diphenyloxazole	Ek.
2,8-Diphenylthiazol[(5',4':7,8)]anthra[(2,1-d)]thiazol-6,12-chinone	VPC.
1,3-Di-4-piperidylpropane	RIL.
4,4'-Dithiodianiline	ACY.
1,4-Di-p-toluidinoanthraquinone	HSB, TRC.
Divinylbenzene	DOM, HST.
Dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenemethanol	HPC.
Dodecylbenzyl chloride	SFS.
p-Dodecylphenol	GAF, MCB, MON.
Doxepin base	SK.
Ethoxylated and propoxylated-m-toluidine	TCH.
6-(2-Ethoxy-1-naphthamido)penicillanic acid	WYT.
2-Ethoxy-1-naphthoic acid	WYT.
2-Ethoxy-1-naphthoic acid	WYT.
4-[(p-Ethoxyphenyl)azo]-m-phenylenediamine monohydrochloride	OPC, WYT.
	Ek.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Ethoxy-o-phenylenediamine	TRC.
N ¹ -(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	AMC, ATR, CSD, DOM, ELP, GOC, HST, KPP, MCB, MON, OXI, PIC, SOG, SUN, TOC.
Ethylbenzyl chloride	SDC, 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	TCH, VPC.
N-Ethylcyclohexylamine (Herbicide intermediate)	ABB.
N-Ethyl-N-(2,3-dihydroxypropyl)-m-toluidine	EKT.
3,3'-Ethylenedioxydiphenol	MAY.
2-[N-Ethyl-p-(6-methoxy-2-benzothiazoyl)azolanilino]ethanol	TRC.
dl-13B-Ethyl-3-methoxy-8,14-secogona-1,3,5(11)-tetraene-14,17-dione	MYT.
6-Ethyl-2-methylaniiline	TNA.
N-Ethyl-N-(2-methylsulfonamidoethyl)-m-toluidine	X.
9-Ethyl-3-nitrocarbazole	SDC.
α-Ethyl-3-nitrocinnamic acid	SDM.
p-Ethylphenol	SW.
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	DUP, MIL, TCH.
1-Ethynyl-1-cyclohexanol	OMC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
4-Fluoro-3-nitroaniline	OMC.
1-Formylpiperidine	RIL.
Fuzan	QKO.
Furfuryl alcohol	QKO.
Furfurylamine	HXL.
p-Heptylbenzoyl chloride	EK.
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	MYT.
Hexahydro-1-methyl-4-phenyl-1H-azepine-4-carboxylic acid	MYT.
Hexamethyleneimine	CEL, DUP.
p-Hydrazinobenzenesulfonic acid	STG.
Hydroquinone, tech.	EKT, GYR.
2-Hydroxyacetophenone	BKM.
3'-Hydroxyacetophenone	SDM.
4-Hydroxyacetophenone	BKM.
p-Hydroxybenzaldehyde	DOM.
p-Hydroxybenzenesulfonic acid	FER, UPF.
p-Hydroxybenzoic acid	HN.
3'-Hydroxy-2-(N-benzyl-N-methylamino)acetophenone hydrochloride	SDM.
4-Hydroxycoumarin	SDM.
Hydroxycyclopentylphenylacetic acid	ARA.
m-(6-Hydroxyethoxy)phenol	BJL.
3-[N-(2-Hydroxyethyl)anilino]propionitrile	MIL, TCH.
3-[N-(2-Hydroxyethyl)anilino]propionitrile acetate	MIL, TCH.
3-[N-(2-Hydroxyethyl)anilino]propionitrile benzoate	DUP.
N-(2-Hydroxyethyl)-o-chloroaniline	EKT.
N-6-Hydroxyethyl-2,4-dihydroxybenzamide	PCM.
N-(6-Hydroxyethyl)-N-ethyl-m-toluidine	MIL.
1-(2-Hydroxyethyl)-1,2,3,4-tetrahydro-2,2,4,7-tetramethylquinoline	EKT.
3-[N-(2-Hydroxyethyl)-m-toluidino]propionitrile	DUP.
N-[7-Hydroxy-8-(2-hydroxy-5-methylsulfamyl)phenylazo]-1-naphthyl acetamide	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
7-Hydroxy-8-[[4'-(p-hydroxyphenyl)azo]-3,3'-dimethyl-4-biphenylazo]-1,3-naphthalenedisulfonic acid	TRC.
4-Hydroxymetanilamide	DUP, TRC.
4-Hydroxymetanilamide	TRC.
3-Hydroxy-2-methylcinchoninic acid	DUP, TRC.
4-Hydroxy-N'-methylmetanilamide	TRC.
4(5)-Hydroxymethyl-5(4)-methylimidazole hydrochloride	TNA, X.
5-Hydroxymethyl-2-norbornene	X.
3-Hydroxy-N-(3-N-morpholino-7-propyl)-1-naphthimide	MAY.
3-Hydroxy-N-(3-N-morpholino-7-propyl)-2-naphthimide	MAY.
7-Hydroxy-1,3-naphthalenedisulfonic acid	DUP, TRC.
3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt	ACY, TRC.
6-Hydroxy-2-naphthalenesulfonic acid, sodium salt	ACY, SDH, TRC.
8-Hydroxy-1-naphthalenesulfonic acid, 7-sultone	TRC.
1-Hydroxy-2-naphthoic acid	PCM.
3-Hydroxy-2-naphthoic acid (B.O.N.)	ACY, PCM.
3-Hydroxy-2-naphthoic acid, ethanolamide	PCM.
3-Hydroxy-2-naphthoic acid, methyl ester	PCM.
3-Hydroxy-2-naphthoic acid, sodium salt	PCM.
2-Hydroxy-1,4-naphthoquinone	SAL.
N-(7-Hydroxy-1-naphthyl)acetamide	TRC.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-hydroxynaphthalene-4-sulfonic acid	TRC.
3-Hydroxy-7-nitronaphthalenesulfonic acid	TRC.
1-Hydroxy-6-octadecyloxy-2-naphthoic acid	ARA.
2-Hydroxy-4-n-octoxybenzophenone	CCM.
3-[(4-(4-Hydroxyphenylazo)-2,5-dimethoxyphenyl)azo]benzenesulfamic acid	TRC.
11 α -Hydroxyprogesterone	UPJ.
1-Hydroxy-4-p-toluidinoanthraquinone	SHS.
1,1'-Iminobis[4-aminoanthraquinone]	ACY.
1,1'-Iminobis[4-benzamidoanthraquinone]	ACY.
7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]	TRC.
1,1'-Iminobis[4-nitroanthraquinone]	ACY.
Iminodianthraquinone (1,1'-Dianthrimide)	ACY.
2-Indolecarboxylic acid	ARA.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED.

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Indole-2,3-dione	DUP.
Indole-2,4-dione	TRC.
2-Iodoacetamido-5-chlorobenzophenone	MYT.
10-(p-Iodophenyl)undecanoic acid, ethyl ester	X.
Isatoic anhydride	SM.
Isobutylbenzene	PLC, TNA.
*ISOCYANIC ACID DERIVATIVES:	
Bitulylene diisocyanate (TODI)	
Diphenylmethane-4,4'-diisocyanate (MDI)	MOB, UPJ.
Isocyanic acid, p-chlorophenyl ester	MOB.
Isonicotinamide	RIL.
1,1'-Methylenebis[4-isocyanatocyclohexane]	DUP.
Phenylisocyanate	MOB.
*Polymethylene polyphenylisocyanate	MOB, RUC, UPJ.
Toluene 2,4-diisocyanate	MOB, RUC, UPJ.
*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.
Toluene diisocyanates, crude	DUP.
p-Toluenesulfonyl isocyanate	CMN.
Isocyanic acid derivatives, all other	BAS, MOB, UCC.
2-Isonitrosoacetanilide	DUP, TRC.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	AMO.
Isophthalic acid, diphenyl ester	BJL.
Isophthalonitrile	SM.
Isophthaloyl chloride	DUP.
N-Isopropylaniline	USR.
Isopropylbiphenyl	TCC.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene- α,α' -diol)	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)	DOM, GE, SHC, UCC, USS.
4,4'-Isopropylidenediphenol, ethoxylated	ICI.
4,4'-Isopropylidenediphenol, propoxylated	ICI.
o-Isopropylphenol	FER, TNA.
p-Isopropylphenol	FER.
Isopropylphenol, mixed	FER, FMP.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Isothiocyanic acid, phenyl ester	: EK.
Isoviolanthrone (Isodibenzanthrone)	: TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)	: DUP, HSH, TRC.
2,4-Lutidine	: KPT, RII.
3,4-Lutidine	: KPT, RII.
Malonanilide	: PCM.
Mandelonitrile	: KF.
Melamine	: ACS, ACY, MLC.
p-Mentha-1,4(8)-diene	: GIV.
dl-p-Mentha-1,8-diene (Limonene)	: ARZ, NCI.
p-Menth-1-ene (Carvomenthene)	: GIV.
*Metanilic acid (m-Aminobenzenesulfonic acid)	: ACY, DUP, TRC, USM.
2-Methoxy-5-acetamino-N,N-bis(acetoxyethyl)aniline	: HST.
2-Methoxyethylpiperidine	: RII.
6-Methoxy-8-nitroquinoline	: SDM.
(p-Methoxyphenyl)acetic acid	: HEX, UOP.
Methylacetoacetic ester enamine of D-2-amino-2-(1,4-cyclohexadienyl)acetic acid, sodium salt	: TRD.
1-(Methylamino)anthraquinone	: AC, ACY.
1-(Methylamino)-4-p-toluidinoanthraquinone	: VPC.
2-(N-Methylamino)ethanol	: TCH.
1-(4-Methylamino)-4-methoxy-9,10-dihydro-9,10-dioxoanthracene	: VPC.
*3-(N-Methylamino)propionitrile	: DUP, MIL, TCH.
5-Methyl-o-anisidinesulfonic acid	: SW.
m-Methylanisole	: GIV.
2-Methylanthraquinone	: ACY.
3-Methylbenzoflquinoline	: ACY.
2-Methylbenzothiazole	: FMT.
4-Methylbenzothiazolone, hydrazone	: ILL.
N-Methylbenzylamine	: HXL, SDM.
5-(1-Methylbutyl)barbituric acid	: BCC.
N-Methyl-N-carboxyanthranilic anhydride	: SW.
1-Methyl-4-(3-chloropropyl)piperazine hydrochloride	: SK.
3-Methylcholanthrene	: EK.
Methylcyclohexane	: PLC.
N-Methylcyclohexylamine	: ABB.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
N-Methyldicyclohexylamine	ABB.
4-Methyl-2,6-dinitrophenol	SM.
N-Methylenaniline	PCW.
4,4'-Methylenebis[2-chloroaniline]	ADC, DUP.
4,4'-Methylenebis[2-chloroaniline] and 4,4'-methylenebis (aniline), mixed	DUP.
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, CRZ, DUP, RUC, USR.
5,5'-Methylenedisalicylic acid	HN.
Methylhydroquinone	EKT.
(2,4-Methyl-5-imidazolyl)methylthioethylamine dihydro- chloride	SK.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazole sul- fonic acid	DUP.
N-Methyl-p-nitroaniline	ACY.
4-Methyl-2-nitroanisole	SM.
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-naphthalenedi- sulfonic acid	TRC.
1-Methyl-4-phenylisonipetric acid	MYT.
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	ACY.
4-Methylphthalic acid	EK.
N-Methylpiperazine	HXL.
3-(α -Methylpiperidino)propanol	LIL.
4'-[(4-Methyl-2-pyrimidinyl)sulfamoyl]acetanilide	DUP.
α -Methylstyrene	ACS, CLK, GP, SKO, UCC, USS.
2-(Methylsulfonyl)-4-nitroaniline	TRC.
1-Morpholino-2,5-dibutoxy-4-nitrobenzene	ALL.
1-Morpholino-2,5-diethoxy-4-nitrobenzene	ALL.
1-Naphthalenesulfonic acid	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2-Naphthalenesulfonic acid	AC, ACY.
1-Naphthalenesulfonic acid, sodium salt	RSA, TRC.
1,4,5,8-Naphthalenetetracarboxylic acid	TRC.
Naphthalimide	BCC, SDC.
1-Naphthol (α -Naphthol)	UCC.
2-Naphthol-6-sulfonamide, p-toluenesulfonate	UCC.
2-Naphthol, tech. (β -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'-Nitroacetaniide	EKT.
4'-Nitroacetaniide	TRC.
2'-Nitro-p-acetanisidide	DUP.
4'-Nitro-o-acetanisidide	DUP, SDH.
3'-Nitroacetophenone	SDH.
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, SDH.
4-Nitro-o-anisidine [NH ₂ =1]	DUP.
5-Nitroanthranilic acid	TRC.
1-Nitroanthraquinone	TRC.
m-Nitrobenzaldehyde	ACY, SDC, TRC.
*Nitrobenzene	SDH.
m-Nitrobenzenesulfonic acid, sodium salt	ACY, DUP, FST, MOB, RUC.
m-Nitrobenzoic acid	DUP, USM.
p-Nitrobenzoic acid	SAL, SDH.
m-Nitrobenzoic acid, sodium salt	DUP.
2-(4'-Nitrobenzoylamino)-6-naphthol-8-sulfonic acid	SAL.
m-Nitrobenzoyl chloride	TRC.
4-Nitro-m-cresol	ARS.
p-Nitro-n-(2-diethylamine)ethylbenzamide	MPF.
Nitrodiphenylamine	PD.
5-Nitro-2-furanmethanediol, diacetate	MON, SW.
	MOR.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
5-Nitroisophthalic acid	SAL.
1-Nitronaphthalene	DUP.
3-Nitro-1,5-naphthalenedisulfonic acid	TRC.
7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	TRC.
p-Nitrophenethyl alcohol	PCM.
o-Nitrophenol	MON.
p-Nitrophenol	DUP, MON.
p-Nitrophenol, sodium salt	DUP, SDC.
4'-(p-Nitrophenyl)acetophenone	SOL.
2-(o-Nitrophenylazo)-4,6-di-tert-pentylphenol (OH=1)	TRC.
4-Nitro-o-phenylenediamine	FMT, SOL.
4-Nitrosodiphenylamine	USR.
4-Nitroso-N-ethyl-N-(β -methylsulfonamidoethyl)-m-toluidine	X.
p-Nitrosophenol	ACY, SDC.
4-Nitro-4'-(5-sulfo-2H-naphtho[1,2-d]triazol-2-yl)-2,2'-stilbenedisulfonic acid	TRC.
3-Nitro-p-toluamide	X.
o-Nitrotoluene	DUP, FST.
m-Nitrotoluene	DUP, FST.
p-Nitrotoluene	DUP, FST.
Nitrotoluene mixtures	FST.
p-Nitrotoluene-o-sulfonic acid	AC, CGY, X.
3-Nitro-p-toluenesulfonic acid [SO ₃ H=1]	TRC.
5-Nitro-o-toluenesulfonic acid [SO ₃ H=1]	DUP.
5-Nitro-o-toluidine [NH ₂ =1]	BUC, PCW.
2-Nitro-m-xylene	DUP.
4-Nitro-m-xylene	DUP.
Konyl-dinonylphenol, mixture	USR.
Konyl mercaptans	ACY.
*Konylphenol	GAF, JCC, KLM, MCB, MON, RH, SCN, UCC.
Norborene-2,3-dicarboxylic acid, monomethyl ester	BJL.
Octylphenol	FER, RH, SCN.
Octylphenoxydiethoxy chloride	RH.
Oxalacetic acid, diethyl ester (p-Sulfophenyl)hydrazone	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]-anthraquinone	ACY, TRC.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester	VPC.
5-Oxo-1-(p-sulphophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T)	STG.
4,4'-Oxydianiline	DUP.
Pentabromocyclohexane	DOM.
1,1,3,3,5-Pentamethylindan	GIV.
2-Pentylanthraquinone	DUP.
Pentylbenzene	UOP.
o-Pentylphenol (o-Amylphenol)	PAS.
p-tert-Pentylphenol	PAS.
3,4,9,10-Perylene-tetracarboxylic acid	BCC.
3,4,9,10-Perylene-tetracarboxylic-3,4:9,10-dianhydride	VPC.
3,4,9,10-Perylene-tetracarboxylic-3,4:9,10-dilimide	BCC, SDC, VPC.
p-Phenetidine	MON.
*PHENOL:	
NATURAL:	
FROM COAL TAR:	
Phenol, natural, from coal tar, 39° C, m.p.	FER.
Phenol, natural, from coal tar, all other	KPT.
FROM PETROLEUM:	
Phenol, natural, from petroleum, all other	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, benzylated	MIL.
Phenol, styrenated	FER, MIL.
*Phenol, synthetic, from cumene by oxidation, U.S.P.	ACS, CLK, DOM, GP, MON, SHC, SKO, SOC, UCC, USS.
Phenol, synthetic, from toluene by oxidation, U.S.P.	KLM.
Phenolsulfonaphthalein, sodium salt	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Phenolsulfonic acid, sodium salt	SAL.
3-Phenoxybenzaldehyde	HDM, TNA.
3-Phenoxybenzenemethanol	HDM, TNA.
2-(Phenoxyethyl)benzoic acid	PFZ.
Phenylacetic acid, ethyl ester, tech.	OPC.
Phenylacetic acid, methyl ester	OPC.
Phenylacetic acid, potassium salt	OPC, SFS.
Phenylacetic acid, sodium salt	OPC.
Phenylacetoneitrile (α-Tolunitrile)	OPC, UOP.
Phenylacetyl chloride	OPC.
2,2'-(Phenylamino)diethanol, diacetic ester	TRC.
4-(Phenylazo)diphenylamine	EK.
2-Phenylbenzimidazole	SAL.
Phenyl-1,2,3-butanetrione-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, MOM.
d(+)-α-Phenylethylamine	HXL.
dl-2-Phenylglycine (racemic)	KF.
d(-)-2-Phenylglycine	KF, UPJ.
Phenylglycine, potassium salt	BCC.
Phenylglycine, sodium salt	LIL.
Phenylglycol esters	BCC.
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.
o-Phenylphenol	DOM, RCI.
p-Phenylphenol	DOM.
o-Phenylphenol, sodium salt	DOM.
N-Phenyl-p-phenylenediamine	USR.
Phenylphosphinic acid	SFS.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Phenylphosphonic dichloride	SFA.
Phenylphosphorous dichloride	SFA.
1-Phenyl-1,2-propanedione, 2-oxime	ORT, PD.
Phenyl-2-propanone	ORT.
4-Phenylpropylpyridine	RIL.
1-Phenyl-3-pyrazolidinone	EK.
dl-Phenylsuccinic acid	PD.
4-Phenylsulfinyl-1,2-phenylenediamine	ARA.
4-Phenylthiomorpholine-1,1-dioxide	EKT.
Phenylundecanoic acid	EK.
1(2H)-Phthalazinone	X.
Phthalic acid	EK.
*Phthalic anhydride	ACS, BAS, ENJ, HK, KPT, MON, PTO, SOC, STP, USS.
Phthalimide	SM, VPC.
[Phthalocyaninato(2-)]copper	DUP.
Phthalocyaninetetrasulfonyl chloride, copper derivative	DUP.
Phthaloyl chloride (Phthalyl chloride)	TLC.
PICOLINES:	
Picoline (3,4-mixture)	KPT, RIL.
2-Picoline (α -Picoline)	RIL.
3-Picoline (β -Picoline)	NEP, RIL.
4-Picoline (γ -Picoline)	RIL.
3-Picoline-N-oxide	RIL.
Picolinic acid	NEP.
Picolinonitrile (2-Cyanopyridine)	NEP.
3-Picolylamine	RIL.
Picric acid (Trinitrophenol)	SDC.
Pipecolic acid	RIL.
2-Pipecoline	LIL.
Piperazine mixture, crude	JCC.
Piperidine	ABB, DUP, RIL.
3-Piperidinopropiophenone hydrochloride	ACY.
Polychlorobenzene	DOM.
Polyethylbenzene (80 percent diethylbenzene)	ELP.
Propiophenone	HEX, ORT, UCC, UOP.
3-(N-(2-Propoxyethyl)anilinopropionitrile	MIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
PYRIDINE, REFINED:	
2° Pyridine, refined	KPT, NEP, RIL.
Pyridine, refined all other grades	RIL.
Pyridine hydrochloride	EK, RSA.
2 Pyridinethiol-1-oxide, sodium salt	OMC.
2 Pyridinethiol-1-oxide, zinc salt	OMC.
2-Pyrimidinol	CGY.
2-Pyrrolidinone	GAF, MAL.
Quinaldine	ACY.
QUINOLINE:	
Quinoline, 1° and 2°	KPT.
2,4-Quinolinediol	PCM.
Resorcinol, tech.	KPT, LEM.
6-Resorcylic acid	KPT.
Salicylaldehyde	DOM, DUP, RDA.
Salicylaldehyde oxime	EK.
Salicylanilide	PCM.
Salicylic acid, phenyl ester	DOM.
Salicylic acid, tech.	DOM, HN, MON, SDH.
*Salicylideneaminoguanidine oleate	DUP.
*Styrene (Vinylbenzene)	AMO, CSD, DOM, ELP, GOC, HST, KPP, MCB, MON, OXI, SHC, SUN, TX, USR, USS.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	
5-Sulfoisophthalic acid, 1,3-dimethyl ester	DUP.
5-Sulfoisophthalic acid, sodium salt	PCM.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenyl sulfone)	UPF.
4-Sulfophthalic acid	CWN.
Terephthalic acid	AMO, HCF.
*Terephthalic acid, dimethyl ester	DUP, EKT, HCF.
Terephthalic acid, diphenyl ester	BLL.
Terephthaloyl chloride	DUP, TIC.
Terephthaloyldiacetic acid, diethyl ester	PCM.
Terphenyl (Phenylbiphenyl) (m,o'- and p-isomers)	MON.
3,3',5,5'-Tetrabromo-m-cresolsulfophthalein, sodium salt	EK.
Tetrabromophthalic anhydride	VEL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1,2,4,5-Tetrachlorobenzene	DOM, SCC.
1,2,4,5-Tetrachloro-3-nitrobenzene	SDH.
2,3,5,6-Tetrachloropyridine	DOM.
*Tetrahydrofuran	DUP, GAF, QKO.
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	AC, TRC.
1,2,4,5-Tetramethylbenzene (Durene)	SUN.
p-(1,1,3,3-Tetramethylbutyl)phenol	GAF.
N,N,N',N'-Tetramethyl-p-phenylenediamine, dihydrochloride	EK.
Tetrazolethiol	MRT.
Tetrahydrofurfurylamine	HXL.
3,3'-Thiobis[7-h-benz[de]lanthracen-7-one]	ACY, TRC.
2-Thiophenecarboxylic acid	X.
Thiophenol	SFA.
s-Thymol	GIV.
Toluene-2,3-(and 3,4)-diamine (35/65 Mixture)	OMC.
*Toluene-2,4-diamine (4-m-Tolylenediamine)	ACS, OMC, RUC, UCC, X.
Toluene-2,4-(and 2,6)-diamine (80/20 Mixture)	OMC.
Toluene-3,4-diamine	EK.
Toluene-2,4-disulfonic acid	SDH.
p-Toluenesulfonic acid, sodium salt	NES.
o-(and p)-Toluenesulfonic acid	NES.
p-Toluenesulfonic acid	SM, TEN, UPF.
p-Toluenesulfonic acid monohydrate	UPF.
p-Toluenesulfonyl chloride	MON.
p-Toluic acid, methyl ester	DUP.
o-Toluidine	DUP, FST.
p-Toluidine	DUP.
p-Toluidine	DUP.
Toluidines, mixed	DUP.
2-o-Toluidinoethanol	TCH.
o-Toluidinomethanesulfonic acid	TRC.
p-Tolylhydroquinone	X.
2,2'-(m-Tolylimino)diethanol	MIL, TCH.
2,2'-(m-Tolylimino)diethanol, diacetate ester	SDC.
Tolyltriazole	SW.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
2,4,6-Triamino-5-nitrosopyrimidine	SK.
N,N,N-Tribenzylamine	HXL.
2,4,6-Tribromophenol	VEL.
3,4,5-Tribromosalicylanilide	PCM.
1,2,3(and 1,2,4)-Trichlorobenzene	PPG, SCC.
1,2,4-Trichlorobenzene	DOW, SCC.
1,1'-Trichloro-2,2'-diphenylethane	CWN.
3-Trichloro-methyl-1,2,4-thiadiazone	OMC.
1,2,4-Trichloro-5-nitrobenzene	ALL.
Trichlorophenylsilane	DCC.
α,α -Trichlorotoluene (Benzotrifluoride)	SDH, VEL.
2,4,6-Trichloro-s-triazine	CGY, DGC, NIL.
1,3,5-Triethylbenzene	X.
α,α -Trifluoro-N-phenyl-m-toluidine (3-Trifluoro-methyl)diphenylamine)	SK.
α,α -Trifluoro-o-toluidine	OMC.
α,α -Trifluoro-m-toluidine	OMC.
2,4,3'-Trihydroxydiphenyl-	PCM, PIT.
Trimellitic anhydride, acid chloride	TLC.
Trimesic acid	AMB.
3,4,5-Triethoxybenzaldehyde	MON.
1,2,3-Triethylbenzene (Hemimellitine)	SUN.
1,2,4-Triethylbenzene (Pseudocumene)	SUN.
2,3,3-Triethyl-3H-indole	VPC.
1,3,3-Triethyl- Δ^2 , α -indolineacetaldehyde	ATL, DUP, TRC, VPC.
1,3,3-Triethyl-2-methyleneindoline	DUP, VPC.
Trimethylphenylammonium chloride	TRC, X.
2,4,6-Triethylpyridine	KPT.
Triphenylmethane	EK.
1,3,5-Tri-n-propoxybenzaldehyde	CWN.
2,4,6-Tripropoxybenzaldehyde	X.
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, TRC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	GIV.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

CYCLIC INTERMEDIATES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Vinylcyclohexene monoxide-	UCC.
5-Vinyl-2-picoline (MVP)	PLC.
2-Vinylpyridine-	RIL.
4-Vinylpyridine-	RIL.
Vinyltoluene-	DOM.
Violanthrone (Dibenzanthrone)-	BCC.
m-Xylene (90-100% OF m-xylene isomer)-	AMO.
*o-Xylene (90-100% OF o-xylene isomer)-	ATR, CPI, ENJ, MON, PPR, PPX, SHC, SOC, SUN, TOC.
*p-Xylene (90-100% OF p-xylene isomer)-	AMO, ATR, ENJ, HCR, PPX, SHC, SOC, STX, SUN, TOC.
2,4-Xylenesulfonic acid-	NES.
Xylenesulfonic acid, mixed isomers	NES.
2,6-Xylenol-	GE, KPT.
3,5-Xylenol-	FER.
XYLIDINES:	
2,4-Xylidide (m-4-Xylidide)-	DUP.
2,5-Xylidide (p-Xylidide)-	DUP.
2,6-Xylidide-	DUP.
Xylidide, original mixture	DUP.
Cyclic intermediates, all other-	ABB, ACY, ALD, ARA, ATL, BKM, BRD, CRZ, CMW, EK, EKT, GAF, HCF, HK, HST, HXL, ICI, KPT, LEM, LIL, MIL, NEO, NES, OMC, OPC, PCW, PD, RIL, RSA, SAL, SCC, SDC, SDW, SFS, SK, STC, SW, TCH, TLC, TNA, TRC, UCC, UPJ, VPC, VTC, WYT, X, X, X, X, X, X, X, X, X, X, X.

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of cyclic intermediates to the U.S. International Trade Commission for 1979 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	GAF	: GAF Corp.
AC	: American Color & Chemical Corp.	GE	: General Electric Co.
ACS	: Allied Chemical Corp., Chemical Co. Div.	GIV	: Givaudan Corp.
ACY	: American Cyanamid Co.	GLY	: Glyco Chemicals, Inc.
ADC	: Anderson Development Co.	GNW	: Greenwood Chemical Co.
ALD	: Aldrich Chemical Co., Inc.	GOC	: Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
ALF	: Allied Chemical Corp., Fibers Div.	GP	: Georgia-Pacific Corp.: Houston Div.
ALL	: Alliance Chemical Corp.		: Plaquemine Div.
AMB	: American Bio-Synthetics Corp.	GRS	: Champlin Petroleum Co.
AMO	: Standard Oil Co. (Indiana)	GTL	: Great Lakes Chemical Corp.
ARA	: Araphahoe Chemicals, Inc., Sub/Syntex U.S.A., Inc.	GYR	: Goodyear Tire & Rubber Co.
ARK	: Armstrong Cork Co.	HCF	: Hercofina
ARS	: Arsynco, Inc.	HCR	: Hercor Chemical Corp.
ARZ	: Arizona Chemical Co.	HDW	: Hardwicke Chemical Co.
ASH	: Ashland Oil, Inc.	HEX	: Hexagon Laboratories, Inc.
ATL	: Atlantic Chemical Corp.	HK	: Hooker Chemical Corp.
ATR	: Atlantic Richfield Co., Arco Chemical Co.	HN	: Tenneco Chemicals, Inc.
BAS	: BASF Wyandotte Corp. and Pigments Div.	HPC	: Hercules, Inc.
BCC	: Buffalo Color Corp.	HSH	: Harshaw Chemical Co.
BJL	: Burdick & Jackson Laboratories, Inc.	HST	: American Hoechst Corp., Industrial Chemicals Div.
BKM	: Buckman Laboratories, Inc.	HXL	: Hexcel Corp., Hexcel Specialty Chemicals
BUC	: Synalloy Corp., Blackman-Uhler Chemical Div.	ICI	: ICI Americas, Inc., Chemical Specialties Co.
CCW	: Cincinnati Milacron Chemicals, Inc.	JCC	: Jefferson Chemical Co., Inc.
CEL	: Celanese Corp., Celanese Chemical Co.	KF	: Kay-Fries Inc., Member Dynamit Nobel Group
CGY	: Ciba-Geigy Corp.	KLM	: Kalama Chemical, Inc.
CHL	: Chemol, Inc.	KPP	: ARCO/Polymers, Inc.
CHT	: Chattem, Inc.	KPT	: Koppers Co., Inc., Organic Materials Group
CLK	: Clark Oil & Refining Corp.	LAK	: Bofors Lakeway, Inc.
CNP	: Nipro, Inc.	LEM	: Napp Chemicals, Inc.
CO	: Conoco, Inc.	LIL	: Eli Lilly & Co., U.S. & Puerto Rico
CPI	: Commonwealth Petrochemicals, Inc.	MAL	: Mallinckrodt, Inc.
CRZ	: Crown Zellenbach Corp., Chemical Products Div.	MCB	: Borg-Warner Corp., Borg-Warner Chemicals
CSD	: Cosden Oil & Chemical Co.	MER	: Merichem Co.
CWN	: Upjohn Co., Fine Chemical Div.	MIL	: Milliken & Co., Milliken Chemical Co.
DBC	: Badische Co.	MLC	: Melamine Chemicals, Inc.
DCC	: Dow Corning Corp.	MNR	: Monroe Chemical, Inc.
DGC	: Degussa Corp.	MOB	: Mobay Chemical Co.
DKA	: Denka Chemical Corp.	MON	: Monsanto Co.
DOW	: Dow Chemical Co.	MRT	: Morton-Norwich Products, Inc., Morton Chemical Co. Div.
DUP	: E.I. duPont de Nemours & Co., Inc.	MTO	: Montrose Chemical Corp. of California
DVC	: Dover Chemical Corp., Sub of ICC Industries, Inc.	MTP	: Mount Pleasant Chemical Co.
EK	: Eastman Kodak Co.:	NCI	: Union Camp Corp., Terpenes and Aromatics Div.
EKT	: Tennessee Eastman Co. Div.	NEO	: Norda, Inc.
ELP	: El Paso Products Co.	NEP	: Nepera Chemical Co., Inc.
ENJ	: Exxon Chemical Co. U.S.A.	NES	: Ruetgers-Nease Chemical Co.
FER	: Ferro Corp.: Ottawa Chemical Div. Productol Chemical Div.	NIL	: Nilok Chemicals, Inc.
FMP	: FMC Corp., Industrial Chemical Group	NOR	: Morton-Norwich Products, Inc., Norwich Eaton Pharmaceutical Div.
FMT	: Fairmount Chemical Co., Inc.		
FST	: First Chemical Corp.		

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
NPC	Northwest Petrochemical Corp.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
OMC	Olin Corp.	SOG	Charter International Oil Co.
OPC	Orbis Products Corp.	SOL	Southland Corp., Chemical Div.
ORO	Chevron Chemical Co.	STC	American Hoechst Corp., Sou-Tex Works
ORT	Roehr Chemicals, Inc., Div. of Aceto Industrial Chemical Corp.	STG	Stange Co.
OXI	Oxirane Chemical Co. (Channelview)	STP	Stepan Chemical Co.
PAS	Pennwalt Corp.	STX	St. Croix Petrochemicals Corp.
PCW	Pfister Chemical, Inc.	SUN	Sun Company, Inc.
PD	Warner-Lambert Co.	SW	Sherwin-Williams Co.
PFZ	Pfizer, Inc. & Pfizer Pharmaceuticals, Inc.	SWC	Corco Cyclohexane, Inc.
PIT	Pitt-Consol Chemical Co.	TCC	Sybron Corp., Chemical Division/Tanatex
PLC	Phillips Petroleum Co.	TCH	Emery Industries, Inc., Tylon Div.
PPG	PPG Industries, Inc.	TEN	Cities Service Co., Copperhill Operations
PPR	Phillips Puerto Rico Core, Inc.	TLC	Twin Lake Chemical, Inc.
PPX	Phillips Paraxylene, Inc.	TNA	Ethyl Corp.
PTO	Puerto Rico Chemical Co., Inc.	TOC	Tenneco Oil Co., P & M
QKO	Quaker Oats Co.	TRC	Toms River Chemical Corp.
RBC	Fike Chemicals, Inc.	TRD	Squibb Manufacturing, Inc., Manufacturing Enterprises, Inc., Trade Enterprise, Inc., Ersana, Inc.
RCI	Reichhold Chemicals, Inc.	TX	Texaco, Inc.
RDA	Rhone-Poulenc, Inc.	UCC	Union Carbide Corp.
RH	Rohm & Haas Co.	UOC	Union Oil Co. of California
RIL	Reilly Tar & Chemical Corp.	UOP	UOP, Inc., Chemical Div.
RPC	Millmaster Onyx Group, Refined Onyx Co. Div.	UPF	Jim Walter Resources, Inc.
RSA	R.S.A. Corp.	UPJ	Upjohn Co.
RUC	Rubicon Chemicals, Inc.	USM	USM Corp., Bostik Div., Southern Region
SAL	Salsbury Laboratories	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SCC	Standard Chlorine of Delaware, Inc.	USS	USS Chemicals Div. of U.S. Steel Corp.
SCN	Schenectady Chemicals, Inc.	VEL	Velsicol Chemical Corp.
SDC	Martin-Marietta Corp., Sodyeco Div.	VGC	Virginia Chemicals, Inc.
SDH	Sterling Drug, Inc.; Hilton Davis Chemical Co. Div.	VIK	Viking Chemical Co.
SDW	Sterling Organics Div.	VPC	Mobay Chemical Corp., Dyestuff Div.
SFA	Stauffer Chemical Co.; Agricultural Div.	VTC	Vertac, Inc.
SFC	Calhio Chemicals, Inc.	WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.
SFS	Specialty Div.	WIL	American Can Co., Inolex Pharmaceutical Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.	WTC	Witco Chemical Corp.
SK	SmithKline Corp., SmithKline Chemicals Div.	WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
SKO	Getty Refining & Marketing 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.

STATISTICAL HIGHLIGHTS

William Baker and Edmund Cappuccilli

Synthetic dyes are derived in whole or in part from cyclic intermediates. Approximately two-thirds of the dyes consumed in the United States are used by the textile industry to dye natural and synthetic fibers or fabrics; about one-sixth is used for coloring paper; and the rest is used chiefly in the production of organic pigments and in the dyeing of leather and plastics. Of the several thousand different synthetic dyes that are known, more than one thousand are manufactured by one or more domestic producers. 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 costs 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 a dye are determined largely by the use for which it is intended.

Total domestic production of dyes in 1979 amounted to 266 million pounds, or 6.0 percent greater than the 251 million pounds produced in 1978 (table 1). Sales of dyes in 1979 amounted to 241 million pounds, valued at \$797 million, compared with 233 million pounds, valued at \$734 million, in 1978. In terms of quantity, sales of dyes in 1979 were 3.7 percent greater than in 1978 and in terms of value, 8.7 percent greater. The average unit value of sales of all dyes in 1979 was \$3.30 per pound compared with \$3.15 per pound in 1978.

The production of seven classes of dyes increased in 1979, while the remaining two major classes registered slight to moderate declines in their production. Vat dyes increased by 23.5 percent from 37.8 million pounds in 1978 to 46.6 million in 1979. The other six classes of dyes increased by the following percentages: basic dyes (3.4), direct dyes (0.7), disperse dyes (5.5), fiber-reactive (15.8), fluorescent brightening agents (12.5), FD&C colors (19.1).

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1979

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

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	265,881	241,396	797,212	\$3.30
ACID DYES				
Total-----	35,434	33,093	134,064	4.05
Acid yellow dyes, total-----	13,053	12,302	35,986	2.93
Acid Yellow 17-----	93	114	484	4.23
Acid Yellow 19-----	404	253	608	2.40
Acid Yellow 23-----	312	259	1,131	4.36
Acid Yellow 36-----	162	135	553	4.10
Acid Yellow 40-----	76	70	406	5.80
Acid Yellow 151-----	3,109	2,897	6,393	2.21
Acid Yellow 174-----	90	90	424	4.71
All other-----	8,807	8,484	25,987	3.06
Acid orange dyes, total-----	4,791	4,472	18,726	4.19
Acid Orange 7-----	419	367	1,034	2.81
Acid Orange 8-----	193	190	550	2.89
Acid Orange 10-----	104	99	314	3.16
Acid Orange 24-----	433	386	1,148	2.98
Acid Orange 60-----	584	540	2,170	4.02
All other-----	3,058	2,890	13,510	4.67
Acid red dyes, total-----	5,454	5,244	24,533	4.68
Acid Red 1-----	283	251	733	2.92
Acid Red 4-----	38	45	186	4.18
Acid Red 73-----	164	136	735	5.40
Acid Red 88-----	45	45	212	4.70
Acid Red 114-----	380	250	1,198	4.79
Acid Red 137-----	106	109	695	6.39
Acid Red 151-----	439	312	1,078	3.45
Acid Red 182-----	212	158	647	4.09
Acid Red 266-----	...	254	1,109	4.38
Acid Red 337-----	1,750	2,112	8,708	4.12
All other-----	2,037	1,572	9,232	5.87
Acid violet dyes, total-----	189	184	961	5.22
Acid Violet 3-----	43	27	87	3.32
All other-----	146	157	874	5.57
Acid blue dyes, total-----	6,951	6,280	35,167	5.60
Acid Blue 40-----	1,041	1,077	5,982	5.56
All other-----	5,910	5,203	29,185	5.61
Acid green dyes-----	618	504	2,679	5.32
Acid brown dyes, total-----	975	970	4,201	4.33
Acid Brown 14-----	234	261	1,099	4.21
Acid Brown 98-----	219	198	756	3.82
All other-----	522	511	2,346	4.60
Acid black dyes, total-----	3,403	3,137	11,811	3.77
Acid Black 1-----	372	309	1,152	3.73
Acid Black 52-----	1,050	772	2,735	3.54
All other-----	1,981	2,056	7,924	3.85

See footnotes at end of table.

TABLE 1.--DYES; U.S. PRODUCTION AND SALES, 1979--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-----	15,887	13,624	65,833	\$4.83
Basic yellow dyes, total-----	3,985	3,360	12,411	3.69
Basic Yellow 11-----	550	489	1,557	3.18
Basic Yellow 13-----	179	102	430	4.22
Basic Yellow 29-----	634	510	1,258	2.47
All other-----	2,622	2,259	9,166	4.06
Basic orange dyes, total-----	1,631	1,267	4,373	3.45
Basic Orange 2-----	605	561	1,938	3.45
Basic Orange 21-----	501	397	1,252	3.15
All other-----	525	309	1,183	3.84
Basic red dyes, total-----	2,029	1,924	9,728	5.06
Basic Red 14-----	410	454	1,217	2.68
Basic Red 15-----	202	...	...	...
Basic Red 18-----	290	245	787	3.21
Basic Red 49-----	117	73	299	4.10
All other-----	1,010	1,152	7,425	6.45
Basic violet dyes, total-----	3,561	3,326	12,296	3.70
Basic Violet 1-----	1,682	1,582	3,682	2.33
Basic Violet 16-----	264	216	843	3.90
All other-----	1,615	1,528	7,771	5.09
Basic blue dyes, total-----	3,415	2,622	18,620	7.10
Basic Blue 1-----	...	24	175	7.29
All other-----	3,415	2,598	18,445	7.10
Basic brown dyes, total-----	328	332	1,163	3.50
Basic Brown 1-----	92	82	272	3.32
Basic Brown 4-----	236	250	891	3.56
All other basic dyes-----	938	793	7,242	9.14
DIRECT DYES				
Total-----	28,588	26,704	82,047	3.07
Direct yellow dyes, total-----	10,170	9,815	27,853	2.84
Direct Yellow 4-----	661	603	1,812	3.00
Direct Yellow 6-----	325	231	825	3.57
Direct Yellow 11-----	3,196	3,336	4,266	1.28
Direct Yellow 28-----	28	25	218	8.72
Direct Yellow 44-----	...	210	744	3.55
Direct Yellow 50-----	225	...	...	...
Direct Yellow 105-----	303	229	781	3.41
Direct Yellow 106-----	717	632	1,807	2.86
All other-----	4,715	4,549	17,400	3.83
Direct orange dyes, total-----	1,576	1,363	4,700	3.45
Direct Orange 15-----	451	469	1,098	2.34
Direct Orange 26-----	...	15	71	4.73
Direct Orange 39-----	184	146	471	3.21
Direct Orange 102-----	423	306	1,113	3.64
All other-----	518	427	1,947	4.56
Direct red dyes, total-----	6,403	5,804	18,207	3.14
Direct Red 2-----	71	68	349	5.12

See footnotes at end of table.

TABLE 1.--DYES; U.S. PRODUCTION AND SALES, 1979--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-----	144	119	629	\$5.30
Direct Red 24-----	207	196	936	4.78
Direct Red 72-----	586	330	1,465	4.45
Direct Red 80-----	442	417	1,836	4.41
Direct Red 81-----	2,346	2,234	4,918	2.20
Direct Red 83-----	148	127	477	3.76
All other-----	2,459	2,313	7,597	3.28
Direct violet dyes-----	135	142	818	5.76
Direct blue dyes, total-----	6,527	5,830	20,007	3.43
Direct Blue 1-----	152	103	665	6.46
Direct Blue 15-----	...	287	708	2.47
Direct Blue 80-----	423	403	1,267	3.15
Direct Blue 86-----	1,035	973	3,355	3.45
Direct Blue 218-----	779	830	3,352	4.04
All other-----	4,138	3,234	10,660	3.30
Direct green dyes-----	295	290	1,701	5.87
Direct brown dyes-----	468	437	2,079	4.76
Direct black dyes, total-----	3,014	3,023	6,682	2.21
Direct Black 22-----	1,418	1,541	2,152	1.40
All other-----	1,596	1,482	4,530	3.06
DISPERSE DYES				
Total-----	46,778	39,714	169,356	4.26
Disperse yellow dyes, total-----	8,696	7,445	24,973	3.35
Disperse Yellow 3-----	3,218	...	...	...
Disperse Yellow 23-----	479	576	4,348	7.55
Disperse Yellow 33-----	...	27	80	2.96
Disperse Yellow 42-----	675	659	1,856	2.82
Disperse Yellow 54-----	...	949	3,479	3.67
All other-----	4,324	5,234	15,210	2.91
Disperse orange dyes, total-----	4,685	3,978	12,315	3.10
Disperse Orange 3-----	115	90	334	3.71
Disperse Orange 17-----	...	48	104	2.17
Disperse Orange 25-----	736	629	1,893	3.01
Disperse Orange 29-----	433	396	1,302	3.29
Disperse Orange 37-----	445	239	552	2.31
All other-----	2,956	2,576	8,130	3.15
Disperse red dyes, total-----	10,775	9,671	47,061	4.87
Disperse Red 1-----	526	413	1,349	3.27
Disperse Red 17-----	233	164	493	3.01
Disperse Red 60-----	1,770	1,574	7,074	4.50
Disperse Red 65-----	290	275	908	3.30
Disperse Red 86-----	234	...	...	...
Disperse Red 135-----	...	180	690	3.83
All other-----	7,722	7,065	36,547	5.17
Disperse violet dyes, total-----	808	707	3,230	4.57
Disperse Violet 1-----	51	70	288	4.13
Disperse Violet 27-----	...	40	113	2.83
All other-----	757	597	2,829	4.74

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1979--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-----	18,110	14,466	70,579	\$4.88
Disperse Blue 3-----	1,250	1,203	4,351	3.62
Disperse Blue 64-----	...	131	421	3.21
Disperse Blue 79-----	2,830	2,198	5,487	2.50
Disperse Blue 165-----	112	...	...	...
All other-----	13,918	10,934	60,320	5.52
Disperse green and brown dyes, total-----	1,604	1,315	4,613	3.51
Disperse green dyes-----	141	...	...	...
Disperse Brown 1-----	1,193	1,005	3,384	3.37
Disperse Brown 2-----	...	27	77	2.85
All other-----	270	283	1,152	4.07
Disperse black dyes-----	2,100	2,132	6,585	3.09
FIBER-REACTIVE DYES				
Fiber-reactive dyes, total-----	6,395	5,919	34,787	5.88
Reactive yellow dyes-----	1,006	1,007	5,803	5.76
All other reactive dyes-----	5,389	4,912	28,984	5.90
FLUORESCENT BRIGHTENING AGENTS				
Fluorescent brightening agents, total-----	33,674	33,390	63,209	1.89
Fluorescent Brightening Agent 28-----	603	827	1,415	1.71
All other fluorescent brightening agents-----	33,071	32,563	61,794	1.90
FOOD, DRUG, AND COSMETIC COLORS				
Total-----	7,293	6,861	49,201	7.17
<i>Food, Drug, and Cosmetic Dyes</i>				
Total-----	6,819	6,436	43,586	6.77
FD&C Blue No. 1-----	277	284	2,710	9.54
FD&C Red No. 3-----	561	676	7,079	10.47
FD&C Red No. 4-----	...	12	101	8.42
FD&C Red No. 40-----	2,659	2,356	17,455	7.41
FD&C Yellow 5-----	1,923	1,722	8,531	4.95
FD&C Yellow 6-----	1,302	1,222	5,556	4.55
All other food, drug, and cosmetic dyes-----	97	164	2,154	13.13
<i>Drug and Cosmetic and External Drug and Cosmetic Dyes</i>				
Total-----	474	425	5,615	13.21
D&C Red No. 7-----	120	96	699	7.28
D&C Red No. 9-----	...	77	395	5.14
D&C Red No. 19-----	20	13	200	14.91
D&C Red No. 30-----	37	...	...	...
D&C Red No. 36-----	...	4	29	6.55
All other drug and cosmetic and external drug and cosmetic dyes-----	297	235	4,292	18.28
MORDANT DYES				
Total-----	450	457	2,172	4.75
SOLVENT DYES				
Total-----	13,256	9,829	37,883	\$3.85
Solvent yellow dyes, total-----	1,546	1,225	6,020	4.91
Solvent Yellow 14-----	350	274	1,134	4.14
All other-----	1,196	951	4,886	5.14

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1979--CONTINUED

DYES	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
SOLVENT DYES--Continued				
Solvent orange dyes-----	1,041	1,041	3,197	3.07
Solvent blue dyes-----	3,855	1,250	8,840	7.07
All other solvent dyes-----	6,814	6,313	19,826	3.14
VAT DYES				
Total-----	46,630	42,643	108,533	2.55
Vat yellow and red dyes, total-----	2,997	2,473	10,549	4.27
Vat yellow dyes-----	...	1,850	4,176	2.26
Vat red dyes-----	...	623	6,373	10.23
Vat orange dyes, total-----	1,561	1,353	9,189	6.79
Vat Orange 15, 10%-----	...	140	746	5.33
All other-----	1,561	1,213	8,443	6.96
Vat violet dyes-----	466	497	2,586	5.20
Vat blue dyes, total-----	32,159	29,976	55,906	1.87
Vat Blue 6, 8-1/3%-----	...	602	2,064	3.43
All other-----	32,159	29,374	53,842	1.83
Vat green dyes, total-----	2,581	2,382	5,280	2.22
Vat Green 3, 10%-----	1,047	1,122	2,493	2.22
All other-----	1,534	1,260	2,787	2.21
Vat brown dyes, total-----	4,305	3,586	17,957	5.01
Vat Brown 3, 11%-----	...	238	1,681	7.06
All other-----	4,305	3,348	16,276	4.86
Vat black dyes-----	2,561	2,376	7,066	2.97
All other dyes ³ -----	31,496	29,162	50,127	1.72

¹Calculated from unrounded figures.

²The data include dyes which are similar to, but not chemically identical with, the indicated *Colour Index* name.

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

TABLE 1A.--DYES: U.S. PRODUCTION AND SALES, BY CLASS OF APPLICATION, 1979

CLASS OF APPLICATION	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	265,881	241,396	797,212	\$3.30
Acid-----	35,434	33,093	134,064	4.05
Basic (Classical and modified)-----	15,887	13,624	65,833	4.83
Direct-----	28,588	26,704	82,047	3.07
Disperse-----	46,778	39,714	169,356	4.26
Fiber-reactive-----	6,395	5,919	34,787	5.88
Fluorescent brightening agents-----	33,674	33,390	63,209	1.89
Food, drug, and cosmetic colors-----	7,293	6,861	49,201	7.17
Mordant-----	450	457	2,172	4.75
Solvent-----	13,256	9,829	37,883	3.85
Vat-----	46,630	42,643	108,533	2.55
All other ² -----	31,496	29,162	50,127	1.72

¹Calculated from unrounded figures.

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

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979

[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 11		BDO.
*Acid Yellow 17		AC, ATL, BDO, SDH, TRC.
*Acid Yellow 19		AC, ATL, CK, ICI, PDC.
*Acid Yellow 23		AC, ACY, BAS, BCC, CK, IVR, MRX, SDH, TRC, WJ.
Acid Yellow 29		TRC.
Acid Yellow 34		ATL, BDO.
*Acid Yellow 36		AC, ATL, DUP, TRC.
Acid Yellow 38		ATL.
*Acid Yellow 40		ATL, CK, TRC.
Acid Yellow 42		AC, ACY.
Acid Yellow 49		ATL, CK, DUP, PDC, VPC.
Acid Yellow 54		AC, TRC.
Acid Yellow 59		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		BAS.
*Acid Yellow 151		AC, ATL, DUP, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

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

ACID DYES--CONTINUED

ACID YELLOW DYES--Continued

Acid Yellow 159- - - - - : CK, TRC.
 Acid Yellow 169- - - - - : TRC.
 *Acid Yellow 174- - - - - : AC, DUP, PDC, VPC.
 Acid Yellow 198- - - - - : DUP.
 Acid Yellow 199- - - - - : ICI.
 Acid Yellow 200- - - - - : DUP.
 Acid Yellow 216- - - - - : VPC.
 Acid Yellow 219- - - - - : TRC.
 Acid Yellow 221- - - - - : BAS.
 Acid yellow dyes, all other- - - - - : AC, ATL, CK, TRC, VPC.

*ACID ORANGE DYES:

Acid Orange 5- - - - - : ACY.
 *Acid Orange 7- - - - - : AC, ACY, ATL, BAS, PDC, TRC, VPC.
 *Acid Orange 8- - - - - : AC, ACY, ATL, TRC, VPC.
 *Acid Orange 10- - - - - : AC, ACY, ATL, BAS, PDC, TRC.
 Acid Orange 12- - - - - : PSC.
 Acid Orange 24- - - - - : ACY, ATL, BAS, CK, FAB, TRC.
 Acid Orange 47- - - - - : TRC.
 Acid Orange 51- - - - - : TRC.
 *Acid Orange 60- - - - - : AC, ATL, CK, DUP, TRC, VPC.
 Acid Orange 63- - - - - : TRC.
 Acid Orange 64- - - - - : ATL, DUP.
 Acid Orange 72- - - - - : ACY.
 Acid Orange 74- - - - - : BAS, TRC.
 Acid Orange 86- - - - - : TRC.
 Acid Orange 116- - - - - : AC, CK, FAB.
 Acid Orange 128- - - - - : ATL, CK, DUP, PDC.
 Acid Orange 132- - - - - : DUP.
 Acid Orange 152- - - - - : DUP.
 Acid Orange 156- - - - - : CK, TRC.
 Acid orange dyes, all other- - - - - : ATL, CK, TRC, VPC.

*ACID RED DYES:

*Acid Red 1 - - - - - : AC, ACY, ATL, BAS, BDO, DUP, TRC.
 *Acid Red 4 - - - - - : AC, BAS, BDO, PDC, TRC.
 Acid Red 14- - - - - : ATL, BAS, PDC.
 Acid Red 18- - - - - : ATL, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID RED DYES--Continued	
Acid Red 26	: ACY.
Acid Red 27	: ATL, SDH.
Acid Red 33	: BDO.
Acid Red 37	: TRC.
Acid Red 51	: BDO.
Acid Red 52	: CK.
Acid Red 57	: ICI, TRC.
Acid Red 66	: AC.
*Acid Red 73	: ACY, ATL, BAS, CK, PSC, TRC.
Acid Red 85	: FAB.
Acid Red 87	: SDH.
*Acid Red 88	: ATL, BAS, PDC, TRC.
Acid Red 97	: ATL.
Acid Red 99	: FAB.
*Acid Red 114	: AC, ATL, 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, VPC.
Acid Red 167	: ATL, TRC.
Acid Red 174	: AC.
*Acid Red 182	: AC, DUP, VPC.
Acid Red 186	: AC.
Acid Red 194	: TRC.
Acid Red 211	: TRC.
Acid Red 213	: TRC.
Acid Red 257	: TRC.
*Acid Red 266	: BAS, CK, ICI, TRC.
Acid Red 278	: VPC.
Acid Red 299	: AC, ATL, CK.
Acid Red 309	: TRC.
*Acid Red 337	: ATL, CK, DUP, TRC, VPC.
Acid Red 361	: TRC.
Acid Red 364	: DUP.
Acid Red 384	: DUP.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID RED DYES--Continued	
Acid Red 388	DUP.
Acid red dyes, all other	AC, ACY, ATL, CK, DUP, TRC, VPC.
*ACID VIOLET DYES:	
Acid Violet 1	BDO.
Acid Violet 3	ACY, ATL, TRC.
Acid Violet 7	ATL, BDO.
Acid Violet 12	ATL, BDO.
Acid Violet 17	SDH.
Acid Violet 43	HSH.
Acid Violet 49	SDH, TRC.
*ACID BLUE DYES:	
Acid Blue 7	SDH.
Acid Blue 9	BAS, LVR, WJ, X.
Acid Blue 23	TRC.
Acid Blue 25	ATL, DUP, TRC, VPC.
Acid Blue 27	ATL, BDO.
Acid Blue 29	PDC.
Acid Blue 40	ATL, BAS, BDO, DUP, ICI, TRC, VPC.
Acid Blue 41	ATL, ICI.
Acid Blue 43	TRC.
Acid Blue 45	TRC.
Acid Blue 78	TRC.
Acid Blue 80	TRC.
Acid Blue 92	ATL, FAB.
Acid Blue 104	ATL.
Acid Blue 113	AC, CK.
Acid Blue 118	AC.
Acid Blue 145	ATL, CK.
Acid Blue 158, 158:1, and 158:2	AC, TRC.
Acid Blue 230	DUP.
Acid Blue 277	TRC.
Acid Blue 298	DUP.
Acid blue dyes, all other	AC, ATL, CK, TRC, VPC.
*ACID GREEN DYES:	
Acid Green 1	ACY.
Acid Green 3	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID GREEN DYES--Continued	
Acid Green 5	MJ.
Acid Green 16	TRC.
Acid Green 20	ATL, BDO, PDC, TRC.
Acid Green 25	BDO, DUP, HSH, TRC.
Acid Green 35	TRC.
Acid Green 70	TRC.
*ACID BROWN DYES:	
*Acid Brown 14	AC, ACY, ATL, BAS, CK, TRC.
Acid Brown 19	TRC.
Acid Brown 45	TRC.
Acid Brown 83	VPC.
Acid Brown 90	ACY.
Acid Brown 97	ACY.
*Acid Brown 98	ACY, ATL, PDC, TRC.
Acid Brown 147	TRC.
Acid Brown 158	BAS.
Acid Brown 160	BAS.
Acid Brown 163	BAS.
Acid Brown 165	BAS.
Acid Brown 188	PDC.
Acid Brown 189	PDC.
Acid Brown 223	VPC.
Acid Brown 239	TRC.
Acid Brown 354	ACY.
Acid brown dyes, all other	ATL, CK, VPC.
*ACID BLACK DYES:	
*Acid Black 1	AC, ACY, ATL, BAS, BDO, CK, FAB, PDC, TRC.
Acid Black 2	ACY.
Acid Black 24	AC.
Acid Black 41	PDC.
*Acid Black 52	AC, ATL, CK, FAB, TRC.
Acid Black 58	TRC.
Acid Black 60	TRC.
Acid Black 92	ACY.
Acid Black 107	CK, TRC, VPC.
Acid Black 172	TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACID DYES--CONTINUED	
*ACID BLACK DYES--Continued	
Acid Black 194	BAS.
Acid black dyes, all other	ATI, CK, VPC.
AZOIC DYES AND COMPONENTS	
AZOIC COMPOSITIONS:	
AZOIC YELLOW COMPOSITIONS:	
Azoic Yellow 1	ALL, BUC.
Azoic Yellow 2	ALL
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.
AZOIC VIOLET COMPOSITIONS:	
Azoic Violet 1	BUC.
Azoic violet compositions, all other	ALL.
AZOIC BLUE COMPOSITIONS:	
Azoic Blue 3	ALL, BUC.
AZOIC BROWN COMPOSITIONS:	
Azoic Brown 9	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, DUP.
Azoic Diazo Component 2, salt	BUC.
Azoic Diazo Component 3, salt	ALL, BUC.
Azoic Diazo Component 5, salt	ALL, BUC, DUP.
Azoic Diazo Component 6, salt	ALL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AZOIC DIAZO COMPONENTS, SALTS--Continued	
Azoic Diazo Component 8, salt	ALL, BUC.
Azoic Diazo Component 9, salt	ALL, BUC, DUP.
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.
Azoic Diazo Component 14, salt	ALL.
Azoic Diazo Component 20, salt	ATL.
Azoic Diazo Component 31, salt	ALL, ATL.
Azoic Diazo Component 34, salt	ALL.
Azoic Diazo Component 35, salt	ALL.
Azoic Diazo Component 41, salt	ALL.
Azoic Diazo Component 42, salt	ALL.
Azoic Diazo Component 44, salt	ALL, ATL.
Azoic Diazo Component 48, 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	ALL, BUC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)	
*BASIC YELLOW DYES:	
Basic Yellow 1	DUP.
Basic Yellow 2	ACY, LVR.
*Basic Yellow 11	ATL, DUP, TRC, VPC.
*Basic Yellow 13	ATL, DUP, VPC.
Basic Yellow 15	DUP.
Basic Yellow 21	VPC.
Basic Yellow 23	BAS.
Basic Yellow 24	BAS.
Basic Yellow 28	BAS, VPC.
*Basic Yellow 29	ATL, BAS, DUP, VPC.
Basic Yellow 37	ACY.
Basic Yellow 41	ACY.
Basic Yellow 49	BAS.
Basic Yellow 53	DUP.
Basic Yellow 58	DUP.
Basic Yellow 64	BAS.
Basic Yellow 65	BAS.
Basic Yellow 78	ACY.
Basic Yellow 79	DUP.
Basic Yellow 83	DUP.
Basic yellow dyes, all other	SDH.
Basic yellow dyes, all other, modified	BAS, DUP, VPC.
*BASIC ORANGE DYES:	
Basic Orange 1	ACY, BAS, 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 40	BAS.
Basic orange dyes, all other	DUP, SDH.
*BASIC RED DYES:	
Basic Red 1	BAS, DUP.
Basic Red 12	ACY, DUP, VPC.
*Basic Red 14	ACY, ATL, BAS, DUP, VPC.
*Basic Red 15	ATL, BAS, DUP.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC RED DYES (CLASSICAL AND MODIFIED)--CONTINUED	
*BASIC RED DYES--Continued	
Basic Red 17	DUP.
*Basic Red 18	ATL, BAS, DUP, VPC.
Basic Red 22	TRC.
Basic Red 23	VPC.
Basic Red 29	BAS.
*Basic Red 49	BAS, DUP, TRC, VPC.
Basic Red 73	DUP.
Basic Red 101	BAS.
Basic red dyes, all other	SDH.
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 15	DUP.
*Basic Violet 16	ATL, BAS, DUP, TRC, VPC.
Basic violet 17	VPC.
Basic violet 18	ACY.
Basic violet dyes, all other	ACY, BCC, SDH.
Basic violet dyes, all other, modified	DUP.
*BASIC BLUE DYES:	
*Basic Blue 1	BAS, DSC, SDH.
Basic Blue 2	DSC.
Basic Blue 3	BAS, DUP, TRC.
Basic Blue 5	DSC.
Basic Blue 6	ACY.
Basic Blue 7	DSC, DUP, SDH.
Basic Blue 9	ACY.
Basic Blue 11	SDH.
Basic Blue 21	DUP.
Basic Blue 22	DUP.
Basic Blue 26	DSC, SDH.
Basic Blue 27	VPC.
Basic Blue 35	DUP.
Basic Blue 41	BAS, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
BASIC DYES (CLASSICAL AND MODIFIED)--CONTINUED	
*BASIC BLUE DYES--Continued	
Basic Blue 45-	VPC.
Basic Blue 47-	VPC.
Basic Blue 54-	ACY, ATL, BAS.
Basic Blue 56-	VPC.
Basic Blue 60-	BAS.
Basic Blue 69-	VPC.
Basic Blue 75-	EKT.
Basic Blue 76-	ACY.
Basic Blue 77-	DUP.
Basic Blue 78-	BAS.
Basic Blue 87-	DUP.
Basic Blue 94-	DUP.
Basic blue dyes, all other	DUP, SDH.
Basic blue dyes, all other, modified	VPC.
BASIC GREEN DYES:	
Basic Green 1-	DSC.
Basic Green 4-	ACY, BAS, DSC.
Basic green dyes, all other	SDH.
*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	SDH.
Basic black dyes, all other, modified	SDH.
DIRECT DYES	
DIRECT YELLOW DYES:	
*Direct Yellow 4-	ACY, ATL, BAS, DUP, LVR, SDH, TRC.
Direct Yellow 5-	ACY.
*Direct Yellow 6-	ACY, BAS, DUP, LVR.
*Direct Yellow 11-	AC, ACY, BAS, DUP, TRC, VPC.
Direct Yellow 12-	ACY, ATL, TRC.
*Direct Yellow 28-	ATL, DUP, PDC, TRC.
Direct Yellow 34-	AC, CK, TRC.
Direct Yellow 39-	TRC.
*Direct Yellow 44-	AC, CK, TRC.
*Direct Yellow 50-	AC, CK, FAB, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT YELLOW DYES--Continued	
Direct Yellow 51	FAB.
Direct Yellow 84	AC.
Direct Yellow 103	ATL.
*Direct Yellow 105	AC, CK, TRC.
*Direct Yellow 106	AC, BAS, CK, FAB, TRC.
Direct Yellow 107	TRC.
Direct Yellow 114	ACY.
Direct Yellow 118	TRC.
Direct Yellow 119	DUP.
Direct Yellow 127	DUP, TRC.
Direct Yellow 131	DUP.
Direct Yellow 132	TRC.
Direct Yellow 137	DUP.
Direct Yellow 139	DUP.
Direct Yellow 147	ACY, DUP.
Direct yellow dyes, all other	AC, ATL, CK, TRC, VPC.
*DIRECT ORANGE DYES:	
Direct Orange 6	ATL.
Direct Orange 8	FAB.
*Direct Orange 15	AC, ACY, BAS, DUP, TRC.
*Direct Orange 26	ATL, CK, TRC.
Direct Orange 29	TRC.
Direct Orange 34	ATL, DUP.
*Direct Orange 39	AC, ACY, CK, FAB.
Direct Orange 59	DUP.
Direct Orange 61	TRC.
Direct Orange 72	AC, FAB, TRC.
Direct Orange 73	TRC.
Direct Orange 80	DUP.
*Direct Orange 102	AC, ACY, ATL, BAS, DUP.
Direct Orange 118	TRC.
Direct orange dyes, all other	CK, VPC.
*DIRECT RED DYES:	
Direct Red 1	FAB.
*Direct Red 2	AC, ATL, FAB, TRC.
Direct Red 4	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

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

DIRECT DYES--CONTINUED

*DIRECT RED DYES--Continued

Direct Red 16- - - - - : ATL, TRC.
 *Direct Red 23- - - - - : AC, ACY, ATL, CK, DUP, FAB, TRC.
 *Direct Red 24- - - - - : AC, ATL, CK, FAB, TRC.
 Direct Red 26- - - - - : ATL.
 Direct Red 28- - - - - : FAB.
 Direct Red 31- - - - - : ATL, TRC.
 Direct Red 39- - - - - : ATL, TRC.
 Direct Red 62- - - - - : ATL, TRC.
 *Direct Red 72- - - - - : ATL, BAS, CK, DUP, TRC.
 Direct Red 73- - - - - : AC.
 Direct Red 75- - - - - : ATL.
 Direct Red 79- - - - - : CK, TRC.
 *Direct Red 80- - - - - : AC, ATL, CK, FAB, TRC.
 *Direct Red 81- - - - - : AC, ACY, ATL, BAS, CK, DUP, LVR, TRC.
 *Direct Red 83- - - - - : AC, ATL, CK, FAB, TRC.
 Direct Red 122- - - - - : TRC.
 Direct Red 149- - - - - : ATL.
 Direct Red 153- - - - - : ATL.
 Direct Red 209- - - - - : TRC.
 Direct Red 236- - - - - : AC, DUP.
 Direct Red 238- - - - - : DUP.
 Direct Red 239- - - - - : TRC.
 Direct red dyes, all other- - - - - : AC, ATL, CK, VPC.
 Direct Red 54- - - - - : AC.

*DIRECT VIOLET DYES:

Direct Violet 7- - - - - : ATL.
 Direct Violet 9- - - - - : ATL, TRC.
 Direct Violet 14- - - - - : ATL.
 Direct Violet 66- - - - - : ATL, TRC.
 Direct violet dyes, all other- - - - - : DUP.

*DIRECT BLUE DYES:

*Direct Blue 1- - - - - : AC, ATL, BAS, CK, TRC.
 Direct Blue 2- - - - - : FAB.
 Direct Blue 6- - - - - : FAB.
 Direct Blue 8- - - - - : ATL.
 Direct Blue 14- - - - - : TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DIRECT DYES--CONTINUED	
*DIRECT BLUE DYES--Continued	
*Direct Blue 15	AC, BAS, DUP, TRC, VPC.
Direct Blue 22	ATL.
Direct Blue 25	TRC.
Direct Blue 67	ATL.
Direct Blue 75	TRC.
Direct Blue 76	AC, ATL, CK.
*Direct Blue 80	AC, ATL, BAS, CK, FAB, TRC.
*Direct Blue 86	AC, ATL, BDO, CK, DUP, FAB, TRC, VPC.
Direct Blue 91	TRC.
Direct Blue 98	ATL, CK, FAB, TRC.
Direct Blue 100	CK.
Direct Blue 120, 120:1, 120:2, and 120:3	AC, TRC.
Direct Blue 126	ATL.
Direct Blue 151	ATL.
Direct Blue 160	CK, FAB, TRC.
Direct Blue 189	TRC.
Direct Blue 191	BAS, CK.
Direct Blue 199	BAS, DUP.
*Direct Blue 218	AC, BAS, CK, DUP, FAB, TRC.
Direct Blue 260	DUP.
Direct Blue 263	DUP.
Direct Blue 279	DUP.
Direct blue dyes, all other	AC, ATL, CK, FAB, VPC.
*DIRECT GREEN DYES:	
Direct Green 1	FAB.
Direct Green 6	FAB.
Direct Green 26	TRC.
Direct Green 27	TRC.
Direct Green 47	ATL, FAB.
Direct Green 51	TRC.
Direct Green 69	TRC.
Direct green dyes, all other	ATL, DUP, FAB, TRC.
*DIRECT BROWN DYES:	
Direct Brown 2	FAB.
Direct Brown 6	FAB.
Direct Brown 31	ATL, FAB.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

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

DIRECT DYES--CONTINUED

*DIRECT BROWN DYES--Continued

Direct Brown 44- - - - - : FAB.
 Direct Brown 74- - - - - : FAB.
 Direct Brown 95- - - - - : FAB.
 Direct Brown 154 - - - - - : FAB.
 Direct brown dyes, all other - - - - - : AC, ATL, CK, FAB.
 *DIRECT BLACK DYES:
 Direct Black 4 - - - - - : FAB.
 Direct Black 19- - - - - : TRC.
 Direct Black 22- - - - - : AC, ATL, CK, TRC, VPC.
 Direct Black 38- - - - - : FAB.
 Direct Black 80- - - - - : AC, ATL, CK, FAB.
 Direct Black 190 - - - - - : AC.
 Direct black dyes, all other - - - - - : AC, ATL, CK, FAB, TRC, VPC.

DISPERSE DYES

*DISPERSE YELLOW DYES:

*Disperse Yellow 3- - - - - : AC, CK, DUP, TRC.
 Disperse Yellow 4- - - - - : VPC.
 *Disperse Yellow 23 - - - - - : ATL, CK, EKT, TRC.
 *Disperse Yellow 34 - - - - - : AC, EKT, TRC.
 Disperse Yellow 40 - - - - - : AC, EKT.
 *Disperse Yellow 42 - - - - - : VPC.
 *Disperse Yellow 54 - - - - - : AC, DUP, EKT, SDC, TRC.
 Disperse Yellow 56 - - - - - : BAS, DUP, TRC.
 Disperse Yellow 64 - - - - - : BAS.
 Disperse Yellow 67 - - - - - : BAS, DUP.
 Disperse Yellow 74 - - - - - : BAS, DUP, VPC.
 Disperse Yellow 77 - - - - - : VPC.
 Disperse Yellow 86 - - - - - : VPC.
 Disperse Yellow 88 - - - - - : AC, EKT.
 Disperse Yellow 93 - - - - - : EKT.
 Disperse Yellow 96 - - - - - : VPC.
 Disperse Yellow 99 - - - - - : VPC.
 Disperse Yellow 108- - - - - : EKT.
 Disperse Yellow 114- - - - - : EKT.
 Disperse Yellow 118- - - - - : HST.
 Disperse Yellow 118- - - - - : AC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE YELLOW DYES--Continued	
Disperse Yellow 125-	SDC.
Disperse Yellow 126-	ICI.
Disperse Yellow 137-	DUP.
Disperse Yellow 138-	DUP.
Disperse Yellow 148-	BAS.
Disperse Yellow 198-	BAS.
Disperse Yellow 200-	EKT.
Disperse Yellow 207-	SDC.
Disperse Yellow 208-	SDC.
Disperse Yellow 219-	SDC.
Disperse yellow dyes, all other-	BAS, EKT, MAY, VPC.
*DISPERSE ORANGE DYES:	
*Disperse Orange 3-	AC, ATL, CK, TRC.
Disperse Orange 5-	EKT.
*Disperse Orange 17-	AC, ATL, BAS, EKT.
Disperse Orange 21-	TRC.
*Disperse Orange 25-	ATL, CK, DUP, EKT, TRC, VPC.
Disperse Orange 29-	AC, BAS, CK, SDC, VPC.
Disperse Orange 30-	AC, ATL, TRC.
Disperse Orange 31-	BAS.
Disperse Orange 33-	BAS, FAB.
*Disperse Orange 37-	AC, ATL, BAS, CK, EKT.
Disperse Orange 41-	AC, DUP.
Disperse Orange 44-	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.
Disperse Orange 77-	MAY.
Disperse Orange 78-	MAY.
Disperse Orange 79-	MAY.
Disperse Orange 88-	SDC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE ORANGE DYES--Continued	
Disperse Orange 89	: AC.
Disperse Orange 90	: AC.
Disperse Orange 94	: SDC.
Disperse Orange 95	: DUP.
Disperse Orange 98	: DUP.
Disperse Orange 125	: DUP.
Disperse Orange 129	: SDC.
Disperse Orange 136	: EKT.
Disperse orange dyes, all other	: CK, EKT.
*DISPERSE RED DYES:	
*Disperse Red 1	: AC, ATL, BAS, CK, DUP, EKT, TRC.
Disperse Red 4	: BAS, TRC.
Disperse Red 5	: AC, CK.
Disperse Red 7	: AC.
Disperse Red 11	: AC.
Disperse Red 13	: ATL, BAS.
Disperse Red 15	: CK, HSH, TRC.
Disperse Red 17	: AC, ATL, BAS, CK, EKT, TRC.
Disperse Red 30	: EKT.
Disperse Red 35	: EKT.
Disperse Red 50	: CK, FAB, TRC.
Disperse Red 54	: BAS, FAB.
Disperse Red 55	: DUP, TRC, VPC.
Disperse Red 59	: BAS, DUP.
*Disperse Red 60	: AC, BAS, DUP, TRC, VPC.
*Disperse Red 65	: AC, CK, EKT, TRC.
Disperse Red 73	: BAS, TRC.
Disperse Red 76	: BAS.
Disperse Red 82	: TRC, VPC.
*Disperse Red 86	: BAS, CK, EKT, TRC.
Disperse Red 88	: EKT.
Disperse Red 91	: BAS.
Disperse Red 105	: VPC.
Disperse Red 106	: VPC.
Disperse Red 108	: VPC.
Disperse Red 109	: VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE RED DYES--Continued	
Disperse Red 114	VPC.
Disperse Red 115	MAY.
Disperse Red 117	EKT.
Disperse Red 118	BAS.
Disperse Red 128	DUP.
Disperse Red 133	VPC.
*Disperse Red 135	AC, CK, DUP.
Disperse Red 136	EKT.
Disperse Red 137	EKT.
Disperse Red 138	EKT.
Disperse Red 140	DUP.
Disperse Red 140	AC.
Disperse Red 153	SDC.
Disperse Red 159	VPC.
Disperse Red 163	EKT.
Disperse Red 167	BAS, TRC.
Disperse Red 177	CK, SDC, VPC.
Disperse Red 178	TRC.
Disperse Red 179	AC, BAS.
Disperse Red 193	SDC.
Disperse Red 195	SDC.
Disperse Red 217	DUP.
Disperse Red 219	DUP.
Disperse Red 220	DUP.
Disperse Red 263	BAS.
Disperse Red 271	DUP.
Disperse Red 273	BAS.
Disperse Red 274	SDC.
Disperse Red 278	ICI.
Disperse Red 305	EKT.
Disperse Red 307	EKT.
Disperse Red 309	EKT.
Disperse Red 313	SDC.
Disperse Red 316	SDC.
Disperse Red 319	CK.
Disperse Red 333	SDC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979---CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE RED DYES--Continued	
Disperse red dyes, all other	AC, BUC, CK, EKT, HST, MAY, TRC, VPC.
*DISPERSE VIOLET DYES:	
*Disperse Violet 1-	AC, ATL, CK, HSH.
Disperse Violet 17	DUP.
Disperse Violet 26	DUP.
*Disperse Violet 27	AC, DUP, EKT.
Disperse Violet 28	DUP, TRC.
Disperse Violet 33	ICI.
Disperse Violet 36	SDC.
Disperse Violet 40	VPC.
Disperse Violet 42	EKT.
Disperse Violet 60	SDC.
Disperse Violet 64	DUP.
Disperse Violet 81	SDC.
Disperse violet dyes, all other	EKT, HST, MAY.
*DISPERSE BLUE DYES:	
*Disperse Blue 3-	AC, CK, EKT, FAB, HSH, TRC.
Disperse Blue 7-	AC, TRC.
Disperse Blue 27	EKT.
Disperse Blue 55	TRC.
Disperse Blue 56	BAS, VPC.
Disperse Blue 60	DUP.
Disperse Blue 62	DUP, EKT.
Disperse Blue 64	AC, DUP, EKT, TRC.
Disperse Blue 77	DUP, EKT.
*Disperse Blue 79	BAS, CK, EKT, MAY, TRC.
Disperse Blue 81	VPC.
Disperse Blue 87	BAS.
Disperse Blue 94	AC, BAS.
Disperse Blue 95	HST.
Disperse Blue 102	EKT.
Disperse Blue 109	DUP.
Disperse Blue 112	EKT.
Disperse Blue 118	EKT.
Disperse Blue 121	EKT.
Disperse Blue 122	ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
DISPERSE DYES--CONTINUED	
*DISPERSE BLUE--Continued	
Disperse Blue 125-	TRC.
Disperse Blue 138-	VPC.
Disperse Blue 139-	VPC.
Disperse Blue 148-	BAS.
*Disperse Blue 165-	DUP, HST, VPC.
Disperse Blue 173-	AC.
Disperse Blue 174-	AC.
Disperse Blue 175-	SDC.
Disperse Blue 177-	SDC.
Disperse Blue 192-	DUP.
Disperse Blue 194-	DUP.
Disperse Blue 200-	ICI.
Disperse Blue 281-	AC, SDC, TRC.
Disperse Blue 283-	DUP.
Disperse Blue 284-	ICI.
Disperse Blue 291-	SDC.
Disperse Blue 317-	EKT.
Disperse Blue 322-	DUP.
Disperse blue dyes, all other-	ATL, BUC, DUP, EKT, HST, MAY, TRC, VPC.
*DISPERSE GREEN DYES:	
Disperse Green 7 -	DUP.
Disperse Green 9 -	ICI.
Disperse green dyes, all other -	CK, VPC.
DISPERSE BROWN DYES:	
*Disperse Brown 1 -	AC, ATL, BUC, CK, ICI, SDC, TRC.
Disperse Brown 2 -	BAS, EKT, SDC.
Disperse Brown 5 -	HST.
Disperse Brown 10 -	SDC.
Disperse Brown 18 -	SDC.
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 -	BAS, CK, EKT, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES	
*REACTIVE YELLOW DYES:	
Reactive Yellow 1-	ICI.
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 18	ICI.
Reactive Yellow 22	ICI.
Reactive Yellow 25	VPC.
Reactive Yellow 27	VPC.
Reactive Yellow 37	HST.
Reactive Yellow 42	HST.
Reactive Yellow 86	ICI.
Reactive Yellow 133-	ICI.
Reactive Yellow 135-	ICI.
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 64	VPC.
Reactive Orange 70	TRC.
Reactive Orange 78	HST.
Reactive Orange 84	ICI.
Reactive Orange 86	ICI.
Reactive Orange 88	ICI.
Reactive Orange 89	ICI.
REACTIVE RED DYES:	
Reactive Red 2 -	FAB, ICI.
Reactive Red 5 -	ICI.
Reactive Red 8 -	ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES--CONTINUED	
REACTIVE RED DYES--Continued	
Reactive Red 11-	FAB, ICI.
Reactive Red 29-	ICI.
Reactive Red 31-	ICI.
Reactive Red 33-	ICI.
Reactive Red 40-	VPC.
Reactive Red 41-	VPC.
Reactive Red 43-	ICI, TRC.
Reactive Red 49-	HST.
Reactive Red 58-	ICI.
Reactive Red 120-	ICI, TRC.
Reactive Red 123-	VPC.
Reactive red dyes, all other	VPC.
REACTIVE VIOLET DYES:	
Reactive Violet 1-	ICI.
Reactive Violet 4-	HST.
Reactive Violet 5-	HST.
Reactive violet dyes, all other	HST.
REACTIVE BLUE DYES:	
Reactive Blue 3-	ICI.
Reactive Blue 4-	ICI.
Reactive Blue 5-	ICI, TRC.
Reactive Blue 7-	TRC.
Reactive Blue 13-	ICI.
Reactive Blue 19-	HST.
Reactive Blue 21-	HST.
Reactive Blue 25-	ICI.
Reactive Blue 29-	VPC.
Reactive Blue 38-	HST.
Reactive Blue 71-	ICI.
Reactive Blue 89-	HST.
Reactive Blue 109-	ICI.
Reactive Blue 173-	ICI.
Reactive Blue 174-	ICI.
Reactive blue dyes, all other	HST, ICI.
REACTIVE GREEN DYES:	
Reactive Green 19-	ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FIBER-REACTIVE DYES--CONTINUED	
REACTIVE GREEN DYES--Continued	
Reactive green dyes, all other	HST.
REACTIVE BROWN DYES:	
Reactive Brown 10	ICI.
Reactive Brown 17	ICI.
Reactive Brown 18	HST.
Reactive brown dyes, all other	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	CCW, CGY, VPC, X.
Fluorescent Brightener 33	ACY.
Fluorescent Brightener 46	CGY.
Fluorescent Brightener 49	S.
Fluorescent Brightener 52	S.
Fluorescent Brightener 61	ACY, BAS, CCM, DGO.
Fluorescent Brightener 71	CGY.
Fluorescent Brightener 126	X.
Fluorescent Brightener 127	X.
Fluorescent Brightener 128	X.
Fluorescent Brightener 129	X.
Fluorescent Brightener 130	SDH.
Fluorescent Brightener 134	CGY.
Fluorescent Brightener 135	CGY.
Fluorescent Brightener 148	VPC.
Fluorescent Brightener 159	ACY.
Fluorescent Brightener 191	VPC.
Fluorescent Brightener 200	VPC.
Fluorescent brighteners, all other	ACY, CCM, CGY, DGO, S, SDH, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
FOOD, DRUG, AND COSMETIC COLORS	
*FOOD, DRUG, AND COSMETIC DYES:	
*Food, Drug, and Cosmetic Blue 1-	BCC, KON, SDH, WJ.
*Food, Drug, and Cosmetic Blue 2-	BCC, CK, KON, SDH, WJ.
*Food, Drug, and Cosmetic Green 3-	WJ.
*Food, Drug, and Cosmetic Red 2-	BCC, WJ.
*Food, Drug, and Cosmetic Red 3-	BDO, CK, KON, SDH, STG, WJ.
*Food, Drug, and Cosmetic Red 4-	CK, KON, WJ.
*Food, Drug, and Cosmetic Red 40-	BCC, CK, 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.
*Food, Drug, and Cosmetic dyes, all other	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-	KON.
Drug and Cosmetic Orange 5-	BCC, SNA.
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, SDH, SNA, TMS.
Drug and Cosmetic Red 8-	KON, SNA.
Drug and Cosmetic Red 9-	KON, MRX, SDH, SNA.
Drug and Cosmetic Red 17-	KON, MRX, SDH, SNA.
Drug and Cosmetic Red 19-	KON.
Drug and Cosmetic Red 21-	BCC, KON, SDH, SNA, TMS.
Drug and Cosmetic Red 22-	MRX, SDH, SNA.
Drug and Cosmetic Red 27-	BCC, SDH.
Drug and Cosmetic Red 28-	MRX, SDH, TMS.
Drug and Cosmetic Red 30-	SDH.
Drug and Cosmetic Red 33-	KON, SDH, SNA, TMS.
Drug and Cosmetic Red 34-	BCC, KON.
Drug and Cosmetic Red 36-	KON, SNA.
Drug and Cosmetic Red 37-	KON, SDH, SNA.
Drug and Cosmetic Violet 2-	BCC.
Drug and Cosmetic Yellow 5-	BCC, KON, SDH, TMS.
Drug and Cosmetic Yellow 6-	KON, SDH, TMS.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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 Yellow 7	BCC, TMS.
Drug and Cosmetic Yellow 8	SDH, KON, MJ.
Drug and Cosmetic Yellow 10	BCC, KON.
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 ORANGE DYES:	
Mordant Orange 1	PDC.
Mordant Orange 6	ATL, BAS, PDC, TRC.
Mordant Orange 8	PDC.
MORDANT RED DYES:	
Mordant Red 7	AC, ACY, BDO, PDC.
Mordant Red 9	MRX.
Mordant Red 11	ACY.
MORDANT BLUE DYES:	
Mordant Blue 79	BAS.
MORDANT BROWN DYES:	
Mordant Brown 1	ATL, TRC.
Mordant Brown 18	PDC.
Mordant Brown 33	PDC, TRC.
Mordant Brown 40	PDC.
Mordant Brown 50	TRC.
Mordant Brown 70	PDC.
MORDANT BLACK DYES:	
Mordant Black 11	ATL, TRC.
OXIDATION BASES	
Oxidation base 21	PDC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES	
*SOLVENT YELLOW DYES:	
Solvent Yellow 3	PSC.
Solvent Yellow 13	ACY.
*Solvent Yellow 14	ACY, ATL, DUP, 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	ATL, BCC.
Solvent Yellow 43	DGO.
Solvent Yellow 44	DGO.
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 160	DGO.
Solvent yellow dyes, all other	AC.
*SOLVENT ORANGE DYES:	
Solvent Orange 2	PSC.
Solvent Orange 3	ACY, PSC.
Solvent Orange 7	ACY, PSC.
Solvent Orange 20	ACY.
Solvent Orange 23	ATL, BCC.
Solvent Orange 25	ACY, DUP.
Solvent Orange 31	PSC.
Solvent Orange 60	AC.
Solvent Orange 73	MRT.
Solvent Orange 74	MRT.
Solvent orange dyes, all other	DUP, MRT, PSC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT RED DYES:	
Solvent Red 1-	PSC.
Solvent Red 019-	MRT.
Solvent Red 23	PSC.
Solvent Red 24	AC, ACY, ATL, PSC.
Solvent Red 26	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	ATL, BCC, MRT.
Solvent Red 74	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 173-	MRT.
Solvent Violet 210	MRT.
Solvent red dyes, all other-	AC, ACY, MRT.
SOLVENT VIOLET DYES:	
Solvent Violet 8	ACY, DSC.
Solvent Violet 9	DSC.
Solvent Violet 13-	AC, MRT.
Solvent Violet 14-	MRT.
Solvent Violet 38-	MRT.
*SOLVENT BLUE DYES:	
Solvent Blue 3	ACY, SM.
Solvent Blue 4	DSC, DUP, SDH.
Solvent Blue 5	DSC.
Solvent Blue 23-	BAS.
Solvent Blue 32-	AC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SOLVENT DYES--CONTINUED	
*SOLVENT BLUE DYES--Continued	
Solvent Blue 35-	MRT.
Solvent Blue 36-	AC, DUP, MRT.
Solvent Blue 37-	DUP, TNI.
Solvent Blue 38-	ACY, DUP.
Solvent Blue 58-	ACY.
Solvent Blue 59-	AC, ACY.
Solvent Blue 98-	MRT.
Solvent Blue 99-	MRT.
Solvent Blue 100-	MRT.
Solvent blue dyes, all other	ACY, DUP.
SOLVENT GREEN DYES:	
Solvent Green 1-	ACY, DSC.
Solvent Green 3-	AC.
SOLVENT BROWN DYES:	
Solvent Brown 12-	PSC.
Solvent Brown 20-	ACY, DUP.
Solvent Brown 22-	PSC.
Solvent Brown 38-	ACY.
Solvent Brown 100-	MRT.
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.
SULFUR DYES	
SULFUR YELLOW DYES:	
Leuco Sulfur Yellow 1-	SDC.
Leuco Sulfur Yellow 17-	SDC.
Leuco Sulfur Yellow 21-	SDC.
Leuco Sulfur Yellow 22-	SDC.
SULFUR ORANGE DYES:	
Leuco Sulfur Orange 1-	SDC.
SULFUR RED DYES:	
Leuco Sulfur Red 10-	SDC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
SULFUR RED DYES--Continued.	
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 16-	SDC.
Leuco Sulfur Green 34-	SDC.
Leuco Sulfur Green 35-	SDC.
Leuco Sulfur Green 36-	SDC.
SULFUR BROWN DYES:	
Leuco Sulfur Brown 1:1	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.
Sulfur brown dyes, all other	ACY.
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.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES	
*VAT YELLOW DYES:	
Vat Yellow 2, 8-1/2%	AC, TRC, VPC.
Vat Yellow 4, 12-1/2%	HST.
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%	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.
Vat Red 41, 20%	HST.
*VAT VIOLET DYES:	
Vat Violet 1, 11%	DUP, TRC.
Vat Violet 2, 20%	HST.
Vat Violet 3, 15%	HST.
Vat Violet 13, 6-1/4%	BAS, TRC.
Vat Violet 21-	DUP, VPC.
*VAT BLUE DYES:	
Vat Blue 1, 20%	BAS, BCC.
Vat Blue 6, 8-1/3%	ACY, BAS, TRC.
Vat Blue 16, 16%	BAS.
Vat Blue 18, 13%	AC, ACY, TRC.
Vat Blue 19-	BAS.
Vat Blue 20, 14%	ACY, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

DYES	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
VAT DYES--CONTINUED	
*VAT BLUE DYES--Continued:	
Vat Blue 43-	SDC.
Vat Blue 66-	BAS.
Vat blue dyes, all other	BCC, HST, SDC.
*VAT GREEN DYES:	
Vat Green 1, 6%	ACY, BAS.
Vat Green 3, 10%	AC, ACY, BAS, DUP, TRC.
Vat Green 9, 12-1/2%	ACY, TRC.
Vat Green 32	VPC.
Vat green dyes, all other-	SDC.
*VAT BROWN DYES:	
Vat Brown 1, 11%	ACY, TRC, VPC.
*Vat Brown 3, 11%	AC, ACY, TRC, VPC.
Vat Brown 5, 13%	ACY.
Vat Brown 11, 12%	TRC.
Vat Brown 13, 17%	TRC.
Vat Brown 57, 12.8%	HST, TRC.
Vat brown dyes, all other-	AC, ACY, VPC.
*VAT BLACK DYES:	
Vat Black 16	BCC.
Vat Black 21, 18-1/2%	ACY.
Vat Black 22, 19%	ACY, TRC.
Vat Black 25, 12-1/2%	AC, ACY, DUP, TRC.
Vat Black 27, 12-1/2%	ACY, TRC.
Vat black dyes, all other-	ACY.
MISCELLANEOUS DYES:	
Dyes, all other-	ALL, DUP, MRT.

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of dyes to the U.S. International Trade Commission for 1979 are listed below in order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
AC	American Color & Chemical Corp.	LVR	C. Lever Co., Inc.
ACY	American Cyanamid Co.		
ALL	Alliance Chemical Corp.		
ATL	Atlantic Chemical Corp.	MAY	Otto B. May Co. Div. of Cone Mills Corp.
		MRT	Morton Norwich Products, Inc., Morton Chemical Co. Div.
BAS	BASF Wyandotte Corp. & Pigments Div.	MRX	Max Marx Color & Chemical Co.
BCC	Buffalo Color Corp.		
BDO	Benzenoid Organics, Inc.		
BUC	Synalloy Corp., Blackman Uhler Chemical Div.	PCW	Pfister, Inc.
		PDC	Berncolors-Poughkeepsie, Inc.
CCW	Cincinnati Milacron Chemicals, Inc.	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.	SNA	Sun Chemical Corp.
DUP	E. I. duPont de Nemours & Co., Inc.	STG	Stange Co.
		SW	Sherwin-Williams Co.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.		
		TMS	Sterling Drug, Inc., Thomasset Colors Div.
FAB	Fabricolor Manufacturing Corp.	TNI	Gillette Co., Chemical Div.
		TRC	Toms River Chemical Corp.
HSH	Harshaw Chemical Co.		
HST	American Hoechst Corp. Industrial Chemicals Div.	VPC	Mobay Chemical Corp, Dyestuff Div.
ICI	ICI Americas, Inc., Chemical Specialties Co.	WJ	Warner-Jenkinson Co.
KON	H. Kohnstamm & Co., Inc.		

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

STATISTICAL HIGHLIGHTS

Bonnie Jean Noreen

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 1979 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 1979 was 88.2 million pounds--16.2 percent more than the 75.9² million pounds produced in 1978. Total sales of organic pigments in 1979 amounted to 66.9 million pounds, valued at \$377.5 million compared with 62.3² million pounds, valued at \$318.4² million, in 1978. In terms of quantity, sales of organic pigments in 1979 were 7.4 percent greater than in 1978; in terms of value, sales in 1979 were 18.6 percent greater than in 1978.

Production of toners in 1979 amounted to 87.1 million pounds--16.9 percent more than the 74.5² million pounds reported in 1978. Sales in 1979 were 66.1 million pounds, valued at \$374.3 million, compared with 61.4² million pounds, valued at \$315.4² million, in 1978. Sales in 1979 were 7.7 percent greater than those of 1978 in terms of quantity, and 18.7 percent greater in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1979 were Pigment Yellow 12, 13.1 million pounds; Pigment Blue 15:3, beta form, 8.9 million pounds; Pigment Red 49:1, barium toner, 6.3 million pounds; Pigment Red 57:1, calcium toner, 4.6 million pounds; Pigment Red 53:1, barium toner, 4.3 million pounds; and Pigment Yellow 14, 4.1 million pounds.

Production of lakes totaled 1.1 million pounds in 1979--17.3 percent less than the 1.4 million pounds reported for 1978. Sales of lakes in 1979 amounted to 0.8 million pounds, valued at \$3.2 million. In terms of quantity, sales of lakes in 1979 were 9.7 percent less than in 1978; in terms of value, sales in 1979 were 5.7 percent greater than in 1978.

For each of 13 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 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. Publishable data are not available for the principal form in which Pigment Red 49:1, barium was sold.

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

²Revised figures for 1978.

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1979

[Listed below are all organic pigments for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published.) 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-----	⁴ 88,248	⁵ 66,885	⁶ 377,509	\$5.64
TONERS				
Total-----	⁴ 87,116	⁵ 66,051	⁶ 374,305	5.67
Yellow toners, total-----	⁴ 25,140	17,096	80,408	4.70
Acetoacetarylide yellows:				
Pigment Yellow 1, C.I. 11 680-----	390	280	1,200	4.29
Pigment Yellow 3, C.I. 11 710-----	187	143	649	4.53
Pigment Yellow 73, C.I. 11 738-----	863	435	1,792	4.12
Pigment Yellow 74, C.I. 11 741-----	1,610	1,297	7,655	5.90
Diarylide yellows, total-----	20,402	13,371	50,062	3.74
Pigment Yellow 12, C.I. 21 090-----	⁴ 13,095	8,514	28,474	3.34
Pigment Yellow 13, C.I. 21 100-----	475	414	1,725	4.16
Pigment Yellow 14, C.I. 21 095-----	4,082	2,857	10,154	3.55
Pigment Yellow 17, C.I. 21 105-----	1,078	742	3,269	4.41
All other diarylide yellows-----	1,672	844	6,440	7.63
All other-----	1,688	1,570	19,050	12.13
Orange toners, total-----	2,619	1,966	10,782	5.48
Pigment Orange 5, C.I. 12 075-----	904	634	2,535	4.00
Pigment Orange 13, C.I. 21 110-----	361	286	1,513	5.28
Pigment Orange 16, C.I. 21 160-----	728	574	2,534	4.41
Pigment Orange 34, C.I. 21 115-----	95	79	519	6.54
All other-----	531	393	3,681	9.37
Red toners, total-----	29,833	24,208	133,327	5.51
Naphthol reds, total-----	1,308	1,094	8,547	7.81
Pigment Red 2, C.I. 12 310-----	67	60	371	6.16
Pigment Red 5, C.I. 12 490-----	45	41	382	9.36
Pigment Red 17, C.I. 12 390-----	90	46	352	7.64
Pigment Red 22, C.I. 12 315-----	92	65	549	8.40
Pigment Red 23, C.I. 12 355-----	332	337	2,663	7.90
All other naphthol reds-----	682	545	4,230	7.76
Pigment Red 3, C.I. 12 120-----	1,489	1,219	6,319	5.19
Pigment Red 4, C.I. 12 085-----	195	173	665	3.85
Pigment Red 6, C.I. 12 090-----	...	23	105	4.56
Pigment Red 38, C.I. 21 120-----	165	143	1,219	8.50
Pigment Red 48:1, barium toner, C.I. 15 865-----	660	534	2,764	5.18
Pigment Red 48:2, calcium toner, C.I. 15 865-----	1,787	1,547	8,612	5.57
Pigment Red 48:4, manganese toner, C.I. 15 865-----	167	80	420	5.27
Pigment Red 49:1, barium toner, C.I. 15 630-----	6,325	5,579	16,425	2.94
Pigment Red 49:2, calcium toner, C.I. 15 630-----	1,454	...	...	...
Pigment Red 52:1, calcium toner, C.I. 15 860-----	1,468	1,312	7,146	5.45
Pigment Red 52:2, manganese toner, C.I. 15 860-----	700	621	2,492	4.01
Pigment Red 53:1, barium toner, C.I. 15 585-----	4,299	3,217	12,440	3.87
Pigment Red 57:1, calcium toner, C.I. 15 850-----	4,579	3,351	18,137	5.41
Pigment Red 81, PMA, C.I. 45 160-----	452	421	4,356	10.33
Pigment Red 81, PTA, C.I. 45 160-----	55	41	606	14.96
Pigment Red 122, C.I. 73 915-----	216	...	...	...
All other-----	4,514	4,853	43,074	8.88

See footnotes at end of table.

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1979--CONTINUED

ORGANIC PIGMENTS	PRODUCTION	SALES		
		QUANTITY	VALUE ¹	UNIT VALUE ²
	1,000 pounds dry basis ³	1,000 pounds dry basis ³	1,000 dollars	Per pound
TONERS--Continued				
Violet toners, total-----	2,905	2,113	30,002	\$14.20
Pigment Violet 1, PMA, C.I. 45 170-----	324	224	1,964	8.75
Pigment Violet 1, PTA, C.I. 45 170-----	45	40	484	12.16
Pigment Violet 3, fugitive, C.I. 42 535-----	199	190	952	5.01
Pigment Violet 3, PMA, C.I. 42 535-----	386	377	2,634	6.98
Pigment Violet 3, PTA, C.I. 42 535-----	21	21	265	12.63
Pigment Violet 19, C.I. 46 500-----	1,566	1,046	18,483	17.67
Pigment Violet 23, C.I. 51 319-----	325	179	4,713	26.31
All other-----	39	36	507	14.08
Blue toners, total-----	22,366	⁵ 17,168	⁶ 95,045	5.54
Pigment Blue 1, PMA, C.I. 42 595-----	87	...	...	...
Pigment Blue 15, alpha form, C.I. 74 160-----	2,079	1,135	5,651	4.98
Pigment Blue 15:1, alpha form, C.I. 74 160-----	1,444	1,019	7,591	7.45
Pigment Blue 15:2, alpha form, C.I. 74 160-----	1,247	1,034	8,203	7.94
Pigment Blue 15:3, beta form, C.I. 74 160-----	8,868	7,667	42,783	5.58
Pigment Blue 15:4, beta form, C.I. 74 160-----	798	657	4,947	7.53
All other-----	7,843	⁵ 5,656	⁶ 25,870	4.57
Green toners, total-----	3,932	3,121	23,341	7.48
Pigment Green 1, PMA, C.I. 42 040-----	6	5	52	10.99
Pigment Green 2, PTA, C.I. 42 040 and 49 005-----	18	17	273	15.76
Pigment Green 7, C.I. 74 260-----	3,246	2,725	19,579	7.18
Pigment Green 36, C.I. 74 265-----	354	224	2,061	9.21
All other-----	308	150	1,376	9.17
Brown and black toners, total-----	321	379	1,400	3.70
Brown toners-----	110	...	...	...
Black toners-----	211	...	...	...
LAKES				
Total-----	1,132	834	3,204	3.84
Yellow lake-----	64	...	...	...
Red lakes:				
Pigment Red 60:1, C.I. 16 105-----	305	275	1,253	4.56
Pigment Red 83, C.I. 58 000-----	73	55	419	7.62
Violet lake: Pigment Violet 5:1, C.I. 58 055-----	79	73	438	6.01
All other lakes-----	611	431	1,094	2.54

¹The value of sales from 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.

⁴Incorrectly reported in 1978 report--should have been approximately 0.8 million pounds less than reported.

⁵Incorrectly reported in 1978 report--should have been approximately 2.3 million pounds less than reported.

⁶Incorrectly reported in 1978 report--should have been approximately \$3.5 million less than reported.

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, 1979

[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	VALUE	UNIT VALUE ²
	<i>1,000</i>		
	<i>pounds</i>	<i>1,000</i>	<i>Per</i>
	<i>dry basis</i> ³	<i>dollars</i>	<i>pound</i>
Pigment Yellow 12, C.I. 21 090, total-----	8,514	28,474	\$3.34
Dry full-strength toner-----	3,841	12,119	3.16
Flushed color-----	4,066	14,474	3.56
Dry extended toner, dry dispersion, and aqueous dispersions ^{4 5} -----	607	1,881	3.10
Pigment Yellow 14, C.I. 21 095, total-----	2,857	10,154	3.55
Dry full-strength toner-----	1,847	6,371	3.45
Aqueous dispersions ⁴ -----	883	3,252	3.68
Flushed color-----	90	408	4.53
Dry extended toner and dry dispersions ⁵ -----	37	123	3.32
Pigment Yellow 13, C.I. 21 100; Pigment Yellow 17, C.I. 21 105; and diarylide yellows, total-----	2,000	11,434	5.72
Dry full-strength toner-----	1,278	7,801	6.10
Aqueous dispersions ⁴ -----	461	2,398	5.20
Dry dispersions and flushed color ⁵ -----	261	1,235	4.73
Pigment Red 3, C.I. 12 120, total-----	1,219	6,319	5.19
Dry full-strength toner-----	754	3,947	5.23
Aqueous dispersions ⁴ -----	69	348	5.04
Dry extended toner and flushed color ⁵ -----	396	2,024	5.11
Pigment Red 48:2, calcium toner, C.I. 15 865, total-----	1,547	8,612	5.57
Dry full-strength toner-----	1,349	7,419	5.50
Aqueous dispersions ⁴ -----	67	462	6.90
Dry extended toner, dry dispersions, and flushed color ⁵ -----	131	731	5.58
Pigment Red 49:1, barium toner, C.I. 15 630, total-----	5,579	16,425	2.94
Flushed color-----	293	819	2.80
Dry full-strength toner, dry extended toner, dry dispersions, and aqueous dispersions ^{4 5} -----	5,286	15,606	2.95
Pigment Red 53:1, barium toner, C.I. 15 585, total-----	3,217	12,440	3.87
Dry full-strength toner-----	1,021	3,920	3.84
Flushed color-----	2,095	8,131	3.88
Dry dispersion and aqueous dispersions ^{4 5} -----	101	389	3.85
Pigment Red 57:1, calcium toner, C.I. 15 850, total-----	3,351	18,137	5.41
Dry full-strength toner-----	477	2,495	5.23
Aqueous dispersions ⁴ -----	105	394	3.75
Flushed color-----	2,769	15,248	5.51
Pigment Blue 15, alpha form, C.I. 74 160, total-----	1,135	5,651	4.98
Aqueous dispersions ⁴ -----	571	3,083	5.40
Dry full-strength toner, dry extended toner, and flushed color ⁵ -----	564	2,568	4.55
Pigment Blue 15:1, alpha form, C.I. 74 160, total-----	1,019	7,591	7.45
Dry full-strength toner-----	700	5,546	7.92
Aqueous dispersions ⁴ -----	92	774	8.41
Dry extended toner, dry dispersions, and flushed color ⁵ -----	227	1,271	5.60
Pigment Blue 15:2, alpha form, C.I. 74 160, total-----	1,034	8,203	7.94
Dry full-strength toner-----	792	6,130	7.74
Dry extended toner, aqueous dispersions ⁴ , and flushed color ⁵ -----	242	2,073	8.57
Pigment Blue 15:3, beta form, C.I. 74 160, total-----	7,667	42,783	5.58
Aqueous dispersions ⁴ -----	2,018	10,553	5.23
Flushed color-----	4,006	23,226	5.80
Dry full-strength toner, dry extended toner, and dry dispersions ⁵ -----	1,643	9,004	5.48

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, 1979--CONTINUED

SELECTED PIGMENTS BY COMMERCIAL FORMS	SALES ¹		
	QUANTITY	VALUE	UNIT VALUE ²
	1,000		
	pounds	1,000	Per
	dry basis ³	dollars	pound
Pigment Green 7, C.I. 74 260, total-----	2,725	19,579	\$7.18
Dry full-strength toner-----	1,384	10,270	7.42
Aqueous dispersions ⁴ -----	856	5,625	6.57
Flushed color-----	368	2,682	7.29
Dry extended toner and dry dispersions ⁵ -----	117	1,002	8.56

¹Sales quantities and values are identical in tables I 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 operation 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 EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979

[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 VOLUME AND VALUE OF THE VARIOUS SALES FORMS HAVE BEEN ESTIMATED BY THE USITC STAFF MEMBERS]

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS	
*YELLOW TONERS:	
ACETOACETARYLIDE YELLOWS:	
*Pigment Yellow 1	ACY, AMS, BAS, CGY, DUP, GLX, HRC, HSH, HST, KCM, KON, S, SDH, SNA.
Pigment Yellow 2	KCM.
*Pigment Yellow 3	BAS, BNS, CGY, GLX, HRC, HSH, HST, KCM, KON, SNA.
Pigment Yellow 5	CGY, KCM.
Pigment Yellow 6	CGY.
Pigment Yellow 49	S.
Pigment Yellow 60	HSH, KON.
Pigment Yellow 65	CGY, HRC, HSH, SNA, VPC.
*Pigment Yellow 73	CGY, HRC, HSH, HST, SNA.
*Pigment Yellow 74	BAS, CGY, DUP, GLX, HRC, HSH, HST, SDH, SNA, VPC.
Pigment Yellow 75	CGY.
Pigment Yellow 97	HST.
Pigment Yellow 98	HST.
Acetoacetarylide yellows, all others	HST, KCM.
*DIARYLIDE YELLOWS:	
*Pigment Yellow 12	AMS, APO, BAS, BOR, CGY(E), GLX, HRC, HSH, HST, ICC, IDC, POP, ROM, SDH, SNA, X.
*Pigment Yellow 13	APD, BAS, CGY(E), GLX, HST, IDC, ROM, SDH, SNA, X.
*Pigment Yellow 14	AMS, APO, BAS, BNS, CGY(E), GLX, HSH, HST, ICC, IDC, ROM, S, SDH, SNA, X.
*Pigment Yellow 17	AMS, APO, BAS, CGY(E), GLX, HRC, HSH, HST, ICC, IDC, ROM, SDH, SNA, X.
Pigment Yellow 55	CGY(E).

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
*YELLOW TONERS--CONTINUED	
*DIARYLIDE YELLOWS--CONTINUED	
Pigment Yellow 83-	AMS, BAS, CGY(E), GLX, HST, ICC, S, SNA, X.
Diarylide yellows, other	ROM.
YELLOW PIGMENTS, OTHER:	
(Basic Yellow 2), fugitive	MRX.
Pigment Yellow 24-	CGY.
Pigment Yellow 93-	CGY.
Pigment Yellow 95-	CGY.
Pigment Yellow 109	CGY.
Pigment Yellow 110	CGY.
Pigment Yellow 126	HST.
Pigment Yellow 128	CGY.
Pigment Yellow 129	CGY.
Pigment Yellow 139	HRC.
Pigment Yellow toners, all other	X.
*ORANGE TONERS:	
Pigment Orange 1	HRC, KCM.
Pigment Orange 2	UHL.
*Pigment Orange 5	CGY, KCM.
*Pigment Orange 13-	ACY, BAS, HRC, HSH, HST, SDH, SNA.
Pigment Orange 15-	AMS, BAS, CGY, HRC, HSH, ICC, ROM, S, SNA.
*Pigment Orange 16-	HRC.
Pigment Orange 31-	BNS, CGY, GLX, HRC, HSH, HST, ROM, SDH, USM, X.
*Pigment Orange 34-	CGY.
Pigment Orange 36-	CGY, GLX, HRC, ROM, S, SDH, X.
Pigment Orange 38-	HST.
Pigment Orange 43-	HST.
Pigment Orange 46-	CGY, HRC, HST.
Pigment Orange 47-	BAS.
Pigment Orange 48-	DUP.
Pigment Orange 49-	DUP.
Pigment Orange 61-	CGY.
Pigment Orange toners, all other	ROM, X.
*RED TONERS:	
*NAPHTHOL REDS:	
*Pigment Red 2-	CGY, GLX, HRC, HSH, KCM, S, SDH.
*Pigment Red 5-	CGY, GLX, HSH, ROM, S.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979 --CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
*RED TONERS--CONTINUED	
*NAPHTHOL REDS--CONTINUED	
Pigment Red 7-	GLX, S.
Pigment Red 9-	CGY, HST, MRX.
Pigment Red 13	CGY, KCM.
Pigment Red 15	HST.
*Pigment Red 17	ACY, BNS, CGY, ROM, SNA, UHL.
Pigment Red 21	BNS.
*Pigment Red 22	CGY, DUP, GLX, KCM, MRX, SNA.
*Pigment Red 23	ACY, BUC, CGY, DUP, GLX, HSH, KCM, ROM, SDH, UHL, X.
Pigment Red 31	ROM, SDH.
Pigment Red 32	GLX, X.
Pigment Red 112-	CGY, HST.
Pigment Red 119-	HRC.
Pigment Red 146-	X.
Naphthol reds, all other	DUP, HRC, ICC, KCM, ROM, S, SDH, SNA, VPC, X.
RED PIGMENTS, OTHER:	
Pigment Red 1, (dark)-	CGY, HSH, KCM.
Pigment Red 1, (light)	CGY, HSH, SDH.
*Pigment Red 3-	ACY, ALE, BAS, CGY(E), CIK, DUP, HSH, KCM, KON, SDH, SNA, UHL.
*Pigment Red 4-	ALE, AMS, BAS, CGY, KCM, KON, MRX, SDH, UHL.
*Pigment Red 6-	DUP, HSH, KCM, KON.
*Pigment Red 38	HRC, HSH, HST, SNA.
Pigment Red 41	HRC.
Pigment Red 48	CGY, ICC.
*Pigment Red 48:1, (barium)	ACY, AMS, BAS, BOR, DUP, HSH, S, SNA.
*Pigment Red 48:2, (calcium)-	ACY, AMS, BAS, DUP, HRC, HSH, MGR, MRX, SDH, SNA.
Pigment Red 48:3, (strontium)-	CGY, HSH, S.
*Pigment Red 48:4, (manganese)-	ACY, CGY, DUP, HRC, HSH.
Pigment Red 49, (sodium)	BNS, SDH.
*Pigment Red 49:1, (barium)	ACY, AMS, BAS, BNS, BOR, CIK, ICC, IDC, SDH, SNA, UHL.
*Pigment Red 49:2, (calcium)-	ACY, AMS, BAS, BOR, CIK, IDC, SDH.
*Pigment Red 52:1, (calcium)-	ACY, BAS, CGY(E), MGR, MRX, SNA, UHL.
*Pigment Red 52:2, (manganese)-	BAS, CGY, HSH, UHL.
Pigment Red 53, (sodium)	KON.
*Pigment Red 53:1, (barium)	ACY, ALE, AMS, APO, BAS, BOR, CIK, HSH, ICC, IDC, KON, MGR, MRX, SDH, SNA, UHL.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
*RED TONERS--CONTINUED	
RED PIGMENTS, OTHER--CONTINUED	
Pigment Red 54, (calcium)-	SHS.
*Pigment Red 57:1, (calcium)-	ACY, AMS, APO, BAS, BNS, BOR, CGY(E), CIK, DUP, HSH, ICC, IDC, KON, MGR, SDH, SNA, UHL.
Pigment Red 63 -	HSH, KON, SNA.
*Pigment Red 81, (PMA)-	BAS, CGY, DUP, KON, MGR, MRX, SNA, UHL.
*Pigment Red 81, (PTA)-	BAS, CGY, KCM, KON, MGR, MRX, UHL.
Pigment Red 88 -	CGY, HRC.
Pigment Red 90 -	AMS, BOR, SDH.
*Pigment Red 122-	CGY, HRC, HST, SNA.
Pigment Red 123-	BAS, HRC.
Pigment Red 144-	CGY.
Pigment Red 149-	VPC.
Pigment Red 166-	CGY.
Pigment Red 168-	CGY, HRC, HST.
Pigment Red 169-	HST.
Pigment Red 170-	HST, S.
Pigment Red 177-	CGY.
Pigment Red 179-	HRC.
Pigment Red 181-	HST.
Pigment Red 190-	BAS, CGY, HRC.
Pigment Red 202-	DUP, HRC.
Pigment Red 206-	DUP.
Pigment Red 207-	DUP.
Pigment Red 220-	CGY.
Pigment Red 221-	CGY.
Pigment Red 224-	CGY, HRC.
Pigment Red toners, all other-	BAS, DUP, KCM, UHL, X, X.
*VIOLET TONERS:	
Pigment Violet 1, (fugitive) -	KCM, UHL.
*Pigment Violet 1, (PMA)-	CGY, MGR, MRX, SNA, UHL.
*Pigment Violet 1, (PTA)-	CGY, MGR, MRX, SNA.
*Pigment Violet 3, (fugitive) -	ACY, BAS, KCM, KON, MGR, UHL.
*Pigment Violet 3, (PMA)-	BAS, DUP, KON, MGR, MRX, SDH, UHL.
*Pigment Violet 3, (PTA)-	ACY, BAS, KON, MRX, UHL.
*Pigment Violet 4, (fugitive) -	KCM, DUP, HRC, SNA.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

	ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED		
*VIOLET TONERS--CONTINUED		
*Pigment Violet 23-		BAS, BUC, CGY, HRC, HST, SNA.
Pigment Violet 29-		HRC.
Pigment Violet 31-		CGY.
Pigment Violet 37-		CGY.
Pigment Violet 42-		DUP.
Pigment Violet toners, all other		BUC, ROM.
*BLUE TONERS:		
(Basic Blue 7)		KCM.
*Pigment Blue 1, (PMA)-		BNS, CGY, KON, MGR, MRX, UHL.
Pigment Blue 1, (PTA)-		MRX, SDH.
Pigment Blue 2, (PMA)-		LVR.
Pigment Blue 9, (PMA)-		LVR, UHL.
Pigment Blue 10, (PMA)-		SDH.
Pigment Blue 14, (PMA)-		DUP, LVR.
Pigment Blue 15, (α form)-		BAS, DUP, BAS, CGY(E), DUP, HSH, HST, SDH, TMS, USM.
*Pigment Blue 15:1, (α form)-		ACY, BAS, CGY(E), DUP, HRC, HST, SDH, SNA, TMS.
*Pigment Blue 15:2, (α form)-		ACY, BAS, CGY(E), DUP, HRC, SDH, SNA, TMS.
*Pigment Blue 15:3, (β form)-		ACY, AMS, APO, BAS, BOR, BUC, CGY(E), CIK, DUP, ICC, IDC, MGR, POP, ROM, SDH, SNA.
*Pigment Blue 15:4, (β form)-		ACY, BAS, CGY(E), DUP, SNA.
Pigment Blue 16-		CGY.
Pigment Blue 19-		SM.
Pigment Blue 22-		DUP.
Pigment Blue 25-		GLX, ICC.
Pigment Blue 60-		CGY.
Pigment Blue 61-		BAS.
Pigment Blue toners, all other		UHL, VPC, X.
*GREEN TONERS:		
*Pigment Green 1, (PMA)-		KON, LVR, MRX, UHL.
Pigment Green 2, (fugitive)-		UHL.
Pigment Green 2, (PMA)-		KON, 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, ALG, BAS, CGY(E), CIK, DUP, HST, POP, SDH, SNA, TMS.
Pigment Green 8-		CGY, KCW.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TONERS--CONTINUED	
*GREEN TONERS--CONTINUED	
Pigment Green 10	CGY, DUP.
*Pigment Green 36	ACY, CGY, DUP, HRC, HST, SNA.
Pigment Green toners, all other	UHL, VPC.
*BROWN TONERS:	
Pigment Brown 3, (PMA)	KCM, KON.
Pigment Brown 5	GLX, HRC, ICC, ROM.
Pigment Brown 22	CGY.
Pigment Brown 23	CGY.
Pigment Brown toners, all other	SDH.
*BLACK TONERS:	
Pigment Black toners, all other	DUP, UHL, X.
LAKES	
*YELLOW LAKES:	
(Acid Yellow 1)	KCM.
(Acid Yellow 23)	KON, MRX.
(Basic Yellow 37)	BNS.
ORANGE LAKES:	
Pigment Orange 17	KCM, KON.
RED LAKES:	
(Acid Red 26)	KCM.
(Basic Red 1)	BNS.
*Pigment Red 60:1	HSH, KON, MRX, SDH, SNA.
*Pigment Red 83	CGY, HSH, KON, MRX, UHL.
VIOLET LAKES:	
(Basic Violet 1)	BNS.
(Basic Violet 4)	BNS.
(Basic Violet 10)	BNS.
*Pigment Violet 5:1	CGY, HRC, HSH, KON, MRX, UHL.
BLUE LAKES:	
(Acid Blue 104)	KCM.
(Basic Blue 7)	BNS.
Pigment Blue 24	BOR, KON, SDH.
Pigment Blue lakes, all other	IVR.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

ORGANIC PIGMENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
LAKES--CONTINUED	
GREEN LAKES:	:
(Acid Green 3)-	:-: KCW.
BROWN LAKES:	:
Pigment Brown lakes, all other-	:-: KON.
BLACK LAKES:	:
Pigment Black lakes, all other-	:-: KON.

TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of organic pigments to the U.S. International Trade Commission for 1979 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 & Chemical		
APO	Apollo Colors, Inc.	LVR	C. Lever Co., Inc.
BAS	BASF Wyandotte Corp., Pigments Div.	MGR	Magruder Color Co., Inc.
BNS	Binney and Smith, Inc.	MRX	Max Marx Color & Chemical Co.
BOR	Borden, Inc., Printing Ink Div., Pigments Div.		
BUC	Synalloy Corp., Blackman Uhler Chemical Div.	POP	Pope Chemical Corp.
CGY	Ciba-Geigy Corp.	ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.
CIK	Flint Ink Corp., Cal/Ink Div.		
DUP	E. I. duPont de Nemours & Co., Inc.	S	Sandoz, Inc., Colors & Chemicals Div.
		SDH	Sterling Drug, Inc., Hilton Davis Chemical Co. Div.
		SNA	Sun Chemical Corp.
GLX	Galaxie Chemical Corp.	SW	Sherwin-Williams Co.
HRC	Harmon Colors Corp.	TMS	Sterling Drug, Inc., Thomasset Colors Div.
HSH	Harshaw Chemical Co.		
HST	American Hoechst Corp., Industrial Chemicals Div.		
		UHL	Paul Uhlich & Co., Inc.
		USM	USM Corp., Bostik Div., Southern Region
ICC	Inmont Corp.		
IDC	Industrial Color, Inc.	VPC	Mobay Chemical Corp., Dyestuff 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 35 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 of 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 1979 amounted to 313.1 million pounds, or 16.4 percent more than the 269.1 million pounds produced in 1978 and 30.1 percent more than the 240.7 million pounds produced in 1977. Total sales of bulk medicinal chemicals in 1979 amounted to 225.7 million pounds, valued at \$1,043 million, compared with sales in 1978 of 185.1 million pounds, valued at \$944.1 million, and sales in 1977 of 162.4 million pounds, valued at \$794.0 million. In terms of quantity, sales in 1979 were 21.9 percent more than in 1978 and 39.0 percent more than in 1977. In terms of value, sales in 1979 were 10.5 percent more than in 1978 and 31.4 percent more than in 1977.

Production of the larger groups of medicinal chemicals in 1979 was as follows: Antibiotics, 25.2 million pounds (1.8 percent less than in 1978), of which 14.5 million pounds was for medicinal use and 10.7 million pounds was

¹Complementary 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.

for other uses; anti-infective agents other than antibiotics, 35.3 million pounds (23.5 percent more than in 1978); central nervous system depressants and stimulants, 60.2 million pounds (8.7 percent more¹); and vitamins, 41.5 million pounds (9.7 percent more).

Production of some of the more important individual products listed in the table was as follows: Methionine and its salts, 70.7 million pounds (28.5 percent more than in 1978); choline chloride, 57.5 million pounds (13.4 percent more); aspirin, 31.9 million pounds (1.0 percent less); acetaminophen, 18.2 million pounds (40.9 percent more); penicillins (except semi-synthetic), 8.4 million pounds (8.8 percent more); vitamin E, 7.2 million pounds (23.0 percent more); and tetracyclines, 6.1 million pounds (3.7 percent more).

¹Because of a respondent error in reporting acetaminophen, the 1978 total for central nervous system depressants and stimulants was in error. The corrected total for 1978 is 55,412,000 pounds. The corrected production of acetaminophen in 1978 is 12,900,000 pounds.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1979

[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			
	PRODUCTION ¹	QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	313,090	225,655	1,043,145	\$4.62
Acyclic-----	134,540	122,865	119,266	.97
Benzenoid ³ -----	132,313	78,260	585,047	7.48
Cyclic nonbenzenoid ⁴ -----	46,237	24,530	338,832	13.81
Antibiotics, total ⁵ -----	25,248	10,720	293,586	27.39
Cephalosporins-----	742	...	...	...
Penicillins, semisynthetic, total-----	2,126	483	33,286	68.92
Amoxicillin-----	457	...	...	...
Ampicillin-----	998	352	20,484	58.19
All other (semisynthetic) ⁶ -----	671	131	12,802	97.73
Penicillins (except semisynthetic), total-----	8,402	2,978	36,982	12.42
Penicillin G, potassium, for medicinal use-----	2,541	...	...	...
All other, for all uses ⁷ -----	5,861	2,978	36,982	12.42
Tetracyclines, for all uses-----	6,129	4,493	97,749	21.76
Other antibiotics, total-----	7,849	2,766	125,569	45.40
For medicinal use ⁸ -----	4,330	1,333	96,659	72.51
For nonmedicinal uses-----	3,519	1,433	28,910	20.17
Antihistamines, total-----	445	170	7,173	42.19
Antinauseants-----	81	...	...	...
All other ⁹ -----	364	170	7,173	42.19
Anti-infective agents (except antibiotics), total-----	35,338	10,478	58,026	5.54
Anthelmintics, total-----	12,039	3,857	6,270	1.63
Piperazine ¹⁰ -----	4,942	...	...	...
Piperazine dihydrochloride-----	975	961	1,425	1.48
All other-----	6,122	2,896	4,845	1.67
Antiprotozoan agents, total-----	13,319	2,945	27,689	9.40
Arsenic and bismuth compounds-----	7,281	...	...	...
All other ¹¹ -----	6,038	2,945	27,689	9.40
Sulfonamides, total-----	5,951	721	8,179	11.34
Sulfamethazine-----	1,358	...	...	...
All other ¹² -----	4,593	721	8,179	11.34
Urinary antiseptics-----	379	...	...	...
Other anti-infective agents-----	3,650	2,955	15,888	5.38
Autonomic drugs, total-----	1,069	911	17,471	19.18
Sympathomimetic (adrenergic) agents, total-----	1,030	893	15,156	16.97
Phenylpropanolamine hydrochloride-----	607	488	4,426	9.07
All other-----	423	405	10,730	26.49
Other autonomic drugs-----	39	18	2,315	128.61
Central depressants and stimulants, total-----	60,221	50,427	162,619	3.22
Analgesics, antipyretics, and nonhormonal anti-inflammatory agents, total-----	53,299	45,579	89,735	1.97
Acetaminophen ¹³ -----	18,174	...	...	...
Aspirin-----	31,911	...	...	...
All other ¹⁴ -----	3,214	45,579	89,735	1.97
Anticonvulsants, hypnotics, and sedatives-----	1,299	351	4,101	11.68
Antidepressants-----	229	...	...	...
Antitussives-----	169	209	42,540	203.54
Skeletal muscle relaxants-----	276	109	1,674	15.36
Tranquilizers-----	419	...	...	...
Other central depressants and stimulants ¹⁵ -----	4,530	4,179	24,569	5.88

See footnotes at end of table.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1979--CONTINUED

MEDICINAL CHEMICALS	SALES			
	PRODUCTION ¹	QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Dermatological agents-----	4,259	4,176	3,960	\$0.95
Expectorants and mucolytic agents-----	1,667	1,238	5,468	4.42
Gastrointestinal agents and therapeutic nutrients, total-----	130,591	119,727	107,031	.89
Choline chloride, all grades-----	57,518	48,030	22,932	.48
Methionine and its salts-----	70,689	70,092	80,008	1.14
All other-----	2,384	1,605	4,091	2.55
Hematological agents, total-----	28	17	3,600	211.76
Sodium heparin-----	6	...	...	...
All other ¹⁶ -----	22	17	3,600	211.76
Hormones and synthetic substitutes, total-----	1,206	185	107,892	583.20
Anabolic agents and androgens-----	25	...	...	...
Synthetic hypoglycemic agents-----	946	...	...	...
All other ¹⁷ -----	235	185	107,892	583.20
Local anesthetics, total-----	154	46	1,608	34.96
Lidocaine-----	40	...	...	...
All other ¹⁸ -----	114	46	1,608	34.96
Renal-acting and edema-reducing agents-----	1,333	...	...	...
Vitamins, total-----	41,473	25,811	220,554	8.54
Vitamin E-----	7,183	4,524	67,113	14.83
All other vitamins ¹⁹ -----	34,290	21,287	153,441	7.21
Miscellaneous medicinal chemicals, total-----	10,058	1,749	54,157	30.96
Smooth muscle relaxants ²⁰ -----	230	...	...	...
All other ²¹ -----	9,828	1,749	54,157	30.96

¹The data on production and sales are for bulk medicinal chemicals only.

²Calculated from rounded figures.

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

⁴Includes antibiotics of unknown structure.

⁵Production of all antibiotics for medicinal use amounted to 14,566,000 pounds, and sales amounted to 3,089,000 pounds, valued at \$156,251,000. Production of all antibiotics for animal feed and other nonmedicinal uses amounted to 10,682,000 pounds, and sales amounted to 7,631,000 pounds, valued at \$137,335,000.

⁶Includes sales quantity and value of amoxicillin.

⁷Includes sales quantity and value of penicillin G, potassium.

⁸Includes production and sales of antifungal and antitubercular antibiotics; and sales quantity and value of cephalosporins.

⁹Includes sales quantity and value of antinauseants.

¹⁰Includes piperazine which may have been used for purposes other than as an anthelmintic.

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

¹²Includes sales quantity and value of sulfamethazine.

¹³Because of a respondent reporting error, 1978 production of acetaminophen was in error. Corrected production for 1978 is 12,900,000 pounds.

¹⁴Includes sales quantity and value of acetaminophen and aspirin.

¹⁵Includes sales quantity and value of antidepressants and tranquilizers. Also includes production and sales of amphetamines, general anesthetics, and respiratory and cerebral stimulants.

¹⁶Includes sales quantity and value of sodium heparin.

¹⁷Includes sales quantity and value of synthetic hypoglycemic agents, and anabolic agents and androgens.

¹⁸Includes sales quantity and value of lidocaine.

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

²⁰Includes theophylline derivatives.

²¹Includes production and sales of antineoplastic agents, cardiovascular agents, diagnostic agents, and unclassified medicinal chemicals. Also includes sales quantity and value of renal-acting and edema-reducing agents and smooth muscle relaxants.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979

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

MEDICINAL CHEMICALS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS:		
*CEPHALOSPORINS:		
Cefamandole	- - - - -	LIL.
Cefazolin, sodium	- - - - -	LIL, SK.
Cefoxitin	- - - - -	MRK.
Cephalexin	- - - - -	LIL.
Cephaloxidine	- - - - -	LIL.
Cephalothin, sodium	- - - - -	LIL.
Cephapirin, sodium	- - - - -	BRS.
Cephhradine	- - - - -	SK, TRD.
*PENICILLINS, SEMISYNTHETIC:		
*Amoxicillin	- - - - -	BEE, BOC, BRS, TRD.
Ampicillin	- - - - -	BEE, BOC, BRS, TRD, MYT.
Ampicillin, sodium	- - - - -	BEE, BRS, MYT.
Carbenicillin, disodium	- - - - -	BEE, PFZ.
Carbenicillin indanyl, sodium	- - - - -	PFZ.
Cloxacillin, sodium	- - - - -	BEE, BRS.
Cyclacillin	- - - - -	MYT.
Dicloxacillin, sodium	- - - - -	BEE, BRS, MYT.
Epicillin	- - - - -	TRD.
Metacillin	- - - - -	BRS.
Methicillin, sodium	- - - - -	BEE, BRS.
Nafcillin, sodium	- - - - -	BRS, MYT.
Oxacillin, sodium	- - - - -	BEE, BOC, BRS.
Ticarcillin, disodium	- - - - -	BEE.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTIBIOTICS--CONTINUED		
*PENICILLINS:		
FOR MEDICINAL USE:		
Penicillin V		BRS, LIL.
Penicillin G, benzathine		WYT.
*Penicillin G, potassium		OMS, PFZ, WYT.
Penicillin V, potassium		BRS, LIL, PFZ.
Penicillin G, procaine (medicinal grade)		LIL, PFZ, WYT.
Penicillin G, sodium		PFZ.
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.
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.
Candididin		PEN.
Nystatin (medicinal grade)		ACY, OMS, TRD.
ANTITUBERCULAR ANTIBIOTICS:		
Dihydrostreptomycin		PFZ.
Streptomycin (medicinal grade)		PFZ.
OTHER ANTIBIOTICS FOR MEDICINAL USE:		
Amikacin sulfate		BRS.
Bacitracin (medicinal grade)		IMC.
Chloramphenicol		PD, RLS.
Clindamycin		UPJ.
Erythromycin		ABB, LIL, UPJ.
Erythromycin estolate		LIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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:	
Erythromycin stearate	UPJ.
Gentamycin	SCH.
Kanamycin	BRS.
Lincomycin (medicinal grade)	UPJ.
Neomycin (medicinal grade)	PEN, PFZ, UPJ.
Novobiocin, sodium	MRK, UPJ.
Polymyxin B	PFZ.
Rosamicin	UPJ.
Spectinomycin (medicinal grade)	ABB, UPJ.
Thiostrepton	OMS.
Tiamulin	OMS.
Vancomycin	LIL.
*FOR NONMEDICINAL USES:	
Bacitracin (animal feed grade)	IMC.
Cycloheximide	UPJ.
Hygromycin B	LIL.
Isalocid	HOF.
Lincomycin (animal feed grade)	UPJ.
Monensin, sodium	LIL.
Neomycin (animal feed grade)	PFZ, UPJ.
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.
Meclizine hydrochloride	PFZ.
Metoclopramide hydrochloride	X.
Trimethobenzamide hydrochloride	HOF.
*OTHER ANTIHISTAMINES:	
Bromodiphenhydramine hydrochloride	PD.
Brompheniramine maleate	HEX, SCH.
Carbinoxamine maleate	SCH.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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.
Dexbrompheniramine maleate	SCH.
Dexchlorpheniramine maleate	SCH.
Dimethindene maleate	CGY.
Diphenhydramine hydrochloride	GAN, PD.
Doxylamine succinate	BJL, BKC.
Methapyrilene fumarate	ABB, MON.
Methapyrilene hydrochloride	ABB, MON.
Methdilazine hydrochloride	BJL.
Pheniramine tartrate	HOF.
Pheniramine maleate	HEX.
Phenyltoloxamine citrate	BRS, GAN.
Pyrilamine maleate	HEX.
Pyrilamine resin adsorbate	MRK.
Pyrilamine tannate	MAL.
Pyrobutamine phosphate	LL.
Tripeleonnamine	CGY.
Tripeleonnamine citrate	CGY.
Triprolidine hydrochloride	BUR.
*ANTI-INFECTIVE AGENTS (EXCEPT ANTIBIOTICS):	
*ANTHELMINTICS:	
Dichlorvos	SHC.
Diethylcarbamazine citrate	ACY.
Hexylresorcinol	MRK.
Phenothiazine	WAG.
*Piperazine	DOM, JCC, UCC.
Piperazine citrate	BUR.
*Piperazine dihydrochloride	FLM, JCC, WHL.
Piperazine hexahydrate	JCC.
Piperazine hydrochloride	FLM, JCC.
Piperazine phosphate	JCC.
Piperazine sulfate	JCC.
Pyrantel pamoate	PFZ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

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

*ANTI-INFECTIVE AGENTS (EXCEPT ANTIBIOTICS)--CONTINUED	:	:
*ANTHELMINTICS--Continued	:	:
Pyrantel tartrate--	:	PFZ.
Rafoxanide --	:	MRK.
Thiabendazole--	:	MRK.
*ANTIPROTOZOAN AGENTS:	:	:
*ARSENIC AND BISMUTH COMPOUNDS:	:	:
Arsanilic acid --	:	FLM, MHL.
Bismuth subsalicylate--	:	MAL, NOR, PEN.
Carbarsonc --	:	LIL, MHL.
Glycobiarsol --	:	X.
Nitarsone --	:	SAL.
Roxarsone --	:	SAL.
Roxarsone, sodium--	:	SAL.
*OTHER ANTIPROTOZOAN AGENTS:	:	:
Aklonide --	:	SAL.
Amodiaquine hydrochloride--	:	PD.
Amprolium--	:	MRK.
Chloroquine phosphate--	:	SDM.
Cinchonidine --	:	ARA.
Clopidol --	:	DOW.
Dilochydroxyquin--	:	RSA.
Dimetridazole--	:	RDA.
Dinitolmide --	:	SAL.
Ethopabate --	:	MRK.
Furazolidone --	:	NOR.
Hydroxychloroquine sulfate	:	SDM.
Iodochlorhydroxyquin --	:	CGY.
Ipronidazole --	:	HOF.
Metronidazole--	:	RDA.
Nitromide --	:	SAL.
Primaquine phosphate --	:	SDM.
Ronidazole --	:	MRK.
*SULFONAMIDES:	:	:
Acetyl sulfisoxazole --	:	HOF.
Dinsed --	:	SAL.
Mafenide acetate --	:	SDM.
Mafenide hydrochloride --	:	SDM.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
Phthalylsulfathiazole	MRK.
Sulfabenzamide	ACY.
Sulfabenzamide, sodium	ACY.
Sulfabromomethazine, sodium	ARA.
Sulfacetamide	LEM.
Sulfachloropyrazine, sodium	ACY.
Sulfacytine	ACY, PD.
Sulfadiazine	ACY.
Sulfadimethoxine	HOF.
Sulfamerazine	ACY.
Sulfamerazine, sodium	ACY.
*Sulfamethazine	ACY, RLS, SAL.
Sulfamethazine, sodium	SAL.
Sulfamethazole	ACY.
Sulfamethoxazole	HOF.
Sulfanilamide	MRK.
Sulfanitran	SAL.
Sulfapyridine	ACY, LEM.
Sulfaquinoxaline	MRK.
Sulfasalazine	SAL.
Sulfathiazole, sodium	MRK, SAL.
Sulfisoxazole	HOF.
*OTHER ANTI-INFECTIVE AGENTS:	
ANTIFUNGAL AGENTS:	
Benzoic acid	MON.
Biphenamine hydrochloride	HXL.
Calcium undecylenate	WTL.
Zinc undecylenate	WTL.
ANTILEPROTIC AND ANTITUBERCULAR AGENTS:	
Aminosalicylic acid	HXL.
Sodium aminosalicylate	HXL.
MERCURY COMPOUNDS:	
Merbromin	HYN.
Nitromersol	ABB.
Thimerosal	LIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ANTI-INFECTIVE AGENTS (EXCEPT ANTIBIOTICS)--CONTINUED	
*OTHER ANTI-INFECTIVE AGENTS--Continued	
*URINARY ANTISEPTICS	
Methenamine - - - - -	: PD.
Methenamine hippurate - - - - -	: LKL, RIK.
Methenamine mandelate - - - - -	: ARN, PD.
Nitrofurantoin - - - - -	: MOR.
GENERAL ANTISEPTICS AND ANTIBACTERIAL AGENTS:	
Aminacrine hydrochloride - - - - -	: SDM.
Betanaphthol - - - - -	: ACY.
Bromoform - - - - -	: DOM.
Camphor, monobromated - - - - -	: PEN.
Carbadox - - - - -	: PFZ.
Cetalkonium chloride - - - - -	: SDM.
Cetylpyridinium chloride - - - - -	: HEX, HXL, LKL.
Chlorhexidine gluconate - - - - -	: ICI.
Chlorobutanol - - - - -	: SFS.
Chlorothymol - - - - -	: OPC.
m-Cresyl acetate - - - - -	: ADC.
8-Hydroxy-5-quinolinesulfonic acid - - - - -	: MRK.
Iodoform - - - - -	: MAL, PEN.
Malidixic acid - - - - -	: SDH, SDM.
Nitrofurathiazide - - - - -	: SCH.
Ormetoprim - - - - -	: HOF.
Oxolinic acid - - - - -	: PD.
Oxyquinoline - - - - -	: SOL(E).
Oxyquinoline citrate - - - - -	: SOL(E).
Oxyquinoline sulfate - - - - -	: SOL(E).
Povidone - iodine - - - - -	: GAF.
Resorcinol - - - - -	: KPT.
Thymol iodide - - - - -	: MAL.
Trimethoprim - - - - -	: BUR.
*AUTONOMIC DRUGS:	
*SYMPATHOMIMETIC AGENTS:	
Cyclopentamine hydrochloride - - - - -	: ILL.
Dopamine hydrochloride - - - - -	: HEX.
Ephedrine - - - - -	: UPJ.
Isoetharine hydrochloride - - - - -	: SDM.
Isoproterenol hydrochloride - - - - -	: SDM.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*AUTONOMIC DRUGS--CONTINUED	
*SYMPATHOMIMETIC AGENTS--Continued	
Isoproterenol sulfate	ARA.
Levarterenol bitartrate	SDM.
Levonordefrin	SDM.
Mephentermine	ARA.
Mephentermine sulfate	ARA.
Methoxyphenamine hydrochloride	HXL.
Naphazoline hydrochloride	CGY.
Nordefrin hydrochloride	SDM.
Phenylephrine	SK.
Phenylephrine bitartrate	SDM.
Phenylephrine hydrochloride	GAN.
*Phenylpropanolamine hydrochloride	GAN, SDW.
Pseudoephedrine hydrochloride	ARS, GAN, HXL, NEP, ORT, X.
Pseudoephedrine sulfate	GAN.
Terbutaline sulfate	GAN.
Tetrahydrozoline hydrochloride	CGY.
*OTHER AUTONOMIC DRUGS:	
PARASYMPATHOLYTIC QUATERNARY AMMONIUM COMPOUNDS	
(EXCEPT TROPANE DERIVATIVES):	
Diphenamil methylsulfate	SCH.
Glycopyrrolate	X.
Hexocyclium methylsulfate	ABB.
Isopropamide iodide	SK.
Mepenzolate bromide	LKL.
Methantheline bromide	SRL.
Pipenzolate bromide	LKL.
Propantheline bromide	SRL.
Tridihexethyl iodide	ACY.
PARASYMPATHOLYTIC TERTIARY AMINES (EXCEPT TROPANE DERIVATIVES):	
Dicyclonine hydrochloride	BKC.
Oxybutynin chloride	X.
Oxyphencyclimine hydrochloride	PFZ.
Piperidolate hydrochloride	LKL.
Trihexyphenidyl hydrochloride	ACY, SDW.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*AUTONOMIC DRUGS--CONTINUED	
*OTHER AUTONOMIC DRUGS--Continued	
PARASYMPATHOLYTIC TROPANE DERIVATIVES:	
Anisotropine methylbromide	ARA.
Benztropine mesylate	ARA.
PARASYMPATHOMIMETIC AGENTS:	
Bethanechol chloride	MRK.
Carbachol	MRK.
Neostigmine bromide	HEX.
Neostigmine methylsulfate	HOF.
SYMPATHOLYTIC AGENTS:	
Ergonovine maleate	LIL.
Timolol maleate	MRK.
*CENTRAL DEPRESSANTS AND STIMULANTS:	
*ANALGESICS, ANTIPYRETICS, AND NONHORMONAL ANTI- INFLAMMATORY AGENTS:	
*Acetaminophen	MAL, MON, PEN.
*Aspirin	DOM, MON, NOR, SDW.
Aurothioglucose	SCH.
Benoxaprofen	LIL.
Etoheptazine citrate	WYT.
Ibuprofen	TNA.
Indomethacin	MRK.
Meclofenamic acid	PD.
Meclofenamic acid, sodium salt	PD.
Mefenamic acid	PD.
Meperidine hydrochloride	PEN, SDW, WYT.
Methadone hydrochloride	LIL, MAL, PEN.
Morphine sulfate	MAL, MRK, PEN.
Naproxen	ARA.
Oxycodone hydrochloride	EN, MAL.
Oxyphenbutazone	CGY.
Phenacetin	MON.
Phenylbutazone	CGY.
Phenyl salicylate	DOM.
Potassium aminobenzoate	GAN.
Potassium salicylate	HN.
Propoxyphene hydrochloride	GAN, LIL.
Propoxyphene napsylate	GAN, LIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*ANALGESICS, ANTIPYRETICS, AND NONHORMONAL ANTI-INFLAMMATORY AGENTS--Continued	
Salicylamide	PEN.
Salsalate	PD, RIK.
Sodium aminobenzoate	GAN.
Sodium salicylate	HN.
Sulindac	MRK.
*ANTICONVULSANTS, HYPNOTICS, AND SEDATIVES:	
ANTICONVULSANTS (EXCEPT BARBITURATES):	
Carbamazepine	CGY.
Ethosuximide	PD.
Ethotoin	ABB.
Methsuximide	PD.
Phenacemide	ABB.
Phenytoin, sodium	PD.
Valproic acid	ARA.
BARBITURATES:	
Amobarbital	GAN, LIL.
Amobarbital, sodium	GAN, LIL.
Barbital	GAN, MAL.
Butabarbital	ABB, GAN.
Butabarbital, sodium	ABB, GAN.
Butalbital	GAN.
Butalbital, sodium	GAN.
Hexobarbital	GAN.
Mephobarbital	SDM.
Metharbital	ABB.
Methohexital	LIL.
Pentobarbital	ABB, GAN.
Pentobarbital, sodium	ABB, GAN, SDM.
Phenobarbital	GAN.
Phenobarbital, sodium	GAN, LIL.
Secobarbital	GAN.
Secobarbital, sodium	SDM.
Talbutal	ABB.
Thiopental, sodium	ABB.
HYPNOTICS AND SEDATIVES (EXCEPT BARBITURATES):	
Carbromal	PD.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*ANTICONVULSANTS, HYPNOTICS, AND SEDATIVES--Continued	
HYPNOTICS AND SEDATIVES (EXCEPT BARBITURATES)--	
Continued:	
Ethchlorvynol - - - - -	ABB.
Glutethimide - - - - -	CGY, GAN.
Methaqualone - - - - -	X.
Methaqualone hydrochloride - - - - -	X.
*ANTITUSSIVES:	
Benzonatate - - - - -	CGY.
Caramiphen edisylate - - - - -	SK.
Carbetapentane citrate - - - - -	PFZ.
Codeine - - - - -	MAL, MRK, PEN.
Dextromethorphan hydrobromide - - - - -	HOF.
Ethylmorphine hydrochloride - - - - -	MRK.
Hydrocodone bitartrate - - - - -	MAL, MRK, PEN.
Noscapine - - - - -	MRK.
Thebaine - - - - -	MRK, PEN.
PSYCHOTROPIC AGENTS:	
*ANTIDEPRESSANTS:	
Amitriptyline hydrochloride - - - - -	MRK, PD.
Desipramine hydrochloride - - - - -	LKL.
Doxepin hydrochloride - - - - -	PFZ, SK.
Imipramine hydrochloride - - - - -	CGY.
Nortriptyline hydrochloride - - - - -	LIL.
Protriptyline hydrochloride - - - - -	MRK.
*TRANQUILLIZERS:	
PHENOTHIAZINE DERIVATIVES:	
Acetophenazine maleate - - - - -	SCH.
Chlorpromazine hydrochloride - - - - -	SK.
Fluphenazine hydrochloride - - - - -	SCH.
Perphenazine - - - - -	SCH.
Prochlorperazine edisylate - - - - -	SK.
Prochlorperazine maleate - - - - -	SK.
Promazine hydrochloride - - - - -	WYT.
Promethazine hydrochloride - - - - -	WYT.
OTHER TRANQUILLIZERS:	
Buclicline hydrochloride - - - - -	PFZ.
Chloridazepoxide hydrochloride - - - - -	PD.
Chlormezanone - - - - -	SDM.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
PSYCHOTROPIC AGENTS--Continued	
*TRANQUILIZERS--Continued	
OTHER TRANQUILIZERS--Continued	
Clorazepate dipotassium	ABB.
Diazepam	HOF.
Halazepam	X.
Haloperidol	SEL.
Hydroxyzine hydrochloride	PFZ.
Hydroxyzine pamoate	PFZ.
Lorazepam	MYT.
Meprobamate	BKL.
Oxazepam	MYT.
Praxepam	PD.
Thiothixene hydrochloride	PFZ.
*SKELETAL MUSCLE RELAXANTS:	
Carisoprodol	BKL.
Chlorphenesin carbamate	UPJ.
Methocarbamol	LLI, PEN.
Orphenadrine citrate	PD, RIK.
Succinylcholine chloride	ABB, BUR.
Tubocurarine	ABB.
*OTHER CENTRAL DEPRESSANTS AND STIMULANTS:	
AMPHETAMINES:	
Amphetamine	ARN, SK.
Amphetamine sulfate	ARN, SK.
Dextroamphetamine	ARN, SK.
Dextroamphetamine sulfate	ARN, SK.
Methamphetamine hydrochloride	ARN.
Amphetamines, all other	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.
Deanol acetamidobenzoate	RIK.
Diethylpropion hydrochloride	BKC.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MEDICINAL CHEMICALS	
*CENTRAL DEPRESSANTS AND STIMULANTS--CONTINUED	
*OTHER CENTRAL DEPRESSANTS AND STIMULANTS--Continued	
RESPIRATORY AND CEREBRAL STIMULANTS--Continued	
OTHER CENTRAL DEPRESSANTS AND STIMULANTS--Continued	
Nikethamide-	CGY.
Phendimetrazine tartrate	GAN.
Phentermine	HEX.
*DERMATOLOGICAL AGENTS:	
Allantoin-	HFT.
Aluminum phenolsulfonate	SAL.
Ammonium phenolsulfonate	SAL.
Bismuth subgallate	MAL.
Glycol salicylate	RDA.
Podophyllum resin	PEN.
Salicylic acid	DOM, MON.
Sodium phenolsulfonate	SAL.
Zinc phenolsulfonate	SAL.
Zinc salicylate	RSA.
*EXPECTORANTS AND MUCOLYTIC AGENTS:	
Ethylenediamine dihydriodide	HFT, MAL, NES, WAG, WHL.
Guaiacol	PEN.
Guaiifenesin	GAN, HEX, LLI, PEN.
Iodinated glycerol	X.
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.
*METHIONINE AND ITS SALTS:	
Methionine (animal feed grade)	DGC.
Methionine, hydroxy analogue, calcium salt	DUP, MON.
OTHER GASTROINTESTINAL AGENTS:	
Bile acids, oxidized	WIL.
Dehydrocholic acid	WIL.
Iron bile salts	LLI, WIL.
Magnesium citrate	MAL.
Ox bile extract	WIL.
Phenolphthalein	SCH.
Sinclairide	OMS.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*GASTROINTESTINAL AGENTS AND THERAPEUTIC NUTRIENTS--CONT.	
GASTROINTESTINAL AGENTS--Continued	
OTHER GASTROINTESTINAL AGENTS--Continued	
Sodium tartrate	MAL.
THERAPEUTIC NUTRIENTS:	
AMINO ACIDS AND SALTS:	
Amino acid mixtures	BRS, MDJ.
Glutamic acid	LEM.
Glutamic acid hydrochloride	LEM.
Potassium glutamate	LEM.
Tyrosine	BRS, MDJ.
OTHER THERAPEUTIC NUTRIENTS:	
Calcium gluceptate	PFN.
Copper gluconate	PFZ.
Magnesium gluconate	PFZ.
Manganese gluconate	PFZ.
Potassium gluconate	PFZ.
Zinc gluceptate	PFN.
Zinc gluconate	PFZ.
Apomorphine hydrochloride	MRK.
Betaine base	HFT.
Betaine hydrochloride	HFT.
Choline bicarbonate	LMC.
Choline bitartrate	HFT.
Choline dihydrogen citrate	HFT.
Colestipol hydrochloride	X.
Dextrothyroxine, sodium	BAX.
Pectin	SKG.
Sitosterols	UPJ.
*HEMATOLOGICAL AGENTS:	
Ammonium heparin	ABB, RIK, MIL.
Anisindione	SCH.
Cellulose, oxidized	EKT.
Dextran	PHR.
Dicumarol	ABB.
Diphenadione	UPJ.
Lithium heparin	ABB, RIK, MIL.
Potassium warfarin	RSA.
*Sodium heparin	ABB, RIK, SPR, MIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*HEMATOLOGICAL AGENTS--Continued	
Marfan - - - - -	SDM.
*HORMONES AND SYNTHETIC SUBSTITUTES:	
*ANABOLIC AGENTS AND ANDROGENS:	
Fluoxymesterone - - - - -	UPJ.
Methyltestosterone - - - - -	SRL, UPJ.
Stanozolol - - - - -	SDM.
Testosterone - - - - -	SRL, UPJ.
Testosterone cypionate - - - - -	UPJ.
Testosterone propionate - - - - -	SRL.
Zeranol - - - - -	IMC.
CORTICOSTEROIDS:	
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.
Fluoroprednisolone acetate - - - - -	UPJ.
Fluprednisolone - - - - -	UPJ.
Halcinonide - - - - -	TRD.
Hydrocortisone - - - - -	UPJ.
Hydrocortisone acetate - - - - -	UPJ.
Medrysone - - - - -	UPJ.
Meprednisone - - - - -	SCH.
Methylprednisolone - - - - -	UPJ.
Prednisolone - - - - -	MRK, UPJ.
Prednisolone acetate - - - - -	UPJ.
Prednisone - - - - -	UPJ.
Triamcinolone - - - - -	TRD, X.
Triamcinolone acetonide - - - - -	TRD.
Triamcinolone diacetate - - - - -	TRD.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*HORMONES AND SYNTHETIC SUBSTITUTES--Continued	
ESTROGENS AND PROGESTOGENS.	
ESTROGENS:	
Chlortriaisene	BKC.
Diethylstilbestrol diphosphate	ARA.
Estrogens, conjugated	ORG, SRL.
Estrogens, esterified	ORG.
PROGESTOGENS:	
Dinoprostone	X.
Ethisterone	SRL, UPJ.
Hydroxyprogesterone caproate	UPJ.
Medroxyprogesterone acetate	UPJ.
Megestrol acetate	UPJ.
Melengestrol acetate	UPJ.
Norgestrel	MYT.
Progesterone	UPJ.
*SYNTHETIC HYPOGLYCEMIC AGENTS:	
Acetohexamide	LIL.
Chlorpropamide	PFZ.
Tolazamide	UPJ.
Tolbutamide	UPJ.
THYROID HORMONE AND ANTIHYROID AGENTS:	
Levothyroxine, sodium	BAX.
Propylthiouracil	ARA.
Thiouracil	ACY.
Thyroglobulin	NEP.
Thyroid	LIL.
OTHER HORMONES AND SYNTHETIC SUBSTITUTES:	
Corticotropin	ARP, ORG.
Danazol	SDW.
Glucagon	LIL.
Insulin	ARP, LIL.
Oxytocin	PD.
*LOCAL ANESTHETICS:	
Benzocaine	X.
Butamben	ABB, RSA.
Butamben picrate	ABB.
Chloroprocaine hydrochloride	ARA.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*LOCAL ANESTHETICS--Continued	
Cocaine	MRK.
Dibucaine	CGY.
Dibucaine hydrochloride	CGY.
Dyclonine hydrochloride	BJL.
*Lidocaine	AST, LEM, SDM.
Lidocaine hydrochloride	SDM.
Oxethazaine	ARA, WYT.
Piperocaine hydrochloride	LIL.
Pramoxine hydrochloride	ABB.
Procaine hydrochloride	PFZ.
Tetracaine	SDM.
Tetracaine hydrochloride	SDM.
*RENAL-ACTING AND EDEMA-REDUCING AGENTS:	
BENZOTHIADIAZINE DERIVATIVES:	
Benzthiazide	PFZ.
Chlorothiazide	MRK.
Cyclothiazide	LIL.
Hydrochlorothiazide	ABB, CGY, MRK.
Methyclothiazide	ABB.
Trichlormethiazide	SCH.
OTHER RENAL-ACTING AND EDEMA-REDUCING AGENTS:	
Acetazolamide	ACY.
Amiloride hydrochloride	MRK.
Dichlorphenamide	MRK.
Ethacrynic acid	MRK.
Probenecid	MRK.
Ticrynafen	SK.
Triamterene	SK.
*VITAMINS:	
VITAMIN A:	
Beta carotene (provitamin A)	HOF.
Tretinoin (vitamin A acid)	EK, HOF.
Vitamin A acetate (animal feed grade)	HOF.
Vitamin A acetate (medicinal grade)	HOF.
Vitamin A alcohol	EK, HOF.
Vitamin A palmitate (animal feed grade)	HOF.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*VITAMINS--CONTINUED	
VITAMIN A--Continued	
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, RII.
Niacinamide (animal feed grade)	NEP, RII.
PANTOTHENIC ACID DERIVATIVES:	
Calcium pantothenate (dextro)	DAT.
Calcium pantothenate (racemic) (animal feed grade)	HFT.
Calcium pantothenate (racemic) (medicinal grade)	HFT.
Calcium pantothenate - calcium chloride complex (animal feed grade)	HFT.
Calcium pantothenate - calcium chloride complex (medicinal grade)	HAL.
Dexpanthenol	HOF.
Panthenol	HOF, PD.
OTHER B-COMPLEX VITAMINS:	
Biotin	HOF.
Cyanocobalamin (animal feed grade)	MRK.
Cyanocobalamin (medicinal grade)	MRK.
Cyanocobalamin (U.S.P. crystalline)	MRK.
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.
Calcium ascorbate	PFZ.
Sodium ascorbate	HOF, PFZ.
VITAMIN D:	
Cholecalciferol (vitamin D ₃)	DA, VTM.
7-Dehydrocholesterol (provitamin D ₃)	DA.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER,
1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*VITAMINS--CONTINUED	
VITAMIN D--Continued	
Ergocalciferol (vitamin D ₂)	VIM.
*VITAMIN E:	
DL-ALPHA TOCOPHERYL ACETATE (ALL GRADES):	
dl- α Tocopheryl acetate (animal feed grade)	BAS, DA, HOF, SCP.
dl- α Tocopheryl acetate (medicinal grade)	BAS, HOF, SCP.
OTHER VITAMIN E:	
d- α Tocopherol	EKT, SCP.
dl- α Tocopherol	HOF.
d- α Tocopheryl acetate	EKT, SCP.
d- α Tocopheryl acid succinate	EKT, SCP.
VITAMIN K:	
Menadione	ABB.
Menadione sodium bisulfite	ABB, HET.
Phytonadione	MRK.
*OTHER MEDICINAL CHEMICALS:	
ANTINEOPLASTIC AGENTS:	
Azathioprine	BUR.
Cytarabine	UPJ.
Mercaptopurine	BUR.
Streptozocin	PFN, UPJ.
Thioguanine	BUR.
Vinblastine sulfate	LIL.
Vincristine sulfate	LIL.
CARDIOVASCULAR AGENTS:	
ANTIHYPERTENSIVE AGENTS:	
Diazoxide	SCH.
Hydralazine hydrochloride	CGY.
Mebutamate	BKL.
Methyldopa	MRK.
Prazosin hydrochloride	PFZ.
Rauwolfia serpentina	PEN.
Reserpine	PEN.
BIOFLAVONOIDS:	
Hesperidin	SKG.
Lemon bioflavonoid complex	SKG.
Naringin	MAL, SKG.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MEDICINAL CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*OTHER MEDICINAL CHEMICALS--CONTINUED	
CARDIOVASCULAR AGENTS--Continued	
BIOFLAVONOIDS--Continued	
Bioflavonoids, all other	SKG.
VASODILATORS:	
Dioxyline phosphate	LIL.
Oxprenolol hydrochloride	CGY.
OTHER CARDIOVASCULAR AGENTS:	
Disopyramide phosphate	SRL.
Procainamide hydrochloride	OMS, PD.
DIAGNOSTIC AGENTS:	
ROENTGENOGRAPHIC CONTRAST MEDIA:	
Diatrizoate, meglumine	OMS, SDM.
Diatrizoate, sodium	OMS, SDM.
Iodipamide, meglumine	OMS.
Iopanoic acid	SDM.
Iothalamate, meglumine	MAL.
Iothalamate, sodium	MAL.
Meglumine	SDM.
Methiodal, sodium	SDM.
Tyropencate, sodium	SDM.
OTHER DIAGNOSTIC AGENTS:	
Betazole hydrochloride (gastric secretion indica- tor)	LIL, MAL.
Indocyanine green (cardiac output test)	X.
Metyrapone (pituitary function test)	CGY.
Xylose (intestinal malabsorption test)	PFM.
* SMOOTH MUSCLE RELAXANTS:	
Aminophylline	GAN, SRL.
Cinnamedrine hydrochloride	SDM.
Flavoxate hydrochloride	SK.
Oxtriphylline	NEP.
Papaverine hydrochloride	LIL.
Theophylline sodium glycinate	CHT.
UNCLASSIFIED MEDICINAL CHEMICALS:	
Carbidopa (decarboxylase inhibitor)	MRK.
Clomiphene citrate	LKL.
Levodopa (antiparkinsonian)	MON, MRK.

TABLE 3.--MEDICINALS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of medicinal chemicals to the U.S. International Trade Commission for 1979 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.	MDJ	Mead Johnson & Co.
ADC	Anderson Development Co.	MON	Monsanto Co.
ARA	Arapahoe Chemicals, Inc., Sub/Syntex U.S.A., Inc.	MRK	Merck & Co., Inc.
ARN	Arenol Chemical Corp.	NEP	Nepera Chemical Co., Inc.
ARP	Armour Pharmaceutical Co.	NES	Ruetgers-Nease Chemical Co.
ARS	Arsynco, Inc.	NOR	Morton-Norwich Products, Inc., Norwich Eaton Pharmaceutical Div.
AST	Astra Pharmaceutical Products, Inc.		
BAS	BASF Wyandotte Corp.	OMS	E.R. Squibb & Sons, Inc.
BAX	Baxter Travenol Laboratories, Inc.	OPC	Orbis Products Corp.
BEE	Beecham, Inc., Beecham Laboratories Div.	ORG	Organics, Inc.
BJL	Burdick & Jackson Laboratories, Inc.	ORT	Roehr Chemicals, Inc., Div. of Aceto Industrial Chemical Corp.
BKC	J.T. Baker Chemical Co.		
BKL	Millmaster Onyx Group, Millmaster Chemical Co. Div.	PD	Warner-Lambert Co.
BOC	Biocraft Laboratories, Inc.	PEN	CPC International, Inc., Penick Corp.
BRS	Bristol-Myers Co.	PFN	Pfanstiehl Laboratories, Inc.
BUR	Burroughs-Wellcome Co.	PFZ	Pfizer, Inc.
CGY	Ciba-Geigy Corp. and Ciba Pharmaceutical Co.	PHR	Pharmachem Corp.
CHT	Chattem Corp.		
CPR	Certified Processing Corp.	RDA	Rhone-Poulenc, Inc.
DA	Diamond Shamrock Corp.	RIK	Riker Laboratories, Inc., Sub. of 3M Co.
DAT	Daitom, Inc.	RIL	Reilly Tar & Chemical Corp.
DGC	Degussa Corp.	RLS	Rachelle Laboratories, Inc.
DOW	Dow Chemical Co.	RSA	R.S.A. Corp.
DUP	E.I. duPont de Nemours & Co., Inc.	SAL	Salsbury Laboratories
EK	Eastman Kodak Co.:	SCH	Schering Corp., U.S. Pharmaceutical Products Div.
EKT	Tennessee Eastman Co. Div.	SCP	Henkel Corp.
EN	Endo Laboratories, Inc.	SDH	Sterling Drug Corp.:
FLM	Fleming Laboratories, Inc.	SDW	Hilton Davis Chemical Co. Div. Sterling Organics Div.
GAF	GAF Corp.	SFS	Stauffer Chemical Co., Specialty Div.
GAN	Gane's Chemicals, Inc.	SHC	Shell Oil Co., Shell Chemical Co. Div.
GNF	General Foods Corp., Maxwell House Coffee Div.	SK	SmithKline Corp., SmithKline Chemicals Div.
HET	Heterochemical Corp.	SKG	Sunkist Growers, Inc.
HEX	Hexagon Laboratories, Inc.	SOL	Southland Corp., Chemical Div.
HFT	Syntex Agribusiness, Inc.	SPR	Scientific Protein Laboratories, Inc.
HN	Tenneco Chemicals, Inc.	SRL	G.D. Searle & Co., Searle Chemicals Inc.
HOF	Hoffmann-LaRoche, Inc.	STA	A.E. Staley Manufacturing Co.
HXL	Hexcel Corp., Hexcel Specialty Chemicals		
HYN	Hynson, Westcott & Dunning, Inc.	TMH	Thompson-Hayward Chemical Co.
ICI	ICI Americas, Inc., Pharmaceutical Div.	TNA	Ethyl Corp.
IMC	International Minerals & Chemical Corp.	TRD	Squibb Manufacturing, Inc., Manufacturing Enterprises, Inc., Trade Enterprises, Inc., Ersana, Inc.
JCC	Jefferson Chemical Co., Inc.	UCC	Union Carbide Corp.
KPT	Koppers Co., Inc., Organic Materials Group	UPJ	Upjohn Co.
LEM	Napp Chemicals, Inc.	VTM	Vitamins, Inc.
LIL	Eli Lilly & Co., U.S. and Puerto Rico	WAG	West Agro-Chemical, Inc.
LKL	Richardson-Merrell, Inc., Merrell-National Laboratories Div.	WHL	Whitmoyer Laboratories, Inc.
LLI	Lee Laboratories, Inc.	WIL	American Can Co., Inolex Pharmaceutical Div.
		WTL	Pennwalt Corp., Lucidol Div.
		WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.

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 1979 amounted to 194.5 million pounds. Sales of these materials in 1979 amounted to 135.1 million pounds, valued at \$236.5 million, compared with 140.2 million pounds, valued at \$211.8 million, in 1978. 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 1979 increased 2.7 percent from the level in 1978; while the quantity of sales decreased by 3.6 percent.

Production of cyclic flavor and perfume materials in 1979 amounted to 109.0 million pounds; sales amounted to 76.8 million pounds, valued at \$153.0 million. Individual publishable chemicals in the cyclic group produced in the greatest volume in 1979 were anethole, α -terpineol, and benzyl acetate.

U.S. output of acyclic flavor and perfume materials in 1979 amounted to 85.5 million pounds; sales of these materials amounted to 58.4 million pounds, valued at \$83.4 million. Monosodium glutamate was by far the most important of the acyclic chemicals in 1979, 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, 1979

[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-----	194,539	135,114	236,482	\$1.75
CYCLIC				
Total-----	109,027	76,756	153,047	1.99
<i>Benzenoid and Naphthalenoid</i>				
Total-----	90,805	65,264	111,028	1.70
4-Allyl-2-methoxyphenol (Eugenol)-----	441	412	1,785	4.34
4-Allyl-2-methoxyphenol acetate-----	4	5	30	6.48
Benzophenone ² -----	1,644	1,047	1,832	1.75
Benzyl acetate-----	2,252	2,084	2,240	1.07
Benzyl benzoate-----	777	599	710	1.19
Benzyl propionate-----	18	25	44	1.75
Cinnamyl acetate-----	20	13	74	5.65
Isobutyl phenylacetate-----	29	27	64	2.42
Isopentyl salicylate-----	907	757	1,017	1.34
2-Methoxy-4-propenylphenol (Isoeugenol)-----	94	90	559	6.20
p-Methylanisole-----	30	22	49	2.23
α-Methylbenzyl acetate-----	135	...	...	...
Methyl phenylacetate-----	34	26	83	3.23
Phenethyl isobutyrate-----	9	7	33	4.75
2-Phenethyl phenylacetate-----	21	9	43	4.61
Phenethyl propionate-----	46	...	...	...
3-Phenyl-1-propane (Hydrocinnamic alcohol)-----	46	45	204	4.55
p-Propenylanisole (Anethole)-----	4,545	2,769	7,086	2.56
All other benzenoid and naphthalenoid materials-----	79,753	57,327	95,175	1.66
<i>Terpenoid, Heterocyclic, and Alicyclic</i>				
Total-----	18,222	11,492	42,019	3.66
β-Caryophyllene-----	215	46	87	1.88
Cedryl acetate-----	479	368	1,607	4.37
Dihydronordicyclopentadienyl acetate-----	167	135	403	2.98
Dihydroterpinyl acetate-----	...	75	135	1.81
Guaiacwood acetate-----	...	36	154	4.28
Ionone (α- and β-)-----	114	102	644	6.33
Isobornyl propionate-----	...	6	16	2.55
Methyl acetate-----	18	6	45	8.00
α-Terpineol-----	3,550	2,954	1,588	.54
α-Terpinyl acetate-----	897	1,031	975	.95
Vetivenyl acetate-----	47	...	...	...
All other terpenoid, heterocyclic, and alicyclic materials-----	12,735	6,733	36,365	5.40
ACYCLIC				
Total-----	85,512	58,358	83,435	1.43
Allyl heptanoate-----	4	4	23	6.22
Citronellyl acetate-----	97	...	...	...
Citronellyl formate-----	28	15	91	6.13

See footnotes at end of table.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1979--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				
Citronellyl isobutyrate-----	...	5	36	\$7.00
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)-----	...	2,604	6,874	2.64
3,7-Dimethyl-cis-2,6-octadien-1-ol acetate (Neryl acetate)-----	30	34	133	3.86
3,7-Dimethyl-1,6-octadien-3-ol (Linalool; Linalyl alcohol)-----	3,608	2,733	5,268	1.93
3,7-Dimethyl-1,6-octadien-3-ol acetate (Linalyl acetate)-----	1,054	1,161	3,288	2.83
3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	2,645	1,746	5,062	2.90
Ethyl heptanoate-----	8	7	24	3.33
Ethyl hexanoate (Ethyl caproate)-----	21	14	49	3.39
Ethyl isovalerate-----	15	...	...	...
Ethyl propionate-----	...	183	255	1.39
Geranyl acetate-----	...	175	676	3.85
2-Hexenal-----	...	2	42	19.91
7-Hydroxy-3,7-dimethyl-1-octanol (Hydroxycitronellal)-	775	726	5,078	6.99
Isopentyl butyrate-----	101	116	174	1.50
Isopentyl isovalerate-----	27	...	...	...
Lauraldehyde-----	217	...	...	...
1,3-Nonanediol acetate-----	...	21	73	3.54
N-Octyl acetate-----	...	2	7	4.75
Rhodinol-----	11	5	448	86.68
All other acyclic materials-----	76,871	48,805	55,834	1.14

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, 1979

[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, FB, GIV, IFF, PEN, UNG.
*4-Allyl-2-methoxyphenol acetate (Eugenol acetate)	BDS, CI, ELN, GIV.
4-Allyl-1,2-(methylenedioxy)-benzene (Safrole)	FB.
Allyl phenoxyacetate	GIV.
α -Amyl cinnamic aldehyde	IFF.
tert-Amyl cymene	PFW.
p-Anisaldehyde	OPC, UOP.
Anisole (Methoxybenzene) (Methyl phenyl ether)	OPC.
Anisyl acetate	ELN.
Anisyl butyrate	RT.
Anisyl caproate	RT.
Aurantiol	PFW.
Benzaldehyde glyceryl acetal	GIV.
*Benzophenone	CMN, NEO, PD, UOP.
*Benzyl acetate	GIV, MON, OPC, UOP.
*Benzyl benzoate	CIN, MON, PfZ, VEL.
Benzyl butyrate	ELN, FB.
Benzyl cinnamate	FB, GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--Continued	
Benzyl ether	UOP.
Benzyl formate	ELN, GIV.
Benzyl isobutyrate	ELN.
Benzyl isopentyl ether	GIV.
Benzyl isovalerate	ELN, FB.
Benzyl laurate	GIV.
1-(Benzoyloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether)	GIV.
Benzyl phenylacetate	ELN, GIV.
*Benzyl propionate	ELN, FB, OPC.
Benzyl salicylate	FB, GIV, 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, UOP.
Butyl phenyl acetate	GIV.
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, UOP.
Cinnamic aldehyde dimethyl acetal	CI, FB.
*Cinnamyl acetate	ELN, FB, GIV.
Cinnamyl alcohol	FB, UOP.
Cinnamyl anthranilate	FEL, GIV.
Cinnamyl butyrate	FB.
Cinnamyl cinnamate	FB.
Cinnamyl propionate	FB, GIV.
Cinnamyl tiglate	FB.
Coumarin	RDA.
Cumyl acetate	IFF.
Cumyl alcohol	GIV, 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, 1979--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.
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)	: UOP.
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, NEO.
Ethyl phenylacetate	: GIV, OPC.
Ethyl phenylglycidate	: GIV.
Ethyl salicylate	: FB.
3'-Ethyl-5',6',7',8'-tetrahydro-5',5',8',8',- tetramethyl-2'-acetoneaphthone	: UOP.
Geranyl benzoate	: GIV.
Hexyl benzoate	: PFM.
α -Hexylcinnamaldehyde	: CI, IFF.
Hydratropaldehyde	: GIV, IFF.
Hydratropaldehyde,dimethyl acetal	: GIV.
Hydrocinnamic acid	: ARS, ELN.
Hydrocoumarin	: ARS, GIV, UOP.
Hydroxycitronellal methyl anthranilate	: FB, GIV.
4-Hydroxy-3-ethoxybenzaldehyde (Ethylvanillin)	: MON, RDA.
4-Hydroxy-3-methoxybenzaldehyde [Vanillin]	: MON.
4-(4-Hydroxy-3-methoxyphenyl)-2-butanone (Vanillylacetone)	: GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--Continued	
Indole	GIV.
Isoamyl phenylacetate	ELN, FB.
Isobutyl benzoate	ELN.
p-Isobutyl- α -methylhydrocinnamaldehyde (Rhodial)	RDA.
*Isobutyl phenylacetate	ELN, FB, OPC.
Isobutylquinoline	IFF.
Isobutyl salicylate	FB.
Isopentyl benzoate	GIV.
*Isopentyl salicylate	FB, MON, UOP.
Isopropylbenzaldehyde (Cumaldehyde)	GIV.
p-Isopropyl- α -methylhydrocinnamaldehyde (Cyclamenaldehyde)	GIV, RDA.
p-Isopropyl- α -methylhydrocinnamyl alcohol	GIV.
d-Limonene	SCM.
Linalyl anthranilate	BDS, FMT.
Linalyl benzoate	GIV.
Linalyl cinnamate	HOF.
p-Mentha-1,8-diene (Limonene)	SCM, SKG.
Menthyl anthranilate	PFM.
4'-Methoxyacetophenone	UOP.
p-Methoxybenzyl alcohol (Anisyl alcohol)	ELN, GIV, OPC, UOP.
o-Methoxy cinnamic aldehyde	FB.
o-Methoxy cinnamic aldehyde crystals	CI.
2-Methoxynaphthalene	GIV.
p-Methoxyphenyl methylglycidate	OPC.
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, ELN.
4'-Methylacetophenone	CMN, OPC, UOP.
*p-Methylanisole	GIV, OPC, SM, UOP.
Methyl anthranilate	FB, SM, UNG.
Methyl benzoate	HN, HPC, PFM.
* α -Methylbenzyl acetate (Styralyl acetate)	CI, GIV, IFF.
α -Methylcinnamaldehyde	CI, FB.
Methyl cinnamate	FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--Continued	
6-Methylcoumarin	: GIV.
p-Methyl ethyl phenyl glycidate	: PFM.
p-Methylhydratropaldehyde	: GIV.
1-Methyl-isoheptyl-hexahydro benzaldehyde	: CI, GIV.
Methyl N-methylanthranilate	: SM.
*Methyl phenylacetate	: ELN, GIV, OPC.
Methyl salicylate	: HN, MON.
Musk 89	: IFF.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan (Moskene)	: GIV.
α-Pentylcinnamaldehyde	: CI, FB.
Phenethyl acetate	: IFF, OPC.
Phenethyl alcohol	: IFF, OPC.
Phenethyl formate	: ELN, IFF.
*Phenethyl isobutyrate	: ELN, GIV, IFF.
Phenethyl isovalerate	: FB, GIV.
Phenethyl methacrylate	: NEO.
*2-Phenethyl phenylacetate	: CI, ELN, GIV, IFF.
*Phenethyl propionate	: ELN, GIV, IFF, OPC.
Phenethyl salicylate	: NEO.
2-Phenoxyethyl isobutyrate	: ELN, OPC.
Phenoxyethyl propionate	: IFF.
Phenylacetaldehyde	: GIV.
Phenylacetic acid	: ELN, GIV.
Phenylacetic acid isopentyl ester	: GIV.
α-Phenylanisole	: GIV.
4-Phenyl-3-buten-2-one	: FB.
Phenylethyl benzoate	: OPC, RT.
Phenylethyl tiglate	: FB.
*3-Phenyl-1-propanol (Hydrocinnamic alcohol)	: ELN, FB, GIV.
3-Phenylpropyl acetate	: ELN, GIV.
3-Phenylpropyl aldehyde	: CI.
3-Phenylpropyl cinnamate	: FB.
Piperonal (Heliotropin)	: AMB.
*p-Propenylanisole (Anethole)	: ARZ, FB, NCI, SCM.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
BENZENOID AND NAPHTHALENOID--Continued	
4-Propenyl-1,2-dimethoxybenzene (Methyl isoeugenol)	CI.
p-Propylanisol (Dihydroanethole)	FB, GIV, HPC.
N-Propyl phenyl ethyl alcohol	GIV.
p-Tolualdehyde	FB, GIV.
p-Tolylacetalddehyde	GIV.
p-Tolyl acetate	EIN.
p-Tolylphenylacetate	GIV.
α -(Trichloromethyl)benzyl acetate (Rosetone)	NEO.
Trimethylcyclohexyl salicylate	ARS.
SWEETENERS, SYNTHETIC:	
Cyclohexanesulfamic acid	ABB.
Cyclohexanesulfamic acid, calcium salt	ABB.
Cyclohexanesulfamic acid, sodium salt	ABB.
Saccharin (1,2-Benzisothiazolin-3-one, 1,1-dioxide)	SM.
Saccharin, sodium salt	SM.
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 P-opionate	GIV.
Amyris acetate	GIV.
Beta methyl ionone coevr	IFF.
Bornyl isovalerate	FB, RT.
p-tert-Butylcyclohexyl acetate (Verbeniax)	CI, IFF.
p-tert-Butylcyclohexanone	IFF.
2-sec-Butylcyclohexanone	GIV.
o-tert-Butylcyclohexyl acetate	IFF.
Cadinene	FB.
Carvone oxide	NEO.
* β -Caryophyllene	BDS, CI, FB, GIV, SCM.
Caryophyllene acetate	CI.
Caryophyllene oxide	GIV.
Cedrene	NEO.
α -Cedrene epoxide (Andrane)	IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--Continued	
Cedrenol	ELN, IFF.
Cedrol	BDS, ELN, IFF, NEO.
*Cedryl acetate	BDS, ELN, IFF, NEO, UNG.
Cedryl formate	IFF.
Cyclohexyl acetate	FB, RT.
Cyclohexyl butyrate	RT.
2-Cyclohexylcyclohexanone	GIV.
Cyclohexyl isovalerate	RT.
Dihydro-iso-jasmone	FB.
*Dihydrondicyclopentadienyl acetate (Cyclacet)	BDS, CI, IFF, OPC.
Dihydrondicyclopentadienyl isobutyrate	IFF.
Dihydrondicyclopentadienyl propionate	
(Cyclaprop) (Verdyl propionate extra)	CI, IFF, OPC.
Dihydroterpinyl acetate	GIV, NCI, SCM.
3,5-Dimethyl-3-cyclohexen-1-carboxaldehyde	IFF.
Ethyl furoate	RT.
Furfural acetone	RT.
Furfural acrolein	RT.
Galaxolide (1,3,4,6,7,8-Hexahydro-4,6,7,8,8-hexamethyl-cyclopenta- γ -2-benzopyran)	IFF.
*Guaiacwood acetate	ELN, FB, GIV, UNG.
Guaiene	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-Hydroxyundecanoic acid, γ -lactone (γ -Undecalactone)	
*Ionone (α - and β -)	ELN, FB.
α -Ionone	BDS, GIV, HOF, NCI, NEO.
β -Ionone	GIV, IFF.
Isoamyl furoate	HOF.
Isoamyl acetate	RT.
*Isobornyl propionate	RDA.
Isocamphyl cyclohexanols	ELN, GIV, OPC.
Isojasmone	GIV.
	FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--Continued	
Isomenthone	GIV.
2-Isopropylcyclohexanol	CI, GIV.
Jasmal	IFF.
Lavandin, acetylated	GIV.
p-Mentha-1,3-diene (α -Terpinene)	SCM.
p-Mentha-1,4-diene (γ -Terpinene)	SCM.
p-Mentha-6,8-dien-2-ol (Laevo carveol)	FB, PFW.
p-Mentha-6,8-dien-2-one (Dextro-carvone) (Carvol)	FB, NEO, SCM.
1-p-Mentha-6,8-dien-2-yl acetate (Laevo-carvyl acetate)	FB.
p-Menthan-3-one (Menthone)	SCM.
p-Menth-8-en-3-ol (Isopulegol)	GIV, SCM.
p-Menth-1-en-3-one (Piperitone)	GIV.
p-Menth-4-(8)-en-3-one (Pulegone)	GIV, SCM.
1-1-p-Menthen-6-yl-1-propanone	GIV.
Menthol, synthetic, U.S.P.	SCM.
Menthol, synthetic, tech.	GIV, NCI.
*Menthyl acetate	FB, GIV, SCM.
3-Methyl cyclohexendione-1,2	PFZ.
Methyl furoate	RT.
Methylionone(α - and β -)	GIV, IFF, NEO.
7-Methylionone	GIV.
6-Methyl- α -ionone	BDS, GIV, IFF.
Methylionones (α - β - γ -)	NCI.
Nopol	NCI.
Nopyl acetate	FEL, NCI, OPC.
Pentyl cyclohexyl acetate	IFF.
3-Pentyl tetrahydro-4-pyridine	IFF.
Rose oxide	FB.
α -Santalol	GIV, IFF.
α -Santalyl acetate	GIV.
Sassafras oil, hydrogenated	GIV.
Terpineol(α - and β -)	GIV.
* α -Terpineol	HPC, NCI, SCM.
* α -Terpinyl acetate	GIV, NCI, NEO, RT, SCM.
CYCLIC--CONTINUED	

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
TERPENOID, HETEROCYCLIC, AND ALICYCLIC--Continued	
α-Terpinyl propionate	ELN, GIV.
[4,4',4'',4''']-Tetraaminophthalocyaninato(2-)]-copper	HPC.
3,3,5-Trimethyl cyclohexanol (m-Homomenthol)	ARS, NEO.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl-α-ionone)	IFF.
2,6,10-Trimethyl-9-undecen-1-al	GIV.
Vetivenol	GIV.
*Vetivenyl acetate	BDS, FB, GIV, IFF.
All other Terpenoid, heterocyclic, or alicyclic flavor and perfume chemicals	RT, SCM, VIK.
ACYCLIC	
*Allyl heptanoate	ELN, 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	RT.
Butter acids	RT.
Butter esters	RT.
Butyl butyrate	FB.
Butyl butyl lactate	BjL, ELN, RT.
Butyl undecylenate	CI, FB, GIV.
Citral dimethyl acetal	CI, GIV, IFF, RDA.
Citral A and B mixture	NCI, SCM.
*Citronellyl acetate	ELN, GIV, IFF, NCI.
Citronellyl butyrate	ELN, GIV.
Citronellyl crotonate	IFF.
Citronellyl ethyl ether	IFF.
*Citronellyl formate	ELN, GIV, IFF, NEO.
*Citronellyl isobutyrate	ELN, GIV, IFF.
Citronellyl oxycetaldehyde	IFF.
Citronellyl propionate	ELN, GIV, IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Crude acetate mixture (Linalyl, neryl, geranyl acetates; main components)	X.
Decanal (Capraldehyde)	CI, GIV.
Decyl acetate	GIV.
Diethyl acetal	FB.
Diethyl sebacate	ELN, UOP.
Diethyl succinate	PFZ.
d-Dihydrocarveol	SCM.
Dihydrocarvone	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 (Citrinal A, geranial)	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)	CI, ELN, FB, FEL, GIV, IFF, NCI, SCM.
*3,7-Dimethyl-1,6-octadien-3-ol (Linalool) (Linalyl alcohol)	ELN, FB, FEL, GIV, HOF, NCI, RDA, SCM.
*3,7-Dimethyl-cis-2,6-octadienol, acetate (Neryl acetate)	CI, ELN, GIV, IFF, NCI, SCM.
*3,7-Dimethyl-1,6-octadien-3-ol, acetate (Linalyl acetate)	ELN, FB, GIV, HOF, NCI, SCM.
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate)	ELN, HOF.
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate)	ELN, GIV, HOF.
Dimethyloctanal	SCM.
3,7-Dimethyl-1,7-octanediol	SCM.
3,7-Dimethyloctanol-1 [Tetrahydrogeraniol]	GIV, NCI.
3,7-Dimethyl-3-octanol	IFF, SCM.
Dimethyloctanyl acetate	IFF.
3,7-Dimethyl-6-octen-1-al (Citronellal)	FB, NCI, SCM.
2,6-Dimethyl-2-octene-7-yne-6-ol	X.
*3,7-Dimethyl-6-octen-1-ol (Citronellol)	CI, ELN, FB, GIV, IFF, NCI, SCM.
3,7-Dimethyl-7-octenol 70ppt,6-octenol isomer 30ppt	GIV.

TABLE 2. -- FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Dimyrcetol	: IFF.
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, NW.
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, PFW, RT.
Ethyl nonanoate	: ELN, FB.
Ethyl octanoate	: ELN, FB.
Ethyl oxhydrate	: FLO, RT.
*Ethyl propionate	: FB, NM, UOP.
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	: ELN.
Geranyl isovalerate	: FB.
Geranyl nitrile (Gerano nitrile) (Citralsa)	: CI, IFF.
Geranyl propionate	: ELN, FB.
Geranyl tiglate	: FB, FMT.
Glutamic acid, monosodium salt (Monosodium glutamate)	: SFF.
Heptanolide	: FB.
2,4-Hexadieneal	: PFW.
N-Hexanal	: SCM.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*2-Hexenal-	FB, GIV, SCM.
cis-3-Hexen-1-ol	GIV, SM.
2-Hexenol-	FB, SCM.
cis-3-Hexen-1-yl acetate	BDS, GIV.
cis-3-Hexenyl butyrate	SCM.
Hexyl caproate	FB.
3-Hexynol-	HOF, SM.
3-Hydroxy-2-butanone (Acetoin)	FMT.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxy-citronellal)	GIV, IFF, RDA, 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.
Isopentyl butyrate	FB, GIV, NM, PFM, UOP.
Isopentyl formate	ELN, FB, RT.
*Isopentyl isovalerate	ELN, FB, PFM.
*Lauraldehyde	FB, GIV, IFF.
Linallalool oxide	SCM.
Linallyl formate	HOF, OPC.
α-Methyl butyric acid	PFM.
Methyl butynol	X.
3-Methyl butyraldehyde	FB.
Methyl crotonate	FB, RT.
Methyl heptadienone	HOF.
3-Methyl-5-heptanone oxime	GIV.
Methyl heptenone	HOF, RDA.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

FLAVOR AND PERFUME MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
Methyl isobutyrate	: PFW.
Methyl isovalerate	: FB.
Methyl mercaptopropylamine	: PFW.
Methyl-2-methyl butyrate	: SCM.
3-Methyl-2-(and3)nonene nitrile	: GIV.
Methyl-2-nonenoate	: GIV, PFW.
Methylol methyl hexyl ketone	: GIV.
Methyl pentylol	: X.
6 Methyl thiopropionaldehyde	: RI.
2-Methylundecanal	: GIV.
Myrcenyl acetate	: IFF.
Myristaldehyde	: GIV.
Nonanal	: GIV.
*1,3-Nonanediol acetate	: CI, GIV, OPC.
Nonanol	: GIV.
6-Nonanone	: HOF.
Nonyl acetate	: CI, ELN, GIV.
Ocimenyl acetate	: IFF.
Octanal	: CI, GIV.
3-Octanol	: GIV, SCM.
3-Octanone (Ethyl amyl ketone)	: GIV.
*N-Octyl acetate	: ELN, GIV, SCM.
N-Octyl alcohol	: GIV.
Pentyl acetate	: UOP.
Phellandrene hydrochloride	: SCM.
Piperityl formate	: SCM.
N-Propyl acetal	: GIV.
Pseudo linalyl acetate (Neobergamate)	: IFF.
*Rhodinol	: BDS, FB, FEL, GIV, IFF.
Rhodinyl acetate	: GIV, IFF.
Tepyl acetate	: ELN.
Tetrahydro allo-ocimene	: IFF.
Tetrahydro pseudoionone	: CI.
Undecanal	: GIV, IFF.
9-Undecenal	: GIV.
10-Undecen-1-yl acetate	: GIV.
All other acyclic flavor and perfume materials	: BDS, CI, FB, IFF, PFW, SCM, X.

TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1979

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 1979 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.
AMB	American Bio-Synthetics Corp.	NEO	Norda, Inc.
ARS	Arsynco, Inc.	NW	Northwestern Chemical Co.
ARZ	Arizona Chemical Co.		
BDS	Biddle Sawyer	OPC	Orbis Products Corp.
BJL	Burdick & Jackson Laboratories, Inc.		
		PD	Warner-Lambert Co.
CI	Chem-Fleur, Inc.	PEN	CPC International, Inc., Penick Div.
CIN	Stockhausen, Inc.	PFW	Hercules, Inc., PFW Div.
CWN	Upjohn Co., Fine Chemical Div.	PFZ	Pfizer, Inc.
ELN	Elan Chemical Co.		
		RDA	Rhone-Poulenc, Inc.
FB	Fritzsche Dodge & Olcott, Inc.	RSA	R.S.A. Corp.
FEL	Felton International, Inc.	RT	Ritter International
FLO	Florasynth, Inc.		
FMT	Fairmount Chemical Co., Inc.		
		SCM	SCM Corp., Organic Chemicals Div.
		SFF	Stauffer Chemical Co., Food Ingredients Div.
GIV	Givaudan Corp.	SKG	Sunkist Growers, Inc.
		SW	Sherwin-Williams Co.
HN	Tenneco Chemicals, Inc.		
HOF	Hoffmann-LaRoche, Inc.	UNG	Ungerer & Co.
HPC	Hercules, Inc.	UOP	UOP, Inc., Chemical Div.
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 40 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 1979 are given in table 1. U.S. production of plastics and resin materials in 1979 totaled 41,871 million pounds, or 8.0 percent more than the 38,878 million pounds produced in 1978. Sales in 1979 totaled 36,834 million pounds, valued at \$15,380 million, compared with 33,527 million pounds, valued at \$12,439 million, in 1978

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 7,902 million pounds in 1979, compared with 7,906 million pounds in 1978. Production of the most important products in 1979 included phenolic resins (1,779 million pounds) amino (or urea and melamine) resins (1,599 million pounds), polyester resins, unsaturated (1,182 million pounds) and alkyd resins (755 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 33,969 million pounds in 1979 (or 81.1 percent of the total output for 1979), compared with 30,972 million pounds in 1978. Production of the most important products in 1979 included polyethylene (12,408 million pounds), vinyl resins (7,624 million pounds), and styrene type materials (6,327 million pounds).

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1979

[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	SALES			
	PRODUCTION	QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds dry basis ²	1,000 pounds dry basis ²	1,000 dollars	Per pound
Grand total-----	41,871,181	36,833,756	15,379,799	\$0.42
Plastics and resin materials, benzenoid ³ -----	12,867,081	11,089,619	6,038,224	.54
Plastics and resin materials, nonbenzenoid-----	29,004,100	25,744,137	9,341,575	.36
THERMOSETTING RESINS				
Total-----	7,901,898	6,215,123	2,899,793	.47
Alkyd resins, total-----	754,896	407,663	237,357	.58
Phthalic anhydride type-----	607,448	344,717	199,016	.58
Polybasic acid type-----	76,567	25,499	15,620	.61
Styrenated-alkyds or copolymer. alkyds ⁴ -----	50,694	16,163	10,497	.65
Vinyl toluene alkyds-----	20,187	19,694	10,680	.54
Other copolymer alkyds-----	...	1,590	1,544	.97
Dicyandiamide resins-----	2,089	2,004	2,038	1.02
Epoxy resins: ^{5 6}				
Unmodified-----	349,502	285,248	257,522	.90
Advanced-----	(130,207)	(77,280)	(89,474)	1.16
Furfuryl type resins-----	31,247	30,193	14,684	.49
Melamine-formaldehyde resins (an amino resin)-----	221,152	178,936	111,589	.62
Phenolic and other tar acid resins-----	1,778,581	1,441,113	621,745	.43
Polyester resins, unsaturated ⁷ -----	1,181,744	979,087	496,947	.51
Polyether and polyester polyols for urethanes ⁸ -----	1,830,913	1,348,531	586,463	.43
Polyurethane elastomer and plastics products, total---	284,976	231,962	266,252	1.15
Elastomers ⁹ -----	113,894	93,244	141,905	1.52
Plastics-----	171,082	138,718	124,347	.90
Silicone resins-----	19,583	10,502	36,987	3.52
Urea-formaldehyde resins (an amino resin)-----	1,377,694	1,238,785	205,864	.17
Other thermosetting resins ¹⁰ -----	69,521	61,099	62,345	1.02
THERMOPLASTIC RESINS				
Total-----	33,969,283	30,618,633	12,480,006	.41
Acrylic resins, total ¹¹ -----	1,141,666	...	...	...
Polymethyl methacrylate-----	483,455	375,149	310,185	.83
Thermosetting acrylics-----	58,498	6,451	5,335	.83
Other acrylics-----	599,713	...	...	...
Cellulose plastics ¹¹ -----	480,280	332,946	358,622	1.08
Engineering plastics ¹² -----	616,927	493,244	623,641	1.26
Petroleum hydrocarbon resins-----	321,108	301,340	89,293	.30
Polyamide resins, total-----	324,326	284,002	351,075	1.24
Nylon type ^{11 13} -----	289,003	249,765	310,955	1.24
Non-nylon type-----	35,323	34,237	40,120	1.17
Polyester resins, saturated, total ^{11 14} -----	590,084	423,329	333,234	.79
Polyethylene terephthalate (PET)-----	381,058	341,584	250,553	.73
Polybutylene terephthalate (PBT) and other poly- esters, saturated-----	209,026	81,745	82,681	1.01

See footnotes at end of table.

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1979--CONTINUED

PLASTICS AND RESIN MATERIALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
THERMOPLASTIC RESINS--Continued	1,000 pounds dry basis ²	1,000 pounds dry basis ²	1,000 dollars	Per pound
Polyethylene resins, total-----	12,408,362	11,587,301	3,843,801	\$0.33
Specific gravity 0.940 and below-----	7,482,088	7,031,702	2,412,797	.34
Specific gravity over 0.940-----	4,926,274	4,555,599	1,431,004	.31
Polypropylene resins-----	3,823,908	3,494,305	1,005,911	.29
Polyterpene resins-----	29,869	29,660	14,510	.49
Rosin modifications, total-----	93,650	85,149	34,791	.41
Rosin esters, unmodified (ester gums)-----	18,569	23,708	9,170	.39
Rosin esters and others, modified-----	75,081	61,441	25,621	.42
Styrene plastics materials, total-----	6,326,934	5,981,024	2,671,814	.45
Acrylonitrile-butadiene-styrene terpolymer (ABS) resins-----	1,251,474	1,223,051	644,596	.53
Straight polystyrene-----	2,342,719	2,164,969	870,573	.40
Rubber modified polystyrene-----	1,504,127	1,499,990	580,506	.39
Styrene-butadiene latexes-----	562,786	534,345	236,190	.44
All other styrene latexes-----	47,662	48,621	21,010	.43
All other styrene plastics materials ¹⁵ -----	618,166	510,048	318,939	.63
Vinyl resins; total ¹⁶ -----	7,624,523	6,558,159	2,223,132	.34
Polyvinyl acetate ¹⁷ -----	904,183	847,363	267,357	.32
Polyvinyl alcohol ¹⁸ -----	166,648	151,678	108,229	.71
Polyvinyl chloride and copolymers-----	6,211,419	5,328,414	1,647,248	.31
Polyvinylidene chloride latex resins-----	21,847	21,261	17,399	.82
Vinyl acetate-acrylate copolymers-----	98,335	...	...	...
Other vinyl and vinylidene resins-----	222,091	209,443	182,899	.87
All other thermoplastics resins ¹⁹ -----	187,646	666,574	614,662	.92

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 data for other copolymers alkyds (production only).

⁵Includes 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.

⁶Data 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.

⁷Polyester 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.

⁸In 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.

⁹The 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.

¹⁰Includes acetone-formaldehyde resins, glyoxal-formaldehyde resins, polybutadiene resins and certain other thermosetting resins.

¹¹Does not include production or sales for fiber use.

¹²Engineering plastics: Includes acetal, polycarbonate, polyimide and amide-imide polymers, polysulfone, and polyphenylene oxide, and polyphenylene sulfide. Engineering plastics are defined in Whittington's Dictionary of Plastics, as "Those [plastics] 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. The other plastics named in Whittington's Dictionary as engineering plastics, ABS resins and nylon resins, are not included in the above list as they are published separately.

Footnotes--Continued

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

¹⁴Statistics 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.

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 acrylic resins (sales only), chlorinated polyolefins, coumarone-indene resins, fluorocarbon resins, 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 REPORTED, IDENTIFIED BY MANUFACTURER, 1979

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

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS	
Acetone-formaldehyde resins--	ACY, AMR, GP.
*Alkyd resins:	
*Phthalic anhydride type alkyd resins	ACY, APT, AZS, BAL, BEN, BRU, CEL, CGL, CPG, DEG, DSO, EM, FAR, FCD, FOC, GEI, GRV, HAN, ICF, IMC, JOB, JSC, KMC, KMP, KPT, MCC, MID, MNP, NCP, NPV, OBC, PER, PPG, PRT, RCI, RED, REL, RH, SCM, SCN, SDH, SKT, SM, STT, SW, USS, X.
*Polybasic acid type alkyd resins	ACY, BEN, CEL, CGL, DEG, DSO, DUP, EM, FAR, FOC, GEI, GRV, HAN, ICF, IMC, MCC, MID, PPG, RCI, RED, REL, RH, SCM, SCN, SKT, SM, STT, SW.
*Styrenated-alkyds, or copolymer alkyds	APT, CGL, CPV, DSO, EM, FRE, GEI, GRV, HAN, IMC, JOB, KMC, KPT, MCC, MRT, OBC, REL, SM, STT, SW.
*Vinyl toluene alkyds	CSD, FAR, FRE, GEI, IMC, JOB, MCC, OBC, PRT, REL, SCM, STT.
*Alkyd copolymers, all other	DEG, DSO, DUP, FRE, GEI, IMC, MCC, PKP, SCM, SW, X.
AMINO RESINS:	
*Melamine-formaldehyde resins	ACY, AMR, BOR, CBD, CEL, CGL, CPG, DAN, DGO, DUP, GE, GRV, HAN, JSC, KPT, MID, MON, OCF, PKP, PLS, PMC, PPL, PST, QCP, RCI, REL, RH, SCM, SM, SNN, STC, USM, WRD.
*Urea-formaldehyde resins	ACY, AFP, AMR, APX, BOR, CBD, CBM, CEL, CGL, CLK, CMP, CPV, DAN, DSO, DUP, FAR, GAF, GOC, GP, GRV, HAN, HNC, IRI, JSC, KPT, MMM, MON, NTC, PC, PKP, PMC, PPL, PST, RCI, REL, RPC, SAC, SCM, SNN, SOR, SW, USM, USO, VAL, VPC, X, X.
*Dicyandiamide resins	APX, CMP, ECC, JSC, RPC, S, STC, VAL, VPC.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOSETTING RESINS--CONTINUED	
EPOXY RESINS:	
*Epoxy resins, unmodified	ADC, CEL, CGY, DA, DOW, JOB, RCI, SHC, SM, UCC.
*Epoxy resins, advanced	AFP, AZS, BEN, CEL, CGY, CNI, DSO, EW, GE, GRV, ICF, MCC, MID, MMM, MRT, OCF, PKP, PPG, PCI, SCM, SCN, SM, STT, SW, WLN.
*Furfuryl type resins	ACR, GP, HVG, IMC, MCP, STC, UNO, WRD.
Glyoxal-formaldehyde resins	USM, USO, VAL.
*Phenolic and other tar acid resins	ABS, ACR, AFP, AMR, ASH, BME, BOR, BSC, CBD, CBM, CGL, CLK, DA, DOW, DSO, EM, FAR, FOM, GE, GEI, GOC, GP, GRG, HER, HKD, HFC, HVG, ICF, IMC, INL, IRI, KPT, MCA, MID, MMM, MON, MRB, NCI, NCP, OCF, PLS, PPG, PPL, PSL, PYZ, RAB, RCI, RGC, RH, RPC, SCM, SCN, SIM, SKT, SM, SPL, STC, STT, UCC, USR, VPC, VSV, WCA, WRD, X.
Polybutadiene resins	ATR, CNI.
*POLYESTER RESINS, UNSATURATED, AND ALLYL RESINS:	
Allyl resins	AFP, FMP, PKP, PPG, SNW.
Diallyl isophthalate	FMP, PPG.
*Polyester resins, unsaturated	ACY, ADC, AFP, APH, APT, AZS, CEL, CGL, CPV, DOM, DSO, EM, FCD, FMP, FRE, GEI, GRG, ICF, ICI, IPC, KPT, MCC, MFG, MRT, OCF, PPG, PPL, RCI, RH, SCM, SCN, SHC, SIC, SLC, SM, SW, USS.
*Polyether and polyester polyols for urethanes	APT, ARK, BAS, CGL, CHC, CPV, DOM, DSO, HPC, ICF, ICI, INP, JCC, MCC, MMM, MOB, MRT, NTL, OCF, ONG, PPG, RCI, SKT, UCC, UNO, UPJ, WTC.
*POLYURETHANE ELASTOMER AND PLASTIC PRODUCTS:	
*Polyurethane elastomers	ACY, ADC, BAS, BFG, CNI, CWN, DA, DNS, DUP, EPI, GRD, HXL, MMM, MOB, MRT, PLN, PPG, PRC, RUB, TKL, UPJ, USR, WLN, WTC.
*Polyurethane resins	APT, ASH, BAS, CGL, CPV, DSO, DUP, EM, FAR, ICF, ICI, INP, MCC, MID, MNP, NTL, OMC, PVI, QUN, RCI, SCM, SCN, SLC, SW, TNO, UPJ, USM, USR, WTC.
*Silicone resins	CGL, DCC, JOB, MID, RCI, SCM, SM, SPD.
*Thermosetting resins, benzenoid, all other	ACR, APX, BAS, DEG, DSO, MCC, MOB, ORC, PPG, PRT, S, SCM, SM, SW, VAL.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTIC RESINS--CONTINUED	
THERMOPLASTIC RESINS:	
ACRYLIC RESINS:	
Ethyl acrylate butyl acrylate copolymer	QUN.
*Polymethyl methacrylate	ASH, CYR, DUP, ICF, IOC, JOB, JMC, MRT, NVT, PPG, PVI, RH, REC, SAR, SNW.
*Thermosetting acrylics	CEL, CPV, DSO, GRV, ICF, MID, PPG, SCM.
*Acrylic resins, all other	ACY, AZS, CHP, DSO, DUP, EFH, FLH, GLC, GRD, GRV, ICF, JNS, JSC, PPG, PVI, RH, SAR, SCM, SCP, SM, SW, TX, UOC, VAL, VPC.
*CELLULOSE PLASTICS AND RESINS:	
Cellulose nitrate	DUP, X.
Ethyl cellulose	X.
Cellulose plastics, all other	CEL, DOM, DUP, EKT.
Chlorinated polyolefins, thermoplastic	EKX.
Coumarone-indene resins	DUP, HPC, NEV, VEL, ZGL.
*ENGINEERING PLASTICS:	
Acetal resins	CEL, DUP.
Polycarbonate resins	GE, MOB.
Polyimides and amide-imide polymers	AMO, DUP, EM, MON, PDI.
Polyphenylene oxide type resins	GE.
Polyphenylene sulfide resins	PLC.
Poly sulfone resins	UCC.
FLUOROCARBON RESINS:	
Polytetrafluoroethylene (PTFE)	DUP, ICI.
Polyvinylidene fluoride resin	PAS.
Fluorocarbon resins, all other	DUP.
*Petroleum hydrocarbon resins	EKX, ENJ, GYR, HPC, ICF, NEV, NPV, PRT, RCI, SCM, SM, VEL, ZGL.
Phenoxy (R) Resins (other than for coating and adhesives)	UCC.
*POLYAMIDE RESINS:	
*Nylon type, polyamide resins	ALF, AZS, BCM, CEL, CTR, DGO, DUP, FRF, HST, MON, RSN, SCP, USM.
*Non-nylon type, polyamide resins	AMR, AZS, CBY, COO, EFH, EMR, MCC, NCI, SCP, SM, SNW, USM.
Polybutylene type resins	ENJ, SHC, UCC.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTIC RESINS--CONTINUED	
*POLYESTER RESINS, SATURATED:	
*Polybutylene terephthalate(PBT)-	DUP, EKT, GAF, GE, MID, USM.
*Polyethylene terephthalate(PET)-	CEL, COO, EKT, GEI, GYR, ICF, ICI, MMM, MRT, SCM, SNW, USM.
*Polyester resins, saturated, all other	DGO, DSO, DUP, EKT, RUB, STT, SW.
*POLYETHYLENE AND COPOLYMERS RESINS:	
*Polyethylene resins, "low density" (specific gravity of 0.940 and below)-	APP, CBW, CPX, DOW, DUP, EKX, ENJ, GOC, KPP, NWP, PLC, RCC, SNW, UCC, USI, X.
*Polyethylene resins, "high density" (specific gravity over 0.940)-	APP, AMO, CBN, CPX, DOW, DUP, GOC, HPC, KPP, MOM, PLC, SLT, UCC, USI.
*Polypropylene polymer and copolymer resins	AMO, EKX, ENJ, GOC, HPC, KPP, NVT, NWP, PLC, RCC, SHC, SLT.
*Polyterpene resins	ARZ, CBY, HPC, SCN.
*ROSIN MODIFICATIONS:	
Modified rosin (Unesterified)	ARZ, DPP, NCI.
*Modified rosin esters-	ASH, CBY, DPP, EW, FCD, FRP, GRV, ICF, MCC, NCI, PRT, RCI, SCN, SDH, SKT, SM, SW, ZGL.
*Rosin esters, unmodified (Ester gums)	ARZ, ASH, CBY, DPP, FRP, NCI, RCI, SKT.
*STYRENE TYPE PLASTICS MATERIALS:	
*Acrylonitrile-butadiene-styrene (ABS) Terpolymer resins-	BFG, CSD, DOM, GOR, GRD, GYR, MCB, MON, SM, USR, USS.
Styrene-acrylonitrile copolymer resins (SAN)	BFG, CSD, DOM, MCB, MON, SKT, SM.
POLYSTYRENE:	
*Rubber modified polystyrene-	DOM, GOC, GOR, KPP, MON, PLR, SHC, SM, USS.
*Straight polystyrene	AEP, AMO, BAS, CRC, CSD, DOM, GOC, GOR, HST, JSC, KPP, MMM, MON, PLR, RCD, SHC, SM, USS.
STYRENE LATEXES:	
*Styrene-butadiene latexes-	BOR, DOM, GAF, GNT, GRD, GYR, KPP, UOC, USR, USS.
*All other Styrene latexes-	ADC, DOM, DSO, GNT, GRD, MON, PVI, UOC, USS.
*OTHER STYRENE COPOLYMERS:	
Methyl methacrylate-butadiene styrene (MBS) resins	GYR, MCB.
α-Methyl styrene polymers-	AMO, JNS.
Styrene copolymers, all other-	ARZ, BFG, DA, DOW, DSO, DUP, GRD, GYR, HPC, IOC, JNS, KPP, MON, MRT, OBC, PLC, RCD, RH, SCM, SKT, SW.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION AND/OR SALES REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PLASTICS AND RESIN MATERIALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
THERMOPLASTICS--CONTINUED	
VINYL RESINS:	
*Polyvinyl acetate resins	AIP, AZS, BAL, BEN, BLS, BOR, CEL, DAN, FAR, FLH, FLN, GLC, GRD, IMC, JSC, KNP, MCC, MON, NSC, RCI, RPC, SCO, SW, UCC, UOC, X.
*Polyvinyl alcohol resins	AIP, DUP, MON.
Polyvinyl butyral resins	DUP, MON, UCC.
*Polyvinyl chloride and copolymer resins	AIP, BFG, BOR, CNT, CO, DA, FIR, GNT, GP, GRA, GYR, HN, KYS, PNT, RCO, RUB, SFP, SHT, TNA, UCC.
Polyvinyl formal resin	BFG, MON.
*Vinyl acetate-acrylate copolymers	CEL, DSO, KMC, NPV, OBC, SCM, SPC.
POLYVINYLIDENE CHLORIDE RESINS:	
*Latex type polyvinylidene chloride resins	DOM, GRD, MRT, UOC.
Vinyl resins, all other	DOM, DUP, EM, GAF, RH.
Thermoplastic resins, all other	DGO, MON, RPC, SW, X.

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1979

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 1979 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	DA	Diamond Shamrock Corp.
ACR	CPC International, Inc., Acme Resin Corp.	DAN	Dan River, Inc., Chemical Products Dept.
ACS	Allied Chemical Corp., Chemicals Co. Div.	DCC	Dow Corning Corp.
ACY	American Cyanamid Co.	DEG	Degan Oil & Chemical Co.
ADC	Anderson Development Co.	DGO	Day-Glo Color Corp.
AEP	A & E Plastik Pak Co., Inc., A & E Plastics	DNS	Dennis Chemical Co.
AFP	Allied Chemical Corp., Fibers & Plastics Co.	DOW	Dow Chemical Co.
AIP	Air Products & Chemicals, Inc.	DPP	Dixie Pine Chemicals, Inc.
ALF	Allied Chemical Corp., Fibers Div.	DSO	DeSoto, Inc.
AMO	Standard Oil Co. (Indiana)	DUP	E.I. duPont de Nemours & Co., Inc.
AMR	Pacific Resins & Chemical, Inc.	ECC	Eastern Color & Chemical Co.
APH	Alpha Chemical Corp.	EFH	E.F. Houghton & Co.
APT	Whittaker Corp., Whittaker Coatings & Chemicals, Mol Rez Resins		Eastman Kodak Co.:
APX	Apex Chemical Co., Inc.	EKT	Tennessee Eastman Co. Div.
ARK	Armstrong Cork Co.	EKX	Texas Eastman Co. Div.
ARZ	Arizona Chemical Co.	EMR	Emery Industries, Inc.
ASH	Ashland Oil, Inc.	ENJ	Exxon Chemical Co. U.S.A.
ATR	Atlantic Richfield Co., Arco Chemical Co.	EPI	Eagle Pitcher Industries, Inc., Ohio Rubber Co. Div.
AZS	AZS Corp.:	EW	Westinghouse Electric Corp., Insulating Materials Div.
	AZ Products Co. Div.		
	AZS Chemical Co. Div.	FAR	Syncon, Inc.
		FCD	Synres Chemical Corp.
BAL	Dutch Boy, Inc., Coatings Group	FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.
BAS	BASF Wyandotte Corp.	FLH	H.B. Fuller Co., Polymer Div.
BCM	Belding Chemical Industries	FLN	Franklin Chemical Industries
BEN	Bennett's	FMP	FMC Corp., Industrial Chemical Div.
BFG	B.F. Goodrich Co., B.F. Goodrich Chemical Group	FOC	Handschy Industries, Inc., Farac Oil & Chemical Co. Div.
BLS	Life Savers, Inc.	FOM	Formica Corp., Sub. of American Cyanamid Co.
BME	Bendix Corp.	FRE	Freeman Chemical Corp.
BOR	Borden Co., Borden Chemical Co. Div.	FRF	Firestone Tire & Rubber Co., Firestone Synthetic Fibers Co.
BRU	M.A. Bruder & Sons, Inc.	FRP	FRP Company
BSC	Brand-S Corp., Cascade Resins, Inc., Div.		
		GAF	GAF Corp.
CBD	Chembond Corp.	GE	General Electric Co.:
CBM	Carborundum Co.	GEI	Laminated & Insulating Materials Business Dept.
CBN	Cities Service Co., Petrochemicals Div.		
CBY	Crosby Chemicals, Inc.	GLC	General Latex & Chemical Corp.
CEL	Celanese Corp.:	GNT	General Tire & Rubber Co., Chemical Div.
	Celanese Plastics Materials Co.		
	Celanese Polymer Specialties Co.	GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
CGL	Cargill, Inc.	GOR	Carl Gordon Industries, Inc.
CGY	Ciba-Geigy Corp., Resins Dept.	GP	Georgia-Pacific Corp.:
CHC	Carpenter Chemical Co.		Plaquemine Div.
CHP	C.H. Patrick & Co., Inc.		Resins Operations
CLK	Clark Oil & Refining Corp.	GRA	Great American Chemical Corp.
CMP	Commercial Products Co., Inc.	GRD	W.R. Grace & Co., Polymers & Chemicals Div.
CNI	Frye Copysystems, Conap Div.	GRG	P.D. George Co.
CNT	Certainfeed Corp.	GRV	Guardman Chemicals, Inc.
CO	Conoco, Inc.	GYR	Goodyear Tire & Rubber Co.
COO	The Terrell Corp.		
CPV	Cook Paint & Varnish Co.	HAN	Hanna Chemical Coating Corp.
CPX	Chemplex Co.	HER	Heresite-Saekaphen, Inc.
CRC	Crest Container, Sub. of the Continental Group, Inc.	HKD	Hooker Chemicals Corp., Hooker Chemicals & Plastics Corp., Durez Div.
CSD	Cosden Oil & Chemical Co.	HN	Tenneco Chemicals, Inc.
CTR	Custom Resins Div. of Bemis Co., Inc.		
CWN	Upjohn Co., Fine Chemical Div.		
CYR	CY/RO Industries, Inc.		

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
HNC	H & N Chemical Co.	PDI	Phelps Dodge Industries, Inc., Phelps Dodge Magnet Wire Co. Div.
HPC	Hercules, Inc.	PER	Perry & Derrick Co., Inc.
HST	American Hoechst Corp.	PKP	Plaskon Products, Inc.
HVG	Haveg Industries, Inc., Sub. of Hercules, Inc.	PLC	Phillips Petroleum Co.
HXL	Hexcel Corp., Hexcel Specialty Chemicals	PLN	Disogrin Industries Corp.
ICF	Inmont Corp.	PLR	Polysar, Inc., Resins Div.
ICI	ICI Americas, Inc.: Plastics Div. Chemical Specialties Co.	PLS	Plastics Engineering Co.
IMC	International Minerals & Chemicals Corp.: Foundry Products McWorter Resins	PMC	Plastics Manufacturing Co.
INL	Inland Steel Co., Inland Steel Container Co. Div.	PNT	Pantasote, Inc., Film/Compound Div.
INP	Synair Corp.	PPG	PPG Industries, Inc.
IOC	Ionac Chemical Co. Div. of Sybron Corp.	PPL	Pioneer Plastics Div. of LOF Plastics, Inc.
IPC	Interplastic Corp.	PRC	Products Research & Chemical Corp.
IRI	Ironsides Co.	PRT	Pratt & Lambert, Inc.
JCC	Jefferson Chemical Co., Inc.	PSL	Plasllok Corp.
JNS	S.C. Johnson & Son, Inc.	PST	Perstorp, Inc.
JOB	Jones-Blair Co.	PVI	Polyvinyl Chemical Industries
JSC	Jersey State Chemical Co.	PYZ	Polyrez Co., Inc.
JWC	J.W. Carroll & Sons Div. of U.S. Industries, Inc.	QCP	Quaker Chemical Corp.
KMC	Komac Paint, Inc.	QUN	K.J. Quinn & Co., Inc.
KMP	Kelly-Moore Paint Co.	RAB	Raybestos Friction Materials Co.
KPP	ARCO/Polymers, Inc.	RCC	Rexene Co.
KPT	Koppers Co., Inc., Organic Materials Group	RCD	Richardson Co., Polymeric Systems Div.
KYS	Keysor Corp.	RCI	Reichhold Chemicals Inc.
MCA	Masonite Corp., Alpine Div.	RCO	Rico Chemical Corp.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	RED	Red Spot Paint and Varnish Co., Inc.
MCC	McCloskey Varnish Co.	REL	Reliance Universal, Inc., Louisville Resins Operations
MCC	McCloskey Varnish Co. of the Northwest	RGC	Rogers Corp.
MCC	McCloskey Varnish Co. of the West	RH	Rohm & Haas Co.
MFG	Rockwell International Corp.	RPC	Millmaster Onyx Group, Refined Onyx Co. Div.
MID	Dexter Corp., Midland Div.	RSN	Rilsan Corp.
MMM	Minnesota Mining & Manufacturing Co.	RUB	Hooker Chemicals Corp., Hooker Chemicals & Plastics Corp., Ruco Div.
MNP	The Valspar Corp.	S	Sandoz, Inc., Colors & Chemicals Div.
MOB	Mobay Chemical Co.	SAC	Southeastern Adhesives Co.
MON	Monsanto Corp.	SAR	Sartomer Industries, Inc.
MRB	Marblette Co.	SCM	SCM Corp., Coatings & Resins Div.
MRT	Morton Norwich Products, Inc., Morton Chemical Co. Div.	SCN	Schenectady Chemicals, Inc.
NCI	Union Camp Corp., Chemical Products Div.	SCO	Scholler Bros., Inc.
NCP	Niles Chemical Paint Co., Kordell Industries Div.	SCP	Henkel Corp.
NEV	Neville Chemical Co.	SDH	Sterling Drug, Inc., Hilton Davis Chemical Co. Div.
NPV	Norris Paint & Varnish Co.	SFP	Stauffer Chemical Co., Plastics Div.
NSC	National Starch & Chemical Corp.	SHC	Shell Oil Co., Shell Chemical Co. Div.
NTC	National Casein Co.	SHT	Shintech, Inc.
NTL	NL Industries, Inc.	SIC	Vistron Corp., Silmar Div.
NVT	USS Novamont, Inc.	SIM	Simpson Timber Co., Chemicals Div.
NWP	Northern Petrochemical Co.	SKT	Textron Inc., Spencer Kellogg Div.
OBC	O'Brien Corp.	SLC	Soluol Chemical Co., Inc.
OCF	Owens-Corning Fiberglas Corp.	SLT	Soltex Polymer Corp.
OMC	Olin Corp.	SM	Mobil Oil Corp.: Mobil Chemical Co.: Chemical Coatings Div.
PAS	Pennwalt Corp.	SNW	Sun Chemical Corp., Chemicals Div.
PC	Proctor Chemical Co.	SOR	M. W. Manufacturers, Southern Resin Div.
		SPC	Insilco Corp., Sinclair Paint Co. Div.
		SPD	General Electric Co., Silicone Products Dept.
		SPL	Spaulding Fibre Co., Inc.
		STC	American Hoechst Corp., Sou-Tex Works

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
STT	Standard T Chemical, Inc.	USO	U.S. Oil Co.
SW	Sherwin-Williams Co.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
TKL	Thiokol Corp.	USS	USS Chemicals Div. of U.S. Steel Corp.
TNA	Ethyl Corp., Polymer Div.	VAL	Valchem Div. of United Merchants & Manufacturers, Inc.
TNO	Trancoa Chemical Corp.	VEL	Velsicol Chemical Corp.
TX	Texaco, Inc.	VPC	Mobay Chemical Corp., Dyestuff Div.
UCC	Union Carbide Corp.	VSV	Valentine Sugars, Inc., Valite Div.
UNO	United-Erie, Inc.	WCA	West Coast Adhesives Co.
UOC	Union Oil Co. of California	WLN	Wilmington Chemical Corp.
UPJ	Upjohn Co.	WRD	Weyerhaeuser Co.
USI	National Distillers & Chemical Corp.:	WTC	Witco Chemical Corp.
	U.S. Industrial Chemicals Co.:		
	National Petro Chemical Corp.		
USM	USM Corp.:	ZGL	Carolina Processing Corp.
	Bostik Div., Southern Region		
	Bostik U.S. Division		

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 244 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

J. Lawrence Johnson

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 1979 are given in table 1.¹

Production of rubber-processing chemicals as a group in 1979 amounted to 395 million pounds, or 7.9 percent more than the 366 million pounds in 1978. Sales of rubber-processing chemicals in 1979 amounted to 280 million pounds, valued at \$345 million, compared with 228 million pounds, valued at \$287 million, in 1978.

The production of cyclic rubber-processing chemicals in 1979 amounted to 339 million pounds, or 4.2 percent more than the 325 million pounds in 1978. Sales in 1979 were 234 million pounds, valued at \$316 million, compared with 201 million pounds, valued at \$258 million, in 1978. Of the total production of cyclic rubber-processing chemicals in 1979, accelerators, activators, and vulcanizing agents accounted for 35.3 percent and antioxidants, antiozonants, and stabilizers for 55.9 percent. Production of antioxidants, antiozonants, and stabilizers, which amounted to 189 million pounds in 1979, included 118 million pounds of amino compounds and 71 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants, antiozonants, and stabilizers in 1979 amounted to 95 million pounds, valued at \$126 million; sales of phenolic and phosphite antioxidant, antiozonants, and stabilizers, were 46 million pounds, valued at \$57 million.

Production of acyclic rubber-processing chemicals in 1979 amounted to 56 million pounds, or 37.5 percent more than the 41 million pounds reported for 1978. Sales in 1979 totaled 46 million pounds, valued at \$29 million, compared with 28 million pounds, valued at \$29 million, in 1978. Dithiocarbamic acid derivatives accounted for 15.1 percent of sales (based on quantity) of acyclic rubber-processing chemicals in 1979.

¹ See 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, 1979

[Listed below are all rubber-processing chemicals for which any reported data on production or sales may be published. (Leaders (...)) are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists 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-----	394,737	279,699	345,220	\$1.23
CYCLIC				
Total-----	338,654	233,994	316,285	1.35
Accelerators, activators, and vulcanizing agents, total-----	119,518	73,060	102,220	1.40
Aldehyde-amine reaction products-----	937	666	6,753	10.14
Thiazole derivatives, total-----	107,927	62,287	74,385	1.19
N-Cyclohexyl-2-benzothiazolesulfenamide-----	5,342	...	...	...
2,2'-Dithiobis(benzothiazole)-----	16,564	9,483	10,581	1.12
2-Mercaptobenzothiazole-----	...	6,314	4,455	.71
2-Mercaptobenzothiazole, zinc salt-----	2,061	2,074	2,277	1.10
All other thiazole derivatives-----	83,960	44,416	57,072	1.28
All other accelerators, activators, and vulcanizing agents ² -----	10,654	10,107	21,082	2.09
Antioxidants, antiozonants, and stabilizers, total----	189,355	141,843	183,045	1.29
Amino compounds, total-----	118,342	95,413	125,751	1.32
Aldehyde- and acetone-amine reaction products-----	6,425	4,301	4,895	1.14
Substituted p-phenylenediamines-----	63,192	46,889	77,183	1.65
Octyldiphenylamine-----	8,500	7,961	8,902	1.12
All other amino compounds ³ -----	40,225	36,262	34,771	.96
Phenolic and phosphite compounds, total-----	71,013	46,430	57,294	1.23
Phenolic compounds, total-----	22,195	16,567	36,255	2.19
Polyphenolics (including bisphenols)-----	13,461	11,604	29,230	2.52
Phenol, alkylated-----	7,133	3,482	4,915	1.41
Phenol, styrenated-----	851	769	526	.68
Other-----	750	712	1,584	2.22
Phosphite compounds-----	48,818	29,863	21,039	.70
Retarder: N-Nitrosodiphenylamine-----	632	475	609	1.28
All other cyclic rubber-processing chemicals ⁴ -----	29,149	18,616	30,411	1.95
ACYCLIC				
Total-----	56,083	45,705	28,935	.63
Dithiocarbamic acid derivatives, total ⁵ -----	10,854	6,893	11,134	1.62
Diethyldithiocarbamic acid, zinc salt-----	1,723	673	607	.90
Dimethyldithiocarbamic acid, zinc salt-----	3,765	2,317	2,674	1.15
All other dithiocarbamic acid derivatives-----	5,366	3,903	7,853	2.01
Thiurams, xanthates and sulfides-----	3,453	...	...	...
All other acyclic rubber-processing chemicals ⁶ -----	41,776	38,812	17,801	.46

¹Calculated from unrounded figures.

²Includes guanidines and other uses not separately shown.

³Includes aldehyde- and acetone-amine reactions products.

⁴Includes blowing agents, peptizers, and other uses not separately shown.

⁵Data 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."

⁶Includes "other" thiurams, xanthates, and sulfides (sales only), 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 REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*ACCELERATORS, ACTIVATORS, AND VULCANIZING AGENTS--CON.	
*THIAZOLE DERIVATIVES--Continued	
4-Morpholinyl 2-benzothiazyl disulfide	BFG, GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide	ACY, USR.
Thiazole derivatives, cyclic, other	USR, VNC.
*ALL OTHER ACCELERATORS, ACTIVATORS AND VULCANIZING AGENTS:	
Bis(morpholinothiocabamoyl) disulfide	ACY.
Dibenzylamine	HXL.
Dimethylethanolamine, toluene-2,4-diisocyanate adduct	DUP.
Di-N,N'-pentamethylenethiuram tetrasulfide	DUP, VNC.
4,4'-Dithiodimorpholine	MON.
2-Imidazolidenethione (1,3-Ethylene-2-thiourea)	DUP, RBC.
m-Phenylenebismaleimide	DUP.
Poly-p-dinitrosobenzene	DUP.
Tetramethylthiuram disulfide	DUP.
Tetramethylthiuram tetrasulfide	GYR.
*ANTIOXIDANTS, ANTIOZONANTS AND STABILIZERS:	
*AMINO ANTIOXIDANTS, ANTIOZONANTS AND STABILIZERS:	
*ALDEHYDE AND ACETONE-AMINE REACTION PRODUCTS:	
Butyraldehyde-aniline condensate	DUP, USR.
Diphenylamine-acetone condensate	ACY, BFG.
*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.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine	UPM.
N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine	USR.
p-Phenylenediamines, substituted, other	UPM

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS--CONTINUED	
*AMINO ANTIOXIDANTS, ANTIOZONANTS, AND STABILIZERS--Continued	
OTHER AMINO ANTIOXIDANTS, ANTIOZONANTS AND STABILIZERS:	
p-Anilinophenol	: BFG.
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, USR.
Octyldiphenylamine, alkylated	: BFG.
N-Phenyl-1-naphthylamine	: USR.
P-(p-Toluenesulfonamido)diphenylamine	: USR.
*PHENOLIC AND PHOSPHITE ANTIOXIDANTS AND STABILIZERS:	
*PHOSPHITES:	
Alkylaryl phosphites mixed	: MCB, X.
Nonylphenyl phosphites, mixed	: MCB, NPI, USR, X.
Polymeric phosphites	: MCB, NPI.
Polyphenolic phosphite, polyalkylated	: BFG, MCB.
Triaryl phosphites	: MCB.
*POLYPHENOLICS (INCLUDING BISPHEOLS):	
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, USR.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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 AND PHOSPHITE 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:	
Antioxidants, antiozonants, and stabilizers, cyclic, other	GYR.
BLOWING AGENTS:	
Dinitrosopentamethylenetetramine	NPI.
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.
Xylenethiol	DUP.
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)	ACY, BFG, GYR, USR.
Rubber processing chemicals, cyclic, all other	KPI.
ACYCLIC	
*ACCELERATORS, ACTIVATORS AND VULCANIZING AGENTS:	
*DITHIOCARBAMIC ACID DERIVATES:	
Dibutylldithiocarbamic acid, nickel salt	DUP, USR.
Dibutylldithiocarbamic acid, sodium salt	DUP, USR, VNC.
Dibutylldithiocarbamic acid, zinc salt	ALC, VNC.
Diethylldithiocarbamic acid, cadmium salt and bis (diethylthiocarbamoyl)disulfide, mixture	VNC.
Diethylldithiocarbamic acid, selenium salt	VNC.
Diethylldithiocarbamic acid, tellurium salt	VNC.
*Diethylldithiocarbamic acid, zinc salt	ALC, GYR, VNC.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

RUBBER-PROCESSING CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACCELERATORS, ACTIVATORS AND VULCANIZING AGENTS--CONT.	
*DITHIOCARBAMIC ACID DERIVATES-Continued	
Dimethyldithiocarbamic acid, bismuth salt	VNC.
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	AJC, FMN, GYR, USR, VNC.
Dithiocarbamic acid derivatives, acyclic, other	DUP, KPI.
THIURAMS:	
Bis(diethylthiocarbamoyl)disulfide	GYR.
Bis(dimethylthiocarbamoyl) disulfide	GYR.
Bis(dimethylthiocarbamoyl) sulfide	GYR, USR.
N,N'-Diocetadecyl-N,N'-diisopropyl thiuram disulfide	USR.
Methyl-ethyl thiurams, mixed	PAS.
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.
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.
n-Octyl mercaptan	PAS, PLC.
tert-Octyl mercaptan	PAS, PLC.
Polymerization regulators, acyclic, other	PLC.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

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

TABLE 3, --RUBBER-PROCESSING CHEMICALS: DIRECTORY OF MANUFACTURERS, 1979

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 1979 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.	LAK	Bofors Lakeway, Inc.
ALC	Alco Chemical Corp.	MCB	Borg-Warner Corp., Borg-Warner Chemicals
		MON	Monsanto Co.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	NEV	Neville Chemical Co.
		NPI	Stepan Chemical Co., Polychem Dept.
DUP	E. I. duPont de Nemours & Co., Inc.		
		PAS	Pennwalt Corp.
FMN	FMC Corp., Agricultural Chemical Div.	PIT	Pitt-Consol Chemical Co.
		PLC	Phillips Petroleum Co.
GYR	Goodyear Tire & Rubber Co.		
		RBC	Fike Chemicals, Inc.
		RCD	Richardson Co.
		RCI	Reichhold Chemicals, Inc.
HXL	Hexcel, Inc., Hexcel Specialty Chemicals		
		SCM	SCM Corp., Organic Chemicals Div.
ICI	ICI Americas Inc., Chemical Specialties Co.		
		UPM	UOP, Inc.
		USR	Uniroyal, Inc., Uniroyal Chemical Div.
KPI	Kenrich Petrochemicals, Inc.	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 29 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

J. Lawrence Johnson

Elastomers (synthetic rubber) are high polymeric materials with properties similar to those of natural rubber. The term "elastomers" as used in this report, means a substance, whether in bale, crumb, powder, latex, and other crude form, which can be vulcanized or similarly processed into a material that can be stretched to at least twice its original length and, after having been so stretched and the stress removed, will return with force to approximately its original length. U.S. production and sales of elastomers in 1979 are shown in table 1.¹

Total U.S. production² of synthetic rubber in 1979 amounted to 5,860 million pounds, an increase of 1.7 percent from that produced in 1978. Total sales² of elastomers in 1979 amounted to 4,002 million pounds, an increase of 9.9 percent from that sold in 1978.

Styrene-butadiene rubber (SBR, or S-type rubber) in 1979 continued to be the elastomer produced in the greatest quantity as it has been for more than a quarter of a century. U.S. production of S-type rubber, including 30 million pounds of its vinylpyridine sub-type, amounted to 3,087 million pounds in 1979, an increase of 1.6 percent from that reported for 1978. Solution polymerized butadiene rubber, a stereo type elastomer, was produced domestically in 1979 in the next largest amount--727 million pounds. Other principal types of synthetic elastomers for which U.S. production data are reported separately are ethylene-propylene rubber, production of which was 389 million pounds in 1979, isobutylene-isoprene (butyl) rubber, production of which was 427 million pounds,³ acrylonitrile butadiene (N-type) rubber, production of which was 161 million pounds, and polychloroprene (Neoprene) rubber, production of which was 404 million pounds.³

Sales of S-type rubber by U.S. producers in 1979 (including its vinylpyridine sub-type) amounted to 1,705 million pounds, an increase of 10.6 percent over sales reported for 1978. Sales of solution polymerized butadiene rubber amounted to 403 million pounds, and those of ethylene-propylene rubber to 352 million pounds. Sales of N-type rubber in 1979 amounted to 125 million pounds. Sales of solution polymerized butadiene rubber in 1979 increased from sales in 1978 by 27.2 percent, and sales of ethylene-propylene rubber increased 1.8 percent. Sales of N-type rubber in 1979 were 8.8 percent above those in 1978.

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

²Does not include urethane type elastomers.

³Reported by the Rubber Manufacturers' Association.

TABLE 1.--ELASTOMERS (SYNTHETIC RUBBER):¹ U.S. PRODUCTION AND SALES, 1979

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

ELASTOMERS	PRODUCTION ²	SALES		
		QUANTITY ²	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	5,860,083	4,002,234	2,324,653	\$0.58
Cyclic-----	3,267,457	1,929,398	725,327	.38
Acyclic-----	2,592,626	2,072,836	1,599,326	.77
Acrylonitrile-butadiene type (N-type)-----	161,493	124,768	90,646	.73
Butadiene (emulsion polymerized) type-----	42,573	29,599	12,778	.43
Chloroprene type (Neoprene)-----	(⁴)	...	...	...
Ethylene-propylene type-----	388,867	352,411	213,190	.60
Isobutylene-isoprene type (Butyl)-----	(⁵)	...	...	...
Silicone type-----	89,335	76,135	264,625	3.48
Stereo elastomer: Butadiene (solution polymerized) type-----	727,451	402,900	171,069	.42
Styrene-butadiene type (S-type)-----	3,056,652	1,690,321	583,134	.34
Styrene-butadiene-vinylpyridine type-----	29,970	14,769	12,283	.83
Urethane type-----	(⁶)	...	...	...
All other elastomers ⁷ -----	1,363,742	1,311,331	976,928	.74

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

²Includes oil content of oil-extended elastomers.

³Calculated from unrounded figures.

⁴Included in "All other elastomers." The production of polychloroprene rubber in 1979 was reported by the Rubber Manufacturers' Association to be 183,341 metric tons (404,193,569 pounds).

⁵Included in "All other elastomers." The production of butyl rubber in 1979 was reported by the Rubber Manufacturers' Association to be 193,711 metric tons (427,055,271 pounds).

⁶The data on production and sales of urethane elastomers are reported in the section "Plastics and Resin Materials" with urethane plastics and polyols.

⁷Includes production and sales for acrylic ester, butyl, chloroprene, epichlorohydrin, fluorinated, isobutylene, isoprenes, and polysulfide elastomers, certain solution elastomers, chlorinated rubber, chlorosulfonated polyethylene, thermoplastic rubber, and miscellaneous elastomers.

TABLE 3.--ELASTOMERS (SYNTHETIC RUBBER): DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of elastomers to the U.S. International Trade Commission for 1979 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.	HDM	Hardman, Inc.
ADC	Anderson Development Co.	HPC	Hercules, Inc.
ASY	American Synthetic Rubber Corp.		
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	ICI	ICI Americas Inc., Chemical Specialties Co.
CBN	Cities Service Co., Columbian Div.	MIL	Milliken & Co., Milliken Chemical Div.
CPY	Copolymer Rubber & Chemical Corp.	MMM	Minnesota Mining and Manufacturing Co.
DCC	Dow Corning Corp.	PLC	Phillips Petroleum Co.
DKA	Denka Chemical Corp.	PLR	Polysar, Inc., Polysar Latex Div.
DUP	E. I. duPont de Nemours & Co., Inc.	PRC	Products Research & Chemical Corp.
ENJ	Exxon Chemical Co., U.S.A.	SHC	Shell Oil Co., Shell Chemical Co. Div.
		SPD	General Electric Co., Silicone Products Dept.
	Firestone Tire & Rubber Co.:	SWS	Stauffer Chemical Co., SWS Silicones Div.
FIR	Firestone Plastics Co. Div.		
FRS	Firestone Synthetic Rubber & Latex Co. Div.	TKL	Thiokol Chemical Corp.
		TUS	Texas-U.S. Chemical Co.
GNT	General Tire & Rubber Co., Chemical Div.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
GRD	W. R. Grace & Co., Polymers & Chemical Div.		
GYR	Goodyear Tire & Rubber Co.	WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.

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

STATISTICAL HIGHLIGHTS

Sharon K. Thompson

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 2,133 million pounds in 1979, an increase of 2.3 percent from the 2,086 million pounds reported for 1978. Sales of plasticizers totaled 1,814 million pounds, valued at \$826 million, in 1979, compared with 1,748 million pounds, valued at \$703 million, in 1978.

Production of cyclic plasticizers in 1979, which consisted chiefly of the esters of phthalic anhydride, phosphoric acid, and trimellitic acid, amounted to 1,690 million pounds, and increase of 1.0 percent from the 1,673 million pounds reported for 1978. Sales of cyclic plasticizers in 1979 totaled 1,421 million pounds, valued at \$576 million, compared with 1,380 million pounds, valued at \$487 million, in 1978. The most important cyclic plasticizers were the dioctyl phthalates, with production of 336 million pounds, in 1979.

Production of acyclic plasticizers in 1979 totaled 442 million pounds, an increase of 7.2 percent from the 413 million pounds reported for 1978. Sales of acyclic plasticizers totaled 393 million pounds, valued at \$250 million, in 1979, compared with 367 million pounds, valued at \$216 million, in 1978. Epoxidized soya oils were the most important acyclic plasticizer in 1979 with production of 72 million pounds.

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1979

[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	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
		1,000 pounds	1,000 dollars	Per pound
Grand total-----	2,132,951	1,813,987	825,541	\$0.46
Benzenoid ³ -----	1,825,925	1,532,596	649,848	.42
Nonbenzenoid-----	307,026	281,391	175,693	.62
CYCLIC				
Total-----	1,690,485	1,420,740	575,707	.41
Phosphoric acid esters ⁴ -----	105,687	89,987	68,589	.76
Phthalic anhydride esters, total-----	1,290,988	1,232,527	455,157	.37
Dibutyl phthalates (including diisobutyl phthalates)-----	17,157	17,164	6,627	.39
Diisodecyl phthalate ⁵ -----	174,784	152,994	55,301	.36
Dimethyl phthalate-----	10,527	9,682	4,717	.49
Dioctyl phthalates, total ⁵ -----	335,966	341,594	119,608	.35
Di(2-Ethylhexyl) phthalate-----	300,566	318,335	111,256	.35
All other dioctyl phthalates-----	35,400	23,259	8,352	.36
Di-tridecyl phthalate-----	27,368	21,820	9,959	.46
All other phthalic anhydride esters-----	725,186	689,273	258,945	.38
Triisooctyl trimellitate-----	8,958	5,924	3,769	.64
Triooctyl trimellitate-----	11,570	12,264	6,860	.56
All other cyclic plasticizers ⁶ -----	273,282	80,038	41,332	.52
ACYCLIC				
Total-----	442,466	393,247	249,834	.64
Adipic acid esters, total-----	75,468	64,244	35,200	.55
Di(2-ethylhexyl) adipate-----	46,665	44,143	22,694	.51
Diisodecyl adipate-----	1,287	1,226	698	.57
Diisooctyl adipate-----	259	263	146	.55
Diisopropyl adipate-----	1,274	1,393	1,066	.77
Di-tridecyl adipate-----	2,398	...	...	...
All other adipic acid esters-----	23,585	17,219	10,596	.62
Complex linear polyesters and polymeric plasticizers, total-----	56,274	47,848	35,981	.75
Adipic acid type-----	28,361	23,355	17,211	.74
All other-----	27,913	24,493	18,770	.77
Epoxidized esters, total-----	119,412	122,147	65,660	.54
Epoxidized soya oils-----	71,879	77,189	39,388	.51
All other epoxidized esters-----	47,533	44,958	26,272	.58
Isopropyl myristate-----	2,828	2,609	2,878	1.10
Oleic acid esters, total-----	15,888	13,099	6,867	.52
Butyl oleate-----	2,574	...	...	...
Propyl oleates-----	362	...	...	...
All other oleic acid esters-----	12,952	13,099	6,867	.52

See footnotes at end of table.

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1979--CONTINUED

PLASTICIZERS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACYCLIC--Continued				
Palmitic acid esters, total-----	7,459	5,529	3,841	\$0.69
Isopropyl palmitate-----	4,367	4,419	2,936	.66
All other palmitic acid esters-----	3,092	1,110	905	.82
Phosphoric acid esters-----	19,454	15,422	12,738	.83
Sebacic acid esters-----	975	874	1,219	1.40
Stearic acid esters, total-----	13,679	12,343	7,328	.59
n-Butyl stearate-----	8,277	7,512	3,779	.50
Isobutyl stearate-----	1,700	1,736	985	.57
All other stearic acid esters-----	3,702	3,095	2,564	.83
All other acyclic plasticizers ⁷ -----	131,029	109,132	78,122	.72

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, 1979, 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, citric and acetylcitric, myristic, pelargonic, ricinoleic, acetylricinoleic, glyceryl, and glycol esters, and other acyclic plasticizers.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979
 [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]

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
PLASTICIZERS	
CYCLIC	
Diethylene glycol dibenzoate	VEL.
Dipropandiol dibenzoate (Dipropylene glycol dibenzoate)	VEL.
N-Ethyl-p-toluenesulfonamide	MON, NES.
Isopropylidenediphenoxypropanol	DOM.
*PHOSPHORIC ACID ESTERS:	
Cresyl diphenyl phosphate	FMP, SFS.
Diphenyl octyl phosphate	MON.
Tricresyl phosphate	FMP, SFS, SM.
Triphenyl phosphate	EK, MON.
Phosphoric acid esters, all other	SFS.
*PHTHALIC ANHYDRIDE ESTERS:	
Alkyl benzyl phthalates	MON.
Bis(2-ethylhexyl)terephthalate	EKT.
Butyl benzyl phthalate	MON.
Butyl cyclohexyl phthalate	CPS.
Butyl octyl phthalates	RCI, USS.
Di(2-butoxyethyl) phthalate	HAL.
*Dibutyl phthalate (Including diisobutyl phthalate)	BAS, EKT, HCC, RCI, USS, WTH.
Dicyclohexyl phthalate	MON, PFZ.
Diethyl isophthalate	PFZ.
Diethyl phthalate	EKT, KF, MON, PFZ, TCC.
Di-n-hexyl phthalate	MON.
*Diisodecyl phthalate	BAS, CO, ENJ, HCC, HN, RCI, TEK, USS.
Diisohexyl phthalate	ENJ.
Diisononyl phthalate	ENJ, USS.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--
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, TCC.
*DIOCTYL PHTHALATES:	
*Di(2-ethylhexyl) phthalate	BAS, BFG, CO, EKT, HCC, HN, RCI, TEK, USS, WTH.
Diiso-octyl phthalate	HCC, HN, RCI, USS.
Di-n-octyl phthalate	EK.
Diocetyl phthalates, all other	WTH.
Diphenyl phthalate	MON.
Di-tridecyl phthalate	ENJ, HCC, HN, RCI, TEK, USS.
Diundecyl phthalate	MON.
GLYCOL PHTHALATE ESTERS:	
Butyl phthalyl butyl glycolate	MON, PFZ.
Hexyl n-decyl phthalate	CO, HN, TEK.
Hexyl iso-octyl phthalate	PFZ.
Octyl decyl fatty acid phthalates	HCC.
n-Octyl n-decyl phthalate	RCI, USS.
Phthalic anhydride esters, all other	BAS, HCC, HDW, HN, MON, USS.
Polyethylene glycol dibenzoate	VEL.
Tetrahydrofurfuryl oleate	EMR.
Toluenesulfonamide o, p-mixtures	MON.
TRIMELLITIC ACID ESTERS:	
Tri(2-ethylhexyl) trimellitate	HCC, PFZ.
Triisododecyl trimellitate	PFZ.
Triisononyl trimellitate	ENJ.
*Triisooctyl trimellitate	HN, RCI, RUB, USS.
*Tri-n-octyl n-decyl trimellitate	PFZ, RCI, RUB.
*Triocetyl trimellitate	EKT, HN, RCI, RUB, WTH.
Trimellitic acid esters, all other	HAL, HCC, HDW, MON, PFZ, TEK, USS, X.
Cyclic plasticizers, all other	HDW, HN, MON, NEV, WTH.
ACYCLIC	
*ADIPIC ACID ESTERS:	
Di(2-(2-butoxyethoxy)ethyl) adipate	EKT, HAL, RCI, TKL.
*Di(2-ethylhexyl) adipate	HAL, HCC, HN, MON, PFZ, RCI, RH, RUB, TEK, USS, WM, WTH.
Diisobutyl adipate	HAL, HCC.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--
CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ADIPIC ACID ESTERS--CONTINUED	
*Dioodecyl adipate	HCC, HUM, PFZ, RCI, RH, RUB, TEK, USS.
*Diiso-octyl adipate	HAL, HCC, RCI, RH.
*Diisopropyl adipate	SBC, VND, WM, WTH.
Di-n-octyl adipate	DA, WTH.
*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	EKT, HAL, HCC, HUM, MON, RUB.
AZELAIC ACID ESTERS:	
Di(2-ethylhexyl) azelate	EKT, EMR, HAL, HCC, RCI, WM.
Diiso-octyl azelate	EMR.
Azelaic acid esters, all others	EKT, EMR, HAL, PFZ.
CITRIC AND ACETYLCITRIC ACID ESTERS:	
Tributyl acetylacrylate	PFZ.
Triethyl acetylacrylate	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, EKT, EKX, EMR, HAL, HCC, HPC, MON, PFZ, RCI, RH, VND, WTH.
Di(2-(2-butoxyethoxy)ethyl) methane	TKL.
Diiso-octyl diglycolate	CCA.
*EPOXIDIZED ESTERS:	
Butyl epoxystearates	WTC.
Epoxidized linseed oils	SHX, SWT, UCC, VIK, WTC, X.
*Epoxidized soya oils	FMP, RH, SHX, SWT, UCC, WTC, X.
Epoxy oleates, mixed	RH.
2-Ethylhexyl epoxytallates	UCC.
Octyl epoxystearates	WTC.
Octyl epoxytallates	RH, WTC.
Epoxidized esters, all other	UCC, VIK.
Glyceryl tripropionate	EKT.
LAURIC ACID ESTERS:	
Lauric acid esters, all other	HAL.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--
CONTINUED

PLASTICIZERS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
MYRISTIC ACID ESTERS:	
*Isopropyl myristate--	ARC, RWC, TCH, MM, WTH.
Myristic acid esters, all other--	SCP.
*OLEIC ACID ESTERS:	
*Butyl oleate--	ARC, CHL, CIN, ELC, EMR, GRO, HAL, WTH.
Decyl oleate--	SCP, VND.
Glyceryl trioleate (Triolein)--	EMR, GRO.
Isobutyl oleate--	DA.
Methyl oleate--	EMR, GRO, TCH.
*PROPYL OLEATES:	
Isopropyl oleate--	SCP.
n-Propyl oleate--	CHL, EMR, GRO, TCH.
Oleic acid esters, all other--	EMR, HAL.
PALMITIC ACID ESTERS:	
2-Ethylhexyl palmitate--	SBC, VND, WTH.
Isobutyl palmitate--	ARC, MM.
Isopropyl palmitate--	ARC, RWC, MM, WTH.
2-Methoxyethyl palmitate--	EKT.
Palmitic acid esters, all other--	EKT, SCP.
PELARGONIC ACID ESTERS:	
Glycol pelargonate--	EMR, WTH.
Isodecyl pelargonate--	EMR.
Triethylene glycol dipelargonate--	EKT.
*PHOSPHORIC ACID ESTERS:	
Tri(2-butoxyethyl) phosphate--	FMP.
Tributyl phosphate--	MON.
Triethyl phosphate--	EKT.
Trioctyl phosphate--	HN, UCC.
RICINOLEIC AND ACETYLRICINOLEIC ACID ESTERS:	
n-Butyl acetylricinoleate--	NIL.
Butyl ricinoleate--	NIL.
Glyceryl monoricinoleate--	NIL.
Glyceryl tri(acetylricinoleate)--	NIL.
Methyl ricinoleate--	NIL.
Ricinoleic and acetylricinoleic acid esters, all other--	NIL, RH.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--
CONTINUED

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

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of plasticizers to the U.S. International Trade Commission for 1979 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.
CIN	Stockhausen, Inc.	RH	Rohm & Haas Co.
CO	Conoco, Inc.	RUB	Hooker Chemicals Corp., Hooker Chemicals & Plastics Corp., Ruco Div.
CPS	CPS Chemical Co.	RWC	Robinson-Wagner Co., Inc.
DA	Diamond Shamrock Corp.	SBC	Scher Bros., 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.
ELC	Elco Corp., Sub. of Detrex Chemical Industries, Inc.	TCC	Sybron Corp., Chemical Division/Tanatex
EMR	Emery Industries, Inc.	TCH	Emery Industries, Inc., Trylon Div.
ENJ	Exxon Chemical Co. U.S.A.	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.	VEL	Velsicol Chemical Corp.
HDW	Hardwicke Chemical Co.	VIK	Viking Chemical Co.
HN	Tenneco Chemicals, Inc.	VND	Van Dyk & Co., Inc.
HPC	Hercules, Inc.	WM	Inolex Corp.
HUM	Kraft, Inc., Humko Sheffield Chemical	WTC	Witco Chemical Corp.
KF	Kay-Fries Inc., Member Dynamit Nobel Group	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 57 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 1979 amounted to 4,948 million pounds, or 4.4 percent more than the 4,738 million pounds reported for 1978. Sales of bulk surface-active agents in 1979 amounted to 2,859 million pounds, valued at \$1,143 million, compared with sales in 1978 of 2,708 million pounds, valued at \$966 million. In terms of quantity, sales in 1979 were 5.6 percent higher than in 1978; in terms of value, sales in 1979 were 18.3 percent greater than in 1978.

Production of anionic surface-active agents in 1979 amounted to 3,159 million pounds, or 63.8 percent of the total surfactant output reported for 1979. Sales of anionics in 1979 amounted to 1,498 million pounds valued at \$419 million.

Production of cationic surface-active agents in 1979 amounted to 294 million pounds, 0.01 percent less than the 296 million pounds reported in 1978. Production of nonionic surface-active agents amounted to 1,475 million pounds in 1979, 11.4 percent greater than the 1,324 million pounds reported in 1978. Sales of cationic surface-active agents in 1979 increased by 10.2 percent in terms of quantity and increased 17.0 percent in terms of value over 1978. Sales of nonionics in 1979 increased by 15.1 percent, in terms of quantity and by 21.7 percent in terms of value over 1978.

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, 1979

[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	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	4,948,439	2,859,480	1,143,506	\$0.40
Benzenoid ⁴ -----	1,235,265	677,840	296,902	.44
Nonbenzenoid ⁵ -----	3,713,174	2,181,640	846,604	.39
<i>AMPHOTERIC</i>				
Total-----	20,519	19,297	18,835	.98
<i>ANIONIC</i>				
Total-----	3,158,586	1,497,966	419,102	.28
Carboxylic acids (and salts thereof), total-----	878,120	175,209	69,707	.40
Amine salts of fatty, rosin, and tall oil acids-----	672	251	320	1.27
Carboxylic acids having amide, ester, or ether linkages-----	4,402	4,581	5,992	.55
Coconut oil acids, potassium salt-----	...	1,615	1,512	.94
Coconut oil acids, sodium salt-----	151,362	2,417	1,168	.48
Mixed vegetable fatty acids, potassium salt-----	3,654	2,884	6,548	2.27
Oleic acid, potassium salt-----	1,464	...	...	...
Oleic acid, sodium salt-----	594	174	151	.87
Tall oil acids, potassium salt-----	10,501	3,907	2,214	.57
Tall oil acids, sodium salt-----	2,501	1,449	385	.27
Tallow acids, sodium salt-----	387,359	23,418	7,818	.33
All other carboxylic acids (and salts thereof)-----	315,611	134,513	43,599	.32
Phosphoric and polyphosphoric acid esters (and salts thereof), total-----	38,681	24,732	19,432	.79
Alcohols and phenols, alkoxyated and phosphated, total-----	19,399	16,587	12,290	.74
Dinonylphenol, ethoxyated and phosphated-----	1,080	757	594	.78
Mixed linear alcohols, ethoxyated and phosphated-----	3,836	3,143	2,325	.74
Nonylphenol, ethoxyated and phosphated-----	5,795	4,234	2,953	.70
Phenol, ethoxyated and phosphated-----	1,346	989	745	.75
Tridecyl alcohol, ethoxyated and phosphated-----	814	590	507	.86
All other-----	6,528	6,874	5,166	.75
All other phosphoric and polyphosphoric acid esters (and salts thereof)-----	19,282	8,145	7,142	.88
Sulfonic acids (and salts thereof), total-----	1,641,120	1,067,108	207,612	.19
Alkybenzenesulfonates, total-----	655,612	184,591	76,856	.42
Dodecylbenzenesulfonic acid-----	216,278	107,405	39,554	.37
Dodecylbenzenesulfonic acid, calcium salt-----	10,514	9,564	8,186	.86
Dodecylbenzenesulfonic acid, isopropylamine salt-----	3,739	3,655	2,399	.66
Dodecylbenzenesulfonic acid, sodium salt-----	307,036	43,957	14,251	.32
Dodecylbenzenesulfonic acid, triethanolamine salt-----	5,181	5,420	2,447	.45
All other-----	112,864	14,590	10,019	.69
Ligninsulfonates, total-----	806,134	750,394	55,780	.07
Ligninsulfonic acid, ammonium salt-----	13,941	12,864	765	.06
Ligninsulfonic acid, calcium salt-----	590,131	540,524	22,095	.04
Ligninsulfonic acid, chromium salt-----	98,898	95,865	15,326	.16
Ligninsulfonic acid, iron salt-----	2,110	2,110	368	.17

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1979--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	1,000	1,000	Per
Ligninsulfonates--Continued	pounds	pounds	dollars	pound
Ligninsulfonic acid, sodium salt-----	99,765	97,742	16,938	\$0.17
All other-----	1,289	1,289	288	.22
Naphthalenesulfonates-----	21,330	16,228	9,550	.59
Sulfonic acids having amide linkages, total-----	5,785	3,976	4,510	1.13
Sulfosuccinamic acid derivatives-----	3,987	2,208	1,749	.79
Taurine derivatives-----	1,798	1,768	2,761	1.56
Sulfonic acids having ester or ether linkages,				
total-----	71,274	32,274	36,017	1.12
Sulfosuccinic acid esters, total-----	25,600	19,534	17,117	.88
Sulfosuccinic acid, bis(2-ethylhexyl)ester,				
sodium salt-----	20,909	15,618	14,836	.95
All other-----	4,691	3,916	2,281	.58
Other sulfonic acids having ester or ether				
linkages-----	45,674	12,740	18,900	1.49
All other sulfonic acids (and salts thereof)-----	80,985	79,645	24,899	.31
Sulfuric acid esters (and salts thereof), total-----	552,725	215,819	117,286	.54
Acids, amides, and esters, sulfated, total-----	24,279	18,317	11,325	.62
Butyl oleate, sulfated, sodium salt-----	877	854	377	.44
Isopropyl oleate, sulfated, sodium salt-----	92	92	78	.85
Oleic acid, sulfated, disodium salt-----	6,672	6,495	2,243	.35
Propyl oleate, sulfated, sodium salt-----	474	203	106	.52
Tall oil sulfated, sodium salt-----	2,544	1,282	394	.31
All other-----	13,620	9,391	8,127	.87
Alcohols, sulfated, total-----	246,367	52,649	45,116	.86
Dodecyl sulfate, ammonium salt-----	14,486	12,961	10,808	.83
Dodecyl sulfate, magnesium salt-----	209	166	230	1.39
Dodecyl sulfate, sodium salt-----	19,883	18,510	16,295	.88
Dodecyl sulfate, triethanolamine salt-----	5,973	5,401	4,903	.91
Octyl sulfate, sodium salt-----	241	145	156	1.08
All other-----	205,575	15,466	12,724	.82
Ethers, sulfated, total-----	262,714	128,488	53,597	.42
Dodecyl alcohol, ethoxylated and sulfated,				
sodium salt-----	14,760	14,522	11,771	.98
Mixed linear alcohols, ethoxylated and sulfated,				
ammonium salt-----	95,125	68,676	21,552	.31
Mixed linear alcohols, ethoxylated and sulfated,				
sodium salt-----	139,437	35,706	13,280	.37
All other-----	13,392	9,584	6,994	.73
Natural fats and oils, sulfated, total-----	19,365	16,365	7,248	.44
Castor oil, sulfated, sodium salt-----	5,365	5,079	2,617	.52
Cod oil, sulfated, sodium salt-----	1,230	1,206	342	.28
Tallow sulfated, sodium salt-----	3,619	3,470	1,227	.35
All other-----	9,151	6,610	3,062	.46
Other anionic surface-active agents ⁶ -----	47,940	15,098	5,065	.34
<i>CATIONIC</i>				
Total-----	294,222	214,697	177,326	.83
Amine oxides and oxygen-containing amines (except				
those having amide linkages), total-----	78,350	23,872	19,185	.80
Acyclic, total-----	69,541	18,391	15,170	.82
(Tallow alkyl)amine, ethoxylated-----	3,002	2,656	1,772	.67
All other-----	66,539	15,735	13,398	.85

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
<i>CATIONIC--Continued</i>				
Amine oxides and oxygen-containing amines (except those having amide linkages)--Continued	1,000	1,000	1,000	Per
Cyclic (including imidazoline and oxazoline derivatives)-----	8,809	5,481	4,015	pound
				\$0.73
Amines and amine oxides having amide linkages, total-----	30,275	21,725	18,370	.85
Tall oil acids-diethylenetriamine condensate-----	7,223	6,940	3,156	.45
Tall oil acids polyalkylenepolyamine condensate-----	6,880	6,144	5,381	.88
All other-----	16,172	8,641	9,833	1.14
Amines, not containing oxygen (and salts thereof), total-----	85,406	74,278	60,774	.82
Diamines, polyamines, and amino salts, total-----	25,353	23,202	16,329	.70
Imidazoline derivatives-----	974	1,078	1,637	1.52
N-(9-Octadecenyl)trimethylenediamine-----	1,689	1,658	1,430	.86
All other-----	22,690	20,466	13,262	.65
Primary monoamines, total-----	31,355	26,337	19,832	.75
(Hydrogenated tallow alkyl)amine-----	4,182	3,403	2,421	.71
9-Octadecenylamine-----	4,937	4,719	3,763	.80
(Tallow alkyl)amine-----	15,000	11,314	6,261	.55
All other-----	7,236	6,901	7,387	1.07
Secondary and tertiary monoamines, total-----	28,698	24,739	24,613	.99
N,N-Dimethyloctadecylamine-----	1,227	1,134	1,230	1.08
All other-----	27,471	23,605	23,383	.99
Quaternary ammonium salts, containing oxygen-----	12,835	8,960	9,588	1.07
Quaternary ammonium salts, not containing oxygen, total-----	86,647	85,171	68,181	.80
Acyclic, total-----	68,998	68,079	44,326	.65
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	52,126	52,349	26,746	.51
All other-----	16,872	15,730	17,580	1.12
Benzenoid, total-----	17,649	17,092	23,855	1.40
Benzyl(coconut oil alkyl)dimethylammonium chloride-----	130	106	147	1.39
Benzylmethyl(mixed alkyl)ammonium chloride-----	11,045	10,940	16,104	1.47
Benzyltrimethylammonium chloride-----	955	943	598	.63
All other-----	5,519	5,103	7,006	1.37
Other cationic surface-active agents-----	709	691	1,228	1.78
<i>NONIONIC</i>				
Total-----	1,475,112	1,127,520	528,243	.47
Carboxylic acid amides, total-----	70,004	46,910	35,152	.75
Diethanolamine condensates (amine/acid ratio=2/1), total-----	22,015	16,609	10,940	.66
Capric acid-----	97	112	104	.92
Castor oil acids-----	2,585	1,210	751	.62
Coconut oil acids-----	10,679	8,454	5,399	.64
Coconut oil and tallow acids-----	1,884	1,835	1,159	.63
Lauric and myristic acids-----	2,637	1,615	1,477	.91
Oleic acid-----	833	...	...	...
Stearic acid-----	412	...	...	...
Tall oil acids-----	218	218	147	.67
All other-----	2,670	3,165	1,903	.60

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
<i>NONIONIC--Continued</i>				
Carboxylic acid amides--Continued	1,000	1,000	1,000	Per
Diethanolamine condensates (other amine/acid ratios), total-----	pounds	pounds	dollars	pound
Coconut oil acids (amine/acid ratio=1/1)-----	30,890	24,064	18,981	\$0.79
Lauric acid (amine/acid ratio=1/1)-----	16,427	15,961	11,619	.73
Lauric and myristic acid (amine/acid ratio=1/1)---	8,479	4,520	4,322	.96
Linoleic acid-----	...	2,348	2,068	.88
Oleic acid (amine/acid ratio=1/1)-----	299	277	276	1.00
Stearic acid (amine/acid ratio=1/1)-----	173	119	85	.72
All other-----	135	124	73	.59
All other carboxylic acid amides, total-----	5,377	715	538	.75
Coconut oil acids, ethanolamine condensates-----	17,099	6,237	5,232	.84
All other-----	5,353	1,842	1,350	.73
	11,746	4,395	3,882	.88
Carboxylic acid esters, total-----	254,349	195,517	133,297	.68
Anhydrosorbitol esters, total-----	33,077	22,244	16,433	.74
Anhydrosorbitol monolaurate-----	...	3,481	3,043	.87
Anhydrosorbitol mono-oleate-----	5,721	5,372	4,177	.78
All other-----	27,356	13,391	9,213	.69
Diethylene glycol esters, total-----	1,421	1,145	875	.76
Diethylene glycol monolaurate-----	205	207	161	.78
Diethylene glycol mono-oleate-----	27	32	30	.92
Diethylene glycol monostearate-----	238	249	200	.80
All other-----	951	657	484	.74
Ethoxylated anhydrosorbitol esters, total-----	29,806	27,125	19,073	.70
Ethoxylated anhydrosorbitol mono-oleate-----	5,274	4,810	3,303	.68
Ethoxylated anhydrosorbitol monostearate-----	9,750	8,521	5,931	.70
All other-----	14,782	13,794	9,839	.71
Ethylene glycol esters, total-----	3,935	3,684	2,029	.55
Ethylene glycol monostearate-----	1,587	1,476	891	.60
All other-----	2,348	2,208	1,138	.52
Glycerol esters, total ⁸ -----	77,594	63,025	41,001	.65
Glycerol esters of chemically defined acids, total-----	22,923	18,862	11,882	.63
Glycerol mono-oleate-----	3,654	3,164	2,258	.71
Glycerol monostearate-----	18,334	14,745	8,547	.58
All other-----	935	953	1,077	1.13
Glycerol esters of mixed acids, total-----	54,671	44,163	29,119	.66
Glycerol monoester of hydrogenated cottonseed oil acids-----	2,562	1,326	1,444	1.09
Glycerol monoester of hydrogenated soybean oil acids-----	10,983	9,953	7,425	.72
All other-----	41,126	32,884	20,250	.62
Natural fats and oils, ethoxylated, total-----	18,614	18,918	11,268	.60
Castor oil, ethoxylated-----	9,157	8,944	5,026	.56
Hydrogenated castor oil, ethoxylated-----	...	4,798	3,421	.71
Lanolin, ethoxylated-----	1,679	1,596	1,252	.78
All other-----	7,778	3,580	1,569	.44
Polyethylene glycol esters, total-----	48,140	38,556	20,863	.54
Polyethylene glycol esters of chemically defined acids, total-----	24,843	19,814	14,433	.73
Polyethylene glycol dilaurate-----	1,312	1,127	1,003	.89
Polyethylene glycol dioleate-----	3,028	977	685	.70
Polyethylene glycol distearate-----	2,916	2,697	2,279	.85
Polyethylene glycol monolaurate-----	6,298	5,041	4,106	.81
Polyethylene glycol mono-oleate-----	4,327	3,734	2,217	.59
Polyethylene glycol monostearate-----	6,028	5,507	3,641	.66
All other-----	934	731	502	.69

See footnotes at end of table.

TABLE 1. -- SURFACE-ACTIVE AGENTS; U.S. PRODUCTION AND SALES, 1979 -- CONTINUED

SURFACE-ACTIVE AGENTS	PRODUCTION ¹	SALES ²		
		QUANTITY ¹	VALUE	UNIT VALUE ³
<i>NONIONIC--Continued</i>				
Carboxylic acid esters--Continued	1,000	1,000	1,000	Per
Polyethylene glycol esters--Continued	pounds	pounds	dollars	pound
Polyethylene glycol esters of mixed acids-----	23,297	18,742	6,430	\$0.34
Polyglycerol esters-----	1,049	1,027	1,048	1.02
1,2-Propanediol monolaurate-----	76	69	94	1.37
1,2-Propanediol monostearate-----	2,101	1,657	1,336	.81
All other carboxylic acid esters-----	38,536	18,067	19,277	1.07
Ethers, total-----	1,119,286	879,402	354,436	.40
Benzenoid ethers, total-----	432,833	362,562	136,457	.38
Dodecylphenol, ethoxylated-----	15,780	14,790	5,781	.39
Nonylphenol, ethoxylated-----	307,747	266,603	94,100	.35
Phenol, ethoxylated-----	2,899	2,037	1,004	.49
All other-----	106,407	79,132	35,572	.45
Nonbenzenoid ethers, total-----	645,958	488,262	202,225	.41
Chemically-defined linear alcohols, alkoxy- total-----	14,550	10,062	6,792	.69
Decyl alcohol, ethoxylated-----	4,554	2,909	1,167	.40
9-Octadecenyl alcohol, ethoxylated-----	1,655	494	452	.92
Oleyl alcohol, ethoxylated-----	346	282	385	1.36
All other-----	7,995	6,377	4,788	.75
Mixed linear alcohols, alkoxy- total-----	631,409	478,200	195,433	.41
Mixed linear alcohols, ethoxylated-----	567,183	445,803	179,898	.40
Mixed linear alcohols, ethoxylated and pro- poxylated-----	28,854	28,745	12,660	.44
All other-----	35,372	3,652	2,875	.79
Other ethers and thioethers, total-----	40,495	28,578	15,755	.55
Mixed alcohols, ethoxylated-----	1,568	1,355	1,047	.77
Tridecyl alcohols, ethoxylated-----	9,367	7,521	2,845	.52
All other-----	29,560	19,702	11,863	.60
Other nonionic surface-active agents ⁷ -----	31,473	5,691	5,358	.94

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

⁸Complex glycerol esters are included in all other carboxylic acid esters.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979

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

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMPHOTERIC	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium chloride, disodium salt	SCP.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium hydroxide, disodium salt	BRD, WTC.
(1-Carboxyheptadecyl)trimethylammonium hydroxide, inner salt	DUP.
(Carboxymethyl)3-(coconut oil amido)propylidimethylammonium chloride, sodium salt	X.
(Carboxymethyl)3-(coconut oil amido)propylidimethylammonium hydroxide, inner salt	HLL, WM.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolium hydroxide, sodium derivative, sodium salt	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolium hydroxide, sodium derivative, sodium salt	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt	GAF, MIR.
(1-Carboxyundecyl)trimethylammonium hydroxide, inner salt	SCP.
N-(Coconut oil alkyl)- β -alanine, sodium salt	DUP, SCP.
N-Dodecyl-3-iminodipropionic acid	SCP.
Mixed acyclic primary amines, ethoxylated and sulfated, sodium salt	DUP, RH.
Oleic acid-ethylenediamine condensate, propoxylated and sulfated, sodium salt	S.
Polypeptide ammonium salt	X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
AMPHOTERIC--CONTINUED	
Polypeptide ethyl ester	X.
Polypeptide, sodium salt	X.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt	SCP.
Amphoteric surface-active agents, all other	ARC, DUP, MIR, SBC, SCP.
ANIONIC SURFACE-ACTIVE AGENTS	
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'-tetraakis(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	RMC, MM, 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	HMP.
N-(Coconut oil acyl)sarcosine, sodium salt	HMP.
N-Lauroylsarcosine	HMP, ONX.
N-Lauroylsarcosine, sodium salt	HMP, ONX.
N-Oleoylpolypeptide, sodium salt	LMI.
N-Oleoylsarcosine	HMP.
N-Oleoylsarcosine, sodium salt	GAF.
Tridecyloxypoly(ethyleneoxy)acetic acid, sodium salt	GAF.
Carboxylic acids with amide, ester or ether linkage, other	GAF, HMP, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
CARBOXYLIC ACIDS (AND SALTS THEREOF)--Continued	
OTHER CARBOXYLIC ACIDS:	
Carboxylic acids, all other--	BSW, KPI, NMC, SCP, USR.
POTASSIUM AND SODIUM SALTS OF FATTY, ROSIN, AND TALL OIL ACIDS:	
Castor oil acids, potassium salt	NIL, PEK, SEA.
Castor oil acids, sodium salt	HEM.
* Coconut oil acids, potassium salt	AES, CON, CP, DA, DYS, ESS, GRC, HEM, HNT, NMC, PEK, PG, PNX, SHM.
* Coconut oil acids, sodium salt	AGP, BSM, CON, GRC, HEM, JRG, LEV, NMC, NPR, PG.
Corn oil acids, potassium salt	CHP, GRC, HNT, NMC.
Corn oil acids, sodium salt	GRC.
Fish oil acids, sodium salt	DA, PG.
* Mixed vegetable fatty acids, potassium salt	AES, DYS, GRC, GRL, LUR, PCH, QCP, SLC, SOP.
* Oleic acid, potassium salt	AES, DA, DYS, HAL, HNT, USR, WBG, X.
* Oleic acid, sodium salt	BSM, LUR, NMC, USR, WBG, WTC.
Olive oil acids, sodium salt	HNT.
Palm oil acids, sodium salt	HEM.
Rosin acids, potassium salt	MCP, PEK, X.
Rosin acids, sodium salt	HRT, SLM, X.
Soybean oil acids, potassium salt	PEK, PNX.
Soybean oil acids, sodium salt	CON.
Stearic acid, potassium salt	CON, DA, HEM, USR, WTC.
Stearic acid, sodium salt	ECC, WTC.
* Tall oil acids, potassium salt	AES, ASY, CON, DAN, DYS, ESS, GRC, HNT, PEK, PNX, X.
* Tall oil acids, sodium salt	AES, CON, GRC, NMC, MVA, X.
Tallow acids, potassium salt	AES, AGP, ASY, PG, USR.
* Tallow acids, sodium salt	BSM, CON, CP, GRC, HEM, JRG, LEV, LUR, NMC, NPR, PG, PRX.
Potassium and sodium salts of fatty, rosin, and tall oil acids, all other--	ARZ, DYS, HEM, NMC.
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, TCH, WAY, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED MANUFACTURER, 1979--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-Con.	
Dodecyl alcohol, ethoxylated and phosphated	GAF.
Dodecylphenol, ethoxylated and phosphated	ARI, GAF.
2-Ethylhexanol, ethoxylated and phosphated	DA, WAY.
*Mixed linear alcohols, ethoxylated and phosphated	AZS, BAS, CHP, CRT, CST, CTL, GAF, HRT, MOA, RCD, SBC, SCP, SHX, STC, TCC, TCH, WTC.
*Nonylphenol, ethoxylated and phosphated	ARI, AZS, CHP, CRT, CTL, DEX, GAF, HRT, MOA, SBC, SCP, SOP, TCC, WAY, WTC, WVA, X.
9-Octadecenyl alcohol, ethoxylated and phosphated	BAS, GAF.
9-Octadecyl alcohol, ethoxylated and phosphated	GAF.
Octylphenol, ethoxylated and phosphated	RH.
*phenol, ethoxylated and phosphated	GAF, MOA, TCH, WTC, X.
Polyhydric alcohol, ethoxylated and phosphated	DEX, GAF, RH, SCP.
*Tridecyl alcohol, ethoxylated and phosphated	DAN, GAF, MIL, SBC, SNW, WTC, X.
Alcohols and phenols, alkoxyalted and phosphated or polyphosphated, all other	BAS, CHP, DA, GAF, MIL, TCH, X.
ALCOHOLS, PHOSPHATED OR POLYPHOSPHATED:	
Butyl phosphate, potassium salt	DUP.
Decyl and octyl phosphate	DA, TCH.
2-Ethylhexyl phosphate	GAF.
2-Ethylhexyl phosphate, sodium salt	CHP, DAN, WTC.
2-Ethylhexyl polyphosphate	X.
2-Ethylhexyl polyphosphate, sodium salt	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.
Octyl decyl phosphate	X.
Octyl phosphate	SCP, WTC, X.
Octyl phosphate, alkylamine salt	DUP, SCP.
Octyl phosphate, potassium salt	DEX.
Octyl polyphosphate	DEX.
Octyl polyphosphate, potassium salt	SNW, X.
Phosphated and polyphosphated alcohols, all other	CHP, HRT, KPI, MIL, RCD, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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 ACID ESTERS:	
Glycerol monoester of mixed fatty acids, phosphate	QCP, WTC.
Phosphoric and polyphosphoric acid esters, all other	CHP, X.
SULFONIC ACIDS (AND SALTS THEREOF):	
ALKYLBENZENESULFONATES:	
*Dodecylbenzenesulfonic acid	ARC, ATR, CO, CRT, CTL, EMK, HLI, LAK, LEV, MON, PIL, PLX, PRX, RCD, STP, TCI, TEN, WTC, MVA, X.
Dodecylbenzenesulfonic acid, (Mixed alkyl)amine salt	ECC, X.
Dodecylbenzenesulfonic acid, ammonium salt	AES, STC.
Dodecylbenzenesulfonic acid, branched chain	WTC.
*Dodecylbenzenesulfonic acid, calcium salt	ICI, RCD, RH, STC, STP, TMH, WTC, X.
Dodecylbenzenesulfonic acid, dimethylamine salt	PIL.
*Dodecylbenzenesulfonic acid, isopropanolamine salt	PIL.
Dodecylbenzenesulfonic acid, isopropylamine salt	CIN, CTL, ICI, RCD, STP, TCH, WTC.
Dodecylbenzenesulfonic acid, potassium salt	AES, CTL.
*Dodecylbenzenesulfonic acid, sodium salt	AAC, AES, APX, ATR, BLA, CO, CP, CRT, CTL, DA, DUP, ECC, HLI, LEV, NMC, PEK, PG, PIL, PRX, RCD, STP, TEN.
Dodecylbenzenesulfonic acid, sodium salt, branched chain	WTC.
*Dodecylbenzenesulfonic acid, triethanolamine salt	AAC, ARL, ATR, CIN, ESS, HLI, PIL, RCD, STP, WTC.
Dodecylbenzene sulfonates, all other	WTC.
OTHER ALKYL BENZENESULFONATES:	
Dodecylbenzenesulfonic acid, sodium salt	ATR, PLX.
Didodecylbenzenesulfonic acid	WTC.
Tridecylbenzenesulfonic acid	PLX, RCD, STP, WTC.
Tetradecylbenzenesulfonic acid, sodium salt	BIA, CP, NPR, PG, RCD, WTC.
Undecylbenzene sulfonic acid	SCP.
Undecylbenzene sulfonic acid, sodium salt	WTC.
Undecylbenzene sulfonic acid, triethanolamine salt	SCP, WTC.
Alkylbenzene sulfonates, all other	SCP, USR.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--Continued	
ALKYLBENZENESULFONATES--Continued	
BENZENE-, CUMENE-, TOLUENE-, AND XYLENESULFONATES:	
Cumenesulfonic acid, ammonium salt	NES, WTC.
Cumenesulfonic acid, sodium salt	NES, STP, WTC.
Toluenesulfonic acid, potassium salt	NES.
Toluenesulfonic acid, sodium salt	CO, NES, PG, WTC.
Xylenesulfonic acid, ammonium salt	CO, NES, STP, WTC.
Xylenesulfonic acid, potassium salt	NES.
Xylenesulfonic acid, sodium salt	CO, ICI, NES, PIL, SDC, STP, WTC.
Benzene-, cumene-, toluene-, and xylenesulfonates, all other-	WTC.
LIGNINSULFONATES:	
*Ligninsulfonic acid, ammonium salt	CRZ, MAR, PSP, SPA, MVA.
*Ligninsulfonic acid, calcium salt	CWP, LKY, MAR, PSP.
Ligninsulfonic acid, chromium salt	MAR, PSP, RAY.
*Ligninsulfonic acid, iron salt	CRZ, MAR, PSP.
*Ligninsulfonic acid, sodium salt	CRZ, MAR, PSP, RAY, MVA.
Ligninsulfonic acid, zinc salt	MAR, PSP.
Ligninsulfates, all other-	MAR.
NAPHTHALENESULFONATES:	
Butylnaphthalenesulfonic acid, sodium salt	DA, ECC.
Dibutylphenathalenesulfonic acid	GAF.
Diisopropylphenathalenesulfonic acid, sodium salt	DUP, UDI.
Dipentylphenathalenesulfonic acid	X.
Dipentylphenathalenesulfonic acid, (Mixed alkyl)- amine salt	X.
Dipentylphenathalenesulfonic acid, ammonium salt	X.
Isopropylphenathalenesulfonic acid	DA.
Methylenebis(2-naphthalenesulfonic acid), sodium salt	DUP.
Methylnaphthalenesulfonic acid, sodium salt	DA, UDI.
Methylnonylnaphthalenesulfonic acid, sodium salt	UDI.
Naphthalenesulfonates, all other	DUP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--Continued	
ALKYLBENZENESULFONATES--Continued	
SULFONIC ACIDS HAVING AMIDE LINKAGES:	
SULFOSUCCINAMIC ACID DERIVATIVES:	
N-(1,2-Dicarboxyethyl)-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	GAF, TNI.
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	CRT, GAF, X.
SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
SULFOSUCCINIC ACID ESTERS:	
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl)-ester, sodium salt	MOA, PC.
*Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt	ACY, CHP, CRT, DA, DAN, ECC, EMK, HDG, HRT, MCP, MOA, RH, SCO, WTC.
Sulfosuccinic acid, bis(tallow monoglyceride) ester, sodium salt	SOS.
Sulfosuccinic acid, dihexyl ester, sodium salt	ACY, MOA.
Sulfosuccinic acid, diisodecyl ester, sodium salt	ACY.
Sulfosuccinic acid, dipentyl ester, sodium salt	ACY.
Sulfosuccinic acid, dtridecyl ester, sodium salt	ACY, MOA.
Sulfosuccinic acid esters, all other	HDG, LAK, MOA, RH, SCP, WTC.
ALL OTHER SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES:	
Coconut oil acids, 2-sulfoethyl ester, sodium salt	GAF, LEV.
Dodecyldiphenyloxidedisulfonic acid, disodium salt	CTL, DOM, X.
Dodecyl sulfoacetate, sodium salt	STP.
Glycerol monostearate sulfoacetate, sodium salt	WTC.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
SULFONIC ACIDS (AND SALTS THEREOF)--Continued	
ALKYLBENZENESULFONATES--Continued	
SULFONIC ACIDS HAVING ESTER OR ETHER LINKAGES--Cont.	
ALL OTHER SULFONIC ACIDS HAVING ESTER OF ETHER LINKAGES--Continued	
Iso-octylphenol, ethoxylated and sulfonated, sodium salt--	GAF, RH.
n-Octylphenol, ethoxylated and sulfonated, sodium salt--	CRT.
Sulfonic acid with ester linkages, all other	GAF.
Sulfonic acids with ether linkages, all other	PG, WTC, X.
OTHER SULFONIC ACIDS:	
Mixed alkane sulfonic acid, sodium salt--	CCL, DUP, QCP, X.
Sulfonic acids, all other--	ARD, LAK, RBC, SCP, 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:	
2-Butoxyethyl oleate, sulfated, sodium salt	S.
*Butyl oleate, sulfated, sodium salt--	AKS, CHP, CIN, CRT, ICI, PC.
Butyl and propyl oleate, sulfated, sodium salt	MCP, MRV.
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--	ACY, AKS, CHP, GAF, MRV.
Esters of sulfated oleic acid, all other	CHP.
OTHER SULFATED ESTERS:	
Glycerol monoester of coconut oil acids, 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--	ACT, ACY, DA, TEN.
Sulfuric acid esters, all other--	BFP, SLM, TEN.
*Tall oil, sulfated, sodium salt--	ACT, APX, BAO, CHP, CRT, ICI, SEA, SOS, WHI, WHW.
ALCOHOLS, SULFATED:	
Decyl and octyl sulfate, sodium salt--	TCH.
Decyl sulfate, sodium salt--	HLI, SCP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979 --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:	
Dodecyl sulfate, ammonium salt	AAC, CTL, HLI, JRG, ONX, SCP, STP, TCH, TNI.
Dodecyl sulfate, diethanolamine salt	DUP, JRG, SCP, STP, TCH.
Dodecyl sulfate, N,N-diethylcyclohexylamine salt	DUP.
Dodecyl sulfate, isopropanolamine salt	JRG.
*Dodecyl sulfate, magnesium salt	AAC, HLI, ONX, STP.
Dodecyl sulfate, potassium salt	PG.
*Dodecyl sulfate, sodium salt	AAC, CTL, DUP, HLI, ONX, SCP, STP, TCH, MVA.
*Dodecyl sulfate, triethanolamine salt	AAC, CTL, HLI, ONX, SCP, STP, TCH, TNI.
2-Ethylhexyl sulfate, sodium salt	AAC, NCC, SCP, TCH.
Hexadecyl sulfate, sodium salt	AAC.
Hexyl sulfate, potassium salt	DEX.
Linear alcohols, sulfated, all other	AAC, AZS, DUP, SCP, X.
Mixed linear alcohols, sulfated, alkylamine salt	DUP.
Mixed linear alcohols, sulfated, ammonium salt	CP, LAK, NTL, PG, RCD, SCP, X.
Mixed linear alcohols, sulfated, sodium salt	DUP, LAK, PG, RCD, SCP, WTC.
Mixed linear alcohols, sulfated, triethanolamine salt	LAK, PG, RCD, S, SCP.
1-Octadecenyl-2-naphthyl tetrahydropyrimidine	ONX.
Octadecyl sulfate, ammonium salt	EMK.
*Octyl sulfate, sodium salt	AAC, APX, DUP.
Tridecyl sulfate, sodium salt	AAC, DA.
Alcohols and phenols, sulfated, all other	DA, NCC.
ETHERS, SULFATED:	
ALKYLPHENOLS, ETHOXYLATED AND SULFATED:	
Nonylphenol, ethoxylated and sulfated, ammonium salt	GAF, HLI, STP.
Nonylphenol, ethoxylated and sulfated, sodium salt	CRT, GAF, WTC.
Octylphenol, ethoxylated and sulfated, sodium salt	RH.
Sulfated cyclic ethers, all other	TCH.
Decyl alcohol, propoxylated and sulfated, sodium salt	APX.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY IDENTIFIERS BY MANUFACTURER, 1979--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	
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	AAC, AKS, CTL, HLI, ONX, STP, TCH.
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt	AAC, CTL, HLI, ONX, SCP, STP, TCH.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt	HLI, LAK, LEV.
Hexyl alcohol, propoxylated and sulfated, sodium salt	APX.
*Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	CO, LAK, MOA, PG, PIL, RCD, SCP, SHC, STP, WTC, X.
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt	CO, DA, DUP, GAF, LAK, LEV, PG, PIL, RCD, SCP, SHC, STP, TCI, WTC.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt	AAC.
Sulfated ethers, all other	SCP, X.
NATURAL FATS AND OILS, SULFATED:	
*Castor oil, sulfated, sodium salt	ACT, ACY, AKS, APX, ARL, BAO, CRT, DA, DEX, GAF, HRT, ICI, LEA, LUR, MRV, S, SCO, SCP, SEA, SLM, WHI, WHW.
Coconut oil, sulfated, sodium salt	ACY, BAO, DA.
*Cod oil, sulfated, sodium salt	BAO, SEA, WHI, WHW.
Grease, other than wool, sulfated, sodium salt	WHI.
Herring oil, sulfated, sodium salt	SEA, SLM, WHW.
Lard, sulfated, sodium salt	CRT, MRD, WAM, 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, BAO, DA, MRD, SLM.
Peanut oil, sulfated, sodium salt	ACY.
Pecan oil, sulfated, sodium salt	CRT.
Ricebran oil, sulfated, sodium salt	SEA.
Soybean oil, sulfated, sodium salt	ACT, HRT, SEA.
Sperm oil, sulfated, sodium salt	ACT, WHM.
*Tallow, sulfated, sodium salt	ACT, ACY, AZS, DA, ECC, LUR, MCP, MRD, PC, SID, SLM, SOS, WHI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ANIONIC--CONTINUED	
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	MIR, S, SLM, VAL, WVA, X.
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, ICI, TCH, WTC, X.
(Coconut oil alkyl)amine, ethoxylated, maleate	SDH.
(Coconut oil alkyl)amine, ethoxylated, oleate	DUP.
N,N-Dimethyl dodecylamine oxide	HLI, PG.
N,N-Dimethylhexadecylamine oxide	ARC, ONX.
Ethylendiamine, propoxylated	DUP.
(Mixed alkyl)amine, ethoxylated	ICI, RH, X.
(9-Octadecenyl)amine, ethoxylated	ARC, GAF, TCH.
Octadecylamine, ethoxylated	ARC, TCH.
*(Tallow alkyl)amine, ethoxylated	ARC, JTO.
(Soybean oil alkyl)amine, ethoxylated	ARC, DA, DUP, GAF, JTO, TCH.
N-(tallow alkyl)trimethylenediamine, ethoxylated	ARC.
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, BRD, CGY, CHP, DA, MIR, PG, SBC, TCH, X.
CYCLIC:	
2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline	BRD.
1-(2-Hydroxyethyl)-2-heptadecyl-3-carboxyethylimidazoline	MOA.
1-(2-Hydroxyethyl)-2-heptadecyl-2-imidazoline	BRD, MOA.
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	DA, SBC, SCP.
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline	CGY, GAF, MOA, SCP, TCH.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMIDE OXIDES AND OXYGEN-CONTAINING AMINES (EXCEPT THOSE HAVING AMIDE LINKAGES)--Continued	
CYCLIC--Continued	
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	BRD, HDG, MOA, X.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline hydrochloride	CGY.
1-(2-Hydroxyethyl)-2-undecyl-3-carboxyethylimidazoline	MOA.
lignin amines	MVA.
Rosin amine, ethoxylated	HPC.
Amine oxides and oxygen-containing amines (Except those having amine linkages), cyclic, all other	ARC, CGY, MOA, SBC, TCH, X.
AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
CARBOXYLIC ACID - DIAMINE AND POLYAMINE CONDENSATES:	
Carboxylic acid-diamine and polyamine condensates, all other	ARC, DA, GAF, ICI, SBC, STC, X.
Coconut oil acids-N,N-dimethyltrimethylenediamine condensate	SCP.
Mixed fatty acids-polyalkylenepolyamine condensate	QCP, TCH, X.
Oleic acid-diethylenetriamine condensate	TCH.
Oleic acid-N,N-dimethyltrimethylenediamine condensate	CCM.
Oleic acid-ethylenediamine condensate, mono-ethoxylated	CLD, DA, DEX, SOC.
Relargonic acid-tetraethylenepentamine condensate	ICI.
Stearic acid-diethylenetriamine condensate	S, STC.
Stearic acid-diethylenetriamine condensate, poly-ethoxylated	APX.
Stearic acid-N,N-diethylethylenediamine condensate	S.
Stearic acid-ethylenediamine condensate, mono-ethoxylated	CLD, CST, DA, DEX, ICI, MRV, S, SLC.
Stearic acid-ethylenediamine condensate, poly-ethoxylated	ICI.
Stearic acid-tetraethylenepentamine condensate	ONX, X.
*tall oil acids-diethylenetriamine condensate	AZS, NCM, SCP, STC, MVA, X.
*tall oil acids-polyalkylenepolyamine condensate	ARC, AZS, QCP, SCP, MVA, X.
Carboxylic acid-diamine and polyamine condensates, alkoxylated, all other	DA, MIR.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, INDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES--Con.	
OTHER AMINES AND AMINE OXIDES HAVING AMIDE LINKAGES:	
3-Lauramido-N,N-dimethylpropylamine oxide	HLI, SNW.
Stearic acid, diethanolamine condensate, methyl sulfate	DUP.
Amines and amine oxides having amide linkages, all other	SCP.
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.
(Tallow alkyl)amine acetate	ARC, SCP.
N-(Tallow alkyl)trimethylenediamine acetate	ARC.
N-(Tallow alkyl)trimethylenediamine oleate	ARC, SHX.
Amine salts (Not containing oxygen), all other	SM, X.
DIAMINES AND POLYAMINES:	
IMIDAZOLINE DERIVATIVES:	
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline	SCP.
N-(Docosyl and eicosyl)trimethylenediamine	ENO.
2-Heptadecyl-2-imidazoline	CGY, SCO.
N-(Coconut oil alkyl)trimethylenediamine	ARC, ENO, JTO, SCP.
N-(Mixed alkyl)polyethylenepolyamine	CCW, SNW.
*N-(9-Octadecenyl)trimethylenediamine	ARC, SCP, SHX.
N-(Soybean oil alkyl)trimethylenediamine	ENO.
N-(Tallow - alkyl)dipropylenetriamine	ARC, NCW, SCP.
N-(Tallow alkyl)trimethylenediamine	ENO, JTO, SCP, SHX.
Diamines and polyamines, all other	ARC, ENO, ICI, NCW, STC, X.
PRIMARY MONOAMINES:	
(Coconut oil alkyl)amine	ARC, ENO, JTO, SHX.
(Docosyl and eicosyl)amine	ENO.
Dodecylamine	ARC, SCP, SHX.
Hexadecylamine	ARC, ENO.
*(Hydrogenated tallow alkyl)amine	ARC, ENO, JTO, SCP, SHX.
(Mixed alkyl)amine	JTO.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS : : MANUFACTURERS' IDENTIFICATION CODES
 (ACCORDING TO LIST IN TABLE 3)

CATIONIC--CONTINUED

AMINES, NOT CONTAINING OXYGEN (AND SALTS THEREOF)--Con.	
PRIMARY MONOAMINES--Continued	
*9-Octadecenylamine	ARC, ENO, SCP, SHX.
Octadecylamine	ARC, ENO, SHX.
Octylamine	ARC.
(Soybean oil alkyl)amine	ARC, ENO, JTO.
(Tall oil alkyl)amine	JTO, SCP, SHX.
*(Tallow alkyl)amine	ARC, ENO, NCM, SCP, SHX.
Primary monoamines, all other	ARC, ENO.
SECONDARY AND TERTIARY MONOAMINES:	
Bis(coconut oil alkyl)amine	ARC.
Bis(hydrogenated tallow alkyl)amine	ARC, SHX.
N,N-Dimethyl(coconut oil alkyl)amine	ARC, BRD, ENO.
N,N-Dimethyldodecylamine	ARC, BRD, ONX.
N,N-Dimethylhexadecylamine	ARC, BRD.
N,N-Dimethyl(hydrogenated tallow alkyl)amine	ARC, ENO.
N,N-Dimethyl(mixed alkyl)amine	TNA.
N,N-Dimethyl-9-octadecenylamine	ENO.
N,N-Dimethyloctadecylamine	ARC, BRD, ENO, ONX.
N,N-Dimethyloctylamine	BRD.
N,N-Dimethyl(soybean oil alkyl)amine	ARC, ENO, ONX.
N,N-Dimethyltetradecylamine	ARC.
N-Methylbis(coconut oil alkyl)amine	ARC.
N-Methylbis(hydrogenated tallow alkyl)amine	ARC, ENO, SHX.
Trilaurylamine	SCP.
Trioctylamine	SCP.
Secondary and tertiary monoamines, all other	ARC, AZS, ENO.
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS:	
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)ammonium chloride	SCP, X.
Benzyl(coconut oil alkyl,ethoxylated)dimethylammonium chloride	DUP, SCP.
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.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
OXYGEN-CONTAINING QUATERNARY AMMONIUM SALTS--Continued	
Bis(2-hydroxyethyl, ethoxylated)methyloctadecylammonium chloride	ARC.
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)methylammonium chloride	ARC, GAF.
(Ethoxybenzyl)dimethyl(octylphenoxy)ammonium chloride	RH.
(Ethoxybenzyl)dimethyl(octyltoloxo)ammonium chloride	RH.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolium ethyl sulfate	ICI.
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)carbonyl-1-methylpyridinium chloride	WTC.
1-Methyl-2-(2-stearoyloxyethyl)carbonylpyridinium chloride	WTC.
Oxygen-containing quaternary ammonium salts (Except those having amide linkages), all other	AAC, ARC, DA, ICI, MIR, SBC, TCH, X.
Quaternary ammonium salts having amide linkages, all other	DA, MRV, SBC, SHX, SNW, TCH, 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.
(Coconut oil alkyl)trimethylammonium chloride	ARC, ENO, SCP, SHX.
Dimethylbis(soybean oil alkyl)ammonium chloride	ARC.
Dimethyldioctadecylammonium chloride	SHX.
Dodecyltrimethylammonium chloride	ARC, SCP.
Ethylidimethyl(mixed alkyl)ammonium ethyl sulfate	DEX, JOR, TCC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED	
QUATERNARY AMMONIUM SALTS, NOT CONTAINING OXYGEN--	
ACYCLIC--Continued	
Ethyltrimethyl(9-octadecenyl)ammonium bromide	ONX.
Ethylhexadecyldimethylammonium bromide	HXL.
Hexadecyltrimethylammonium bromide	HXL.
Hexadecyltrimethylammonium chloride	ARC.
Hexadecyltrimethylammonium p-toluenesulfonate	HXL.
Methyltrioctylammonium chloride	SCP.
Methyltris(mixed alkyl)ammonium chloride	X.
(Mixed linear alkyl)trimethyl ammonium bromide	DUP.
N,N',N'-Pentamethyl-N-(tallow alkyl)tri- methylene-bis[ammonium chloride]	ARC, SCP.
Trimethyloctadecylammonium chloride	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride	ARC, JTO.
Trimethyl(tallow alkyl)ammonium chloride	ARC, ENO, JTO, SCP, SHX.
Trimethyltetradecylammonium bromide	HXL.
Quaternary ammonium salts, not containing oxygen, acyclic, all other	ARC, BRD, JTO.
BENZENOID:	
* Benzyl(coconut oil alkyl)dimethylammonium chloride	ARC, CRT, ENO, LUR, SCP, TCC.
* Benzyl(mixed alkyl)ammonium chloride	BRD, HXL, ONX, RH, SDH, TCC.
Benzyl(mixed alkyl)ammonium chloride	ARC, HLI, HXL, OEX, RH, SCP, TNI.
Benzyl(mixed alkyl)ammonium chloride	ENO.
Benzyl(mixed alkyl)ammonium chloride	HXL, SDH.
Benzyl(mixed alkyl)ammonium chloride	HXL, ONX.
Benzyl(mixed alkyl)ammonium chloride	ONX.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride	ARC, ENO.
1-Benzyl-2-picolinium bromide	X.
* Benzyltrimethylammonium chloride	CIN, CRT, HXL, SNM, TCC.
(3,4-Dichlorobenzyl)dodecyltrimethylammonium chloride	ONX.
2-Dodecylisquinolinium bromide	ONX.
1-Dodecylpyridinium chloride	CCL, DAN.
1-Phenethyl-2-picolinium bromide	X.
Quaternary ammonium salts not containing oxygen, acyclic, all other	ARC, DEX, ENO, ICI, MIL, TCC, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979 --CONTINUED

SURFACE-ACTIVE AGENTS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CATIONIC--CONTINUED		
OTHER CATIONIC SURFACE-ACTIVE AGENTS:		
Tallow amine, ethoxylated and propoxylated, methyl sulfate		DUP.
Tallow amine, ethoxylated, quarternary ammonium salt		DUP.
Cationic surface-active agents, all other		APX, HXL, MIR, SCP, WTC.
NONIONIC		
CARBOXYLIC ACID AMIDES:		
(AMINE/ACID RATIO = 2/1):		
* Capric acid (Ratio = 2/1)		CGY, SCP, TCH.
* Castor oil acids (Ratio = 2/1)		CLI, CTL, MOA, NTL, PC.
* Coconut oil acids (Ratio = 2/1)		AKS, ARD, ARL, AZS, BSM, CCL, CIN, CLI, CTL, DA, ECC, HLI, HRT, LUR, MCP, MOA, MRV, PEK, PG, PNX, PVO.
		RCD, SBC, SCP, SOP, STP, TCH, WTC, X.
* Coconut oil and tallow acids (Ratio = 2/1)		CLI, CTL, ESS, MOA, SEC, UNN.
* Lauric acid (Ratio = 2/1)		CLI, HRT.
* Lauric and myristic acids (Ratio = 2/1)		HRT, MOA, PG, RCD, SBC, STP.
* Linoleic acid (Ratio = 2/1)		HRT, KNP, VND.
* Oleic acid (Ratio = 2/1)		ARD, CLI, EMR, SBC, SCP, STP.
* Pelargonic acid (Ratio = 2/1)		TCH.
* Stearic acid (Ratio = 2/1)		CLI, CTL, SCO, SOS, VAL.
* Tall oil acids (Ratio = 2/1)		ECC, MOA, WTC.
Diethanolamine condensates (Amine/acid = 2/1), all other		CCL, CRT, GAF, MOA, SCP, SOS, VND.
OTHER AMINE/ACID RATIOS:		
* Coconut oil acids (Ratio = 1/1)		ARD, AZS, CGY, CLI, CTL, DA, GAF, HLI, JRG, MOA, ONX, PIL, SBC, SCP, STP, TCC, WTC.
Isostearic acid (Ratio=1/1)		MOA.
* Lauric acid (Ratio = 1/1)		CLI.
* Lauric and myristic acid (Ratio = 1/1)		CLI, SBC, SCP.
* Linoleic acid (Ratio = 1/1)		MOA, SBC, VND.
* Myristic acid (Ratio=1/1)		MOA.
* Oleic acid (Ratio = 1/1)		EFH, EMK, HLI, SBC.
Palmitic and stearic acids (Ratio = 1/1)		VPC.
Soybean oil acids (Ratio=1/1)		MOA.
* Stearic acid (Ratio = 1/1)		CHP, ECC, EFH, MRV.
Tall oil acids		CHP, EFH.
Tallow acids		MOA.
Diethanolamine condensates, amine/acid ratio=1/1, all other		MOA, SBC.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979 --CONTINUED

SURFACE-ACTIVE AGENTS
 MANUFACTURERS' IDENTIFICATION CODES
 (ACCORDING TO LIST IN TABLE 3)

NONIONIC--CONTINUED

ALL OTHER CARBOXYLIC ACID AMIDES:

Alkanolamine condensates, all other- - - - - : MOA, SBC.
 Coconut oil acids (Specify amine/acid ratio) - - - : CHP, EFH, PG, SBC, TCH, VND.
 Coconut oil acids (Ratio = 1/1) - - - - - : STP.
 Coconut oil acids (Ratio = 2/1) - - - - - : HLI, HUM, MOA, PG, VND, WTC.
 Coconut oil acids, other code- - - - - : STP, TCH.
 Coconut oil acids-N,N-dimethyltrimethylene-diamine : SCP.
 condensate(amine/acid ratio=1/2- - - - - : JRG.
 Coconut oil acids-ethanolamine condensate, ethoxyl :
 ated - - - - - : STP.
 Ethanolamine condensates, all other- - - - - : EFH.
 Ethanolamine condensates, amine/acid ratio = 1/1, :
 all other- - - - - : GAF, VND.
 Isopropanolamine condensates, all other- - - - - : SBC, WTC, X.
 Lauric acid (Specify amine/acid ratio) - - - - - : CLI, MOA.
 Lauric and myristic acids (Specify amine/acid :
 ratio) - - - - - : LEV.
 Lauric and myristic acids (Ratio = 1/1) - - - - - : MOA, PG, SCP, WTC.
 Oleic acid-ethanolamine condensate, ethoxylated : DA.
 Oleic acid-methanolamine condensate, ethoxylated : ARC.
 Palmitic acid-diethanolamine condensate, :
 alkoxylated- - - - - : ROB.
 Stearic acid (Ratio = 1/1)- - - - - : MOA, SBC, VND, WTC.
 Stearic acid (Ratio = 1/2) - - - - - : HAL, WTC.
 Stearic acid (Ratio = 2/1)- - - - - : CLI, ECC.
 Stearic acid-ethylenediamine condensate amine/acid :
 ratio=1/2 - - - - - : DA.
 Carboxylic acid amides, all other- - - - - : ARC, BKM, VPC, WTC.

CARBOXYLIC ACID ESTERS:

ANHYDROSORBITOL ESTERS:
 Anhydrosorbitol dioleate - - - - - : ICI.
 Anhydrosorbitol monoester of tall oil acids- - - : HDG, ICI.
 *Anhydrosorbitol monolaurate- - - - - : GLY, HDG, ICI, TCH.
 *Anhydrosorbitol mono-oleate- - - - - : ARC, GLY, HDG, ICI, PVO, TCH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

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

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U. S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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 acid	ICI.
Ethoxylated sorbitol tetraoleate	ICI.
ETHYLENE GLYCOL ESTERS:	
Ethylene glycol distearate	ARC, EMR, HAL, HUM, TCH, WM.
Ethylene glycol mono-oleate	CGY, EFH.
*Ethylene glycol monostearate	ARC, CLI, GLY, GRO, HAL, HDG, KNP, TCH, VND, WM.
GLYCEROL ESTERS:	
COMPLEX GLYCEROL ESTERS:	
Glycerol monoester of mixed fatty acids, acetylated	EKT.
Complex glycerol esters, all other	EKT, GLY, SCP.
GLYCEROL ESTERS OF CHEMICALLY DEFINED ACIDS:	
Glycerol dilaurate	VND.
Glycerol dioleate	ARC, GRO, HAL.
Glycerol distearate	ARC.
Glycerol monocaprylate	PVO.
Glycerol monolaurate	GLY, HAL.
*Glycerol mono-oleate	ARC, EFH, EMR, GLY, GRO, HAL, HDG, PVO, TCH, WTC.
Glycerol monoxinoleate	GLY, HDG.
*Glycerol monostearate	ARC, BLS, CHL, CIN, EMR, GLY, GRO, HAL, HDG, HRT, PVO, SOS, TCH, VND, WM, WTC.
GLYCEROL ESTERS OF MIXED ACIDS:	
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, TCH, WTC.
Glycerol monoester of lard acids	EKT, GLY.
Glycerol monoester of mixed vegetable oil acid	EKT, LEV.
Glycerol monoester of palm oil acids	EKT.
Glycerol monoester of safflower oil acids	EKT.
Glycerol monoester of tall oil acids	EKT, FER, WTC.
Glycerol esters of mixed acids, all other	BFP, ICI, SLM, WTC.

TABLE 2.---SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--Continued	
NATURAL FATS AND OILS, ETHOXYLATED:	
*Castor oil, ethoxylated-	DA, GAF, ICI, MIL, NTL, PVO, TCH, TMH, WTC, X.
*Hydrogenated castor oil, ethoxylated	DA, ICI, MIL, NTL, TCH.
*Lanolin, ethoxylated	AAC, CRD, CRN, TCH.
Natural fats and oils, ethoxylated, all other-	DA, JCC, MIL, TCH.
POLYETHYLENE GLYCOL ESTERS:	
POLYETHYLENE GLYCOL ESTERS OF CHEMICALLY DEFINED ACIDS:	
*Polyethylene glycol dilaurate-	ARC, DA, GLY, HDG, PVO, TCH, WM.
*Polyethylene glycol dioleate	ARC, CGY, CLD, DA, EFH, GLY, HAL, HDG, MIL, SLC, TCH, WM.
*Polyethylene glycol distearate	ARC, CHP, CIN, CRT, GLY, HAL, HDG, TCH.
*Polyethylene glycol monolaurate-	ARC, CGY, DA, ECC, EMR, GLY, HAL, HDG, ICI, TCH, VND, WM.
*Polyethylene glycol mono-oleate-	ARC, CCA, CLD, CRT, DA, DEX, ECC, EFH, GAF, GLY, HAL, HDG, MRT, MRV, ONX, SCP, TCH, WM.
Polyethylene glycol monopalmitate-	KNP.
Polyethylene glycol monopalargonate-	ICI.
Polyethylene glycol monoricinoleate-	ECC.
*Polyethylene glycol monostearate	ARC, ARL, CHP, CRT, DA, EFH, GAF, GLY, HAL, HDG, HRT, ICI, MCP, PVO, SLC, SOS, STC, TCH, VND, WTC.
Polyethylene glycol sesquinoate-	TCH, WTC.
Polyethylene glycol esters of chemically defined acids, all other	EFH, ICI.
POLYETHYLENE GLYCOL ESTERS OF MIXED ACIDS:	
Polyethylene glycol diester of tall oil acids	EFH, MIL, TCH, WVA, X.
Polyethylene glycol monoester of soybean oil acids-	GLY.
Polyethylene glycol monoester of tall oil acids, ethoxylated	GAF, X.
Polyethylene glycol sesquiester of coconut oil acids-	MRT, TCH.
Polyethylene glycol sesquiester of tall oil acids-	AZS, ICI, SLM.
Polyethylene glycol esters of mixed acids, all other-	ARC, BKM, ECC, EFH, FER, ICI, SOS, TCH, WVA.

TABLE 2. --SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
CARBOXYLIC ACID ESTERS--Continued	
POLYGLYCEROL ESTERS:	
Polyglycerol distearate	GLY, PVO.
Polyglycerol monoester of tall oil acids	HDG.
Polyglycerol mono-oleate	PVO, WTC.
Polyglycerol monostearate	GLY, TCH, WTC.
Polyglycerol esters, all other	PVO, TCH.
PROPANEDIOL ESTERS:	
*1,2-Propanediol monolaurate	ARC, PVO, SBC.
1,2-Propanediol mono-oleate	EFH.
*1,2-Propanediol monostearate	ARC, EKT, GLY, HAL, TCH, MM.
Propanediol esters, all other	ARC, PVO, X.
OTHER CARBOXYLIC ACID ESTERS:	
Cetyl palmitate	ROB.
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.
Polyalkylene glycol adipate	X.
Polyalkylene glycol diglycolate	BAS.
Carboxylic acid esters, all other	AAC, CCM, CHP, CRN, DUP, EMR, HDG, PG, PVO, STC. TCH, VND, WTC, X.
ETHERS:	
BENZENOID ETHERS:	
Alkylphenol-formaldehyde condensates, alkoxyated, all other	BAS, X. GAF, RH, TCH.
Dinonylphenol, ethoxylated	DA, GAF, MON, TCH, TMH.
*Dodecylphenol, ethoxylated	AAC, DA, GAF, RH.
Iso-octylphenol, ethoxylated	MIL, NTL, X.
(Mixed alkyl)phenol, ethoxylated	RH.
(Mixed alkyl)phenol, ethoxylated, butyl ether-	
(Mixed alkyl)phenol-formaldehyde	BAS, X.
(Mixed alkyl)phenoxypoly(ethyleneoxy)ethyl chloride	GAF.
*Nonylphenol, ethoxylated	ARC, DA, ENR, GAF, HDG, HN, ICI, JCC, MIL, MON, OMC, RH, STC, STP, TCH, TMH, UCC, WTC, X.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
ETHERS--CONTINUED	
BENZENOID ETHERS--Continued	
Nonylphenol, ethoxylated and propoxylated-	GAF, RH.
Nonylphenol-formaldehyde, alkoxylated-	BAS, X.
n-Octylphenol, ethoxylated-	TCH.
tert-Octylphenol-formaldehyde, ethoxylated-	DA, SDM.
*Phenol, ethoxylated-	DA, GAF, ICI, STC, TCH.
Tetradecylphenol ethoxylated-	ORO.
Tridecylphenol, ethoxylated-	TCH.
Phenols, ethoxylated, all other-	DA, EFH, OMC, RH, X.
NONBENZENOID ETHERS:	
LINEAR ALCOHOLS, ALKOXYLATED:	
*Decyl alcohol, ethoxylated-	GAF, ICI, MIL, TCH.
Decyloxypropyl(ethyleneoxy)ethyl chloride-	GAF.
Dodecyl alcohol, ethoxylated-	AAC, DUP, HDG, ICI, MIL, MVA.
Hexadecyl alcohol, ethoxylated-	ICI, TCH.
*9-Octadecenyl alcohol, ethoxylated-	AAC, GAF, ICI, TCH.
Octadecyl alcohol, ethoxylated-	DUP, GAF, ICI.
*Oleyl alcohol, ethoxylated-	CRD, CRN, GLY, HDG, STC.
Wool wax alcohols, ethoxylated-	CRD.
Chemically defined linear alcohol, alkoxylated, all other-	GAF, ICI, MIL, X.
Coconut oil alcohol, ethoxylated-	GAF, GLY, JCC, STC.
Decyl and octyl alcohols, ethoxylated-	GAF.
*Mixed linear alcohols, ethoxylated-	BAS, CO, DA, DUP, GAF, HDG, HN, ICI, JCC, MIL, OMC, RH, SHC, STC, STP, TCH, UCC, WTC, X.
*Mixed linear alcohols, ethoxylated and propoxylated-	BAS, DUP, GAF, HN, JCC, MIL, OMC, STP, TCH, UCC, WTC, X.
Tallow alcohol, ethoxylated-	X.
Mixed linear alcohols, alkoxylated, all other-	AAC, JCC, PG.
OTHER ETHERS AND THIOETHERS:	
tert-Dodecyl mercaptan, ethoxylated-	AAC, GAF.
Iso-octyl alcohol, ethoxylated-	DA.
*Mixed alcohols, ethoxylated-	CRM, MIL, MON, PVO, RH, WTC, X.
Poly(mixed ethylene, propylene)glycol-	HN, UCC, WTC, X.
Polyoxyalkylene glycols, alkoxylated-	X.
Polypropylene glycol, ethoxylated-	WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979.--CONTINUED

SURFACE-ACTIVE AGENTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
NONIONIC--CONTINUED	
ETHERS--Continued	
OTHER ETHERS AND THIOETHERS--Continued	
*Tridecyl alcohol, ethoxylated-	DA, DUP, GAF, ICI, JCC, MIL, OMC, PVO, STC, TCH, TMH, MTC, X.
Tridecyl alcohol, propoxylated and ethoxylated	: JCC.
Trimethylheptanol, ethoxylated - - - - -	: TCH.
Trimethylnonyl alcohol, ethoxylated- - - - -	: HDG, HN, UCC.
Trimethylolpropane, alkoxyated- - - - -	: BAS, HDG, X.
Ethers and thioethers, all other - - - - -	: AAC, ARC, BAS, DA, GAF, ICI, MIL, SHC, TCH.
OTHER NONIONIC SURFACE-ACTIVE AGENTS:	
Octyl phosphate, ethoxylated - - - - -	: DUP.
Tri(castor oil alkyl)phosphate - - - - -	: GLY.
Trimethylalpropane, ethoxylated- - - - -	: DUP.
Nonionic surface-active agents, all other- - - - -	: KPI, MIL, PG, RH, X.

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1979

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 1979 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.	ECC	Eastern Color & Chemical Co.
ACT	Southland Corp., Chemical Div.	EFH	E.F. Houghton & Co.
ACY	American Cyanamid Co.	EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.
AES	Penetone Corp.	EMK	Emkay Chemical Co.
AGP	Armour-Dial, Inc.	EMR	Emery Industries, Inc.
AKS	Arkansas Co., Inc.	ENO	Enenco, Inc.
APX	Apex Chemical Co., Inc.	ESS	Essential Chemicals Corp.
ARC	Armak Co., Industrial Chemical Div.		
ARD	Ardmore Chemical Co., Inc.	FER	Ferro Corp., Keil Chemical Div.
ARL	Arol Chemical Products Co.		
ARZ	Arizona Chemical Co.	GAF	GAF Corp.
ASY	American Synthetic Rubber Corp.	GLY	Glyco Chemicals, Inc.
ATR	Atlantic Richfield Co., ARCO Chemical Co.	GRC	Chemed Corp., Dubois Chemicals Div.
AZS	AZS Corp.:	GRL	Chemed Corp., Vestal Laboratories, Inc.
	AZ Products Co. Div.	GRO	A. Gross & Co., Millmaster Onyx Group, Kewanee Industries, Inc.
	AZS Chemical Co.		
		HAL	C.P. Hall Co.
BAO	Bayoil Co., Inc.	HDC	Hodag Chemical Corp.
BAS	BASF Wyandotte Corp.	HEW	Hewitt Soap Co., Inc.
BFP	Breddo Food Products Corp., Inc.	HLI	Millmaster Onyx Corp., Onyx Chemical Co. Div.
BKM	Buckman Laboratories, Inc.	HMP	W.R. Grace & Co., Organic Chemicals Div.
BLA	Astor Products, Inc., Blue Arrow Div.	HNT	Huntington Laboratories, Inc.
BLS	Life Savers, Inc.	HPC	Hercules, Inc.
BRD	Lonza, Inc.	HRT	Hart Products Corp.
BSW	Original Bradford Soap Works, Inc.	HUM	Kraft, Inc., Humko Sheffield Chemical
		HXL	Hexcel Corp., Hexcel Specialty Chemicals
CCA	Interstab Chemicals, Inc.		
CCL	Catawba-Charlab, Inc.	ICI	ICI Americas Inc., Chemical Specialties Co.
CCW	Cincinnati Milacron Chemicals, Inc.		
CGY	Ciba-Geigy Corp.	JCC	Jefferson Chemical Co., Inc.
CHL	Chemol, Inc.	JOR	Jordan Chemical Co.
CHP	C.H. Patrick & Co., Inc.	JRG	Andrew Jergens Co.
CIN	Stockhausen, Inc.	JTO	Jetco Chemicals, Inc.
CLD	Colloids, Inc.		
CLI	Clintwood Chemical Co.	KNP	Knapp Products, Inc.
CO	Conoco, Inc.	KPI	Kenrich Petrochemicals, Inc.
CON	Concord Chemical Co., Inc.		
CP	Colgate-Palmolive Co.	LAK	Bofors Lakeway Inc.
CRD	Croda, Inc.	LEA	Leatex Chemical Co.
CRN	CPC International, Inc., Amerchol Corp.	LEV	Lever Brothers Co.
CRT	Crest Chemical Corp.	LKY	Lake States Div. of Rhineland Paper Co.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	LMI	North American Chemical Co.
CST	Charles S. Tanner Co.	LUR	Laurel Products Corp.
CTL	Continental Chemical Co.		
CWP	Consolidated Papers, Inc.		
DA	Diamond Shamrock Corp.	MAR	American Can Co., Lignin Chemicals Div.
DAN	Dan River, Inc., Chemical Products Dept.	MCP	Moretex Chemical Products, Inc.
DEX	Dexter Chemical Corp.	MIL	Milliken & Co., Milliken Chemical Div.
DOW	Dow Chemical Co.	MIR	Miranol Chemical Co., Inc.
DUP	E.I. duPont de Nemours & Co., Inc.	MOA	Mona Industries, Inc.
DYS	Davies-Young Co.		

TABLE 3--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
MON	Monsanto Co.	SEA	Seaboard Chemicals, Inc.
MRD	Marden-Wild Corp.	SFS	Stauffer Chemical Co., Specialty Div.
MRT	Morton-Norwich Products, Inc., Morton Chemical Co. Div.	SHC	Shell Oil Co., Shell Chemical Co. Div.
MRV	Marlowe-Van Loan Corp.	SHX	Sherex Chemical Co., Inc.
NCC	Niacet Corp.	SID	George F. Siddall Co., Inc.
NCW	Nostrip Chemical Works, Inc.	SLC	Soluol Chemical Co., Inc.
NES	Ruetgers-Nease Chemical Co.	SLM	Salem Oil & Grease Co.
NMC	National Milling & Chemical Co.	SM	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.
NPR	Safeway Stores, Inc.	SNW	Sun Chemical Corp., Chemicals Div.
NTL	NL Industries, Inc.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
OMC	Olin Corp.	SOP	Southern Chemical Products Co.
ONX	Onyx Chemical Co.	SOS	SSC Industries, Inc.
ORO	Chevron Chemical Co.	SPA	Scott Paper Co.
PC	Proctor Chemical Co., Inc.	STC	American Hoechst Corp., Sou-Tex Works
PCH	Peerless Chemical Co.	STP	Stepan Chemical Co.
PEK	Peck's Products Co.	TCC	Sybron Corp., Chemical Division/Tanatex
PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.	TCH	Emery Industries, Inc., Trylon Div.
PIL	Pilot Chemical Co.	TCI	Morton-Norwich Products, Inc., Texize Div.
PLX	Plex Chemical Corp.	TEN	Cities Service Co., Copperhill Operations
PNX	Murphy-Phoenix Co.	TMH	Thompson Hayward Chemical Co.
PRX	Purex Corp.	TNA	Ethyl Corp.
PSP	Georgia-Pacific Corp., Bellingham Div.	TNI	The Gillette Co., Chemical Div.
PVO	PVO International, Inc.	UCC	Union Carbide Corp.
QCP	Quaker Chemical Corp.	UDI	Petrochemicals Co., Inc.
RAY	ITT Rayonier, Inc.	UNN	United Chemical Corp. of Norwood
RBC	Fike Chemicals, Inc.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
RCD	Richardson Co.	VAL	Valchem Div. of United Merchants & Manufacturers, Inc.
RH	Rohm & Haas Co.	VND	Van Dyk & Co., Inc.
ROB	Robeco Chemicals, Inc.	VPC	Mobay Chemical Corp., Dyestuff Div.
RWC	Robinson-Wagner Co., Inc.	WAW	W.A. Wood Co.
S	Sandoz, Inc., Colors & Chemicals Div.	WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.
SBC	Scher Bros. Inc.	WBG	White & Bagley Co.
SBP	Sugar Beet Products Co.	WHI	White & Hodges, Inc.
SCO	Scholler Bros., Inc.	WHW	Whittemore-Wright Co., Inc.
SCP	Henkel Corp.	WM	Inolex Corp.
SDC	Martin-Marietta Corp., Sodyeco Div. Sterling Drug, Inc.:	WTC	Witco Chemical Corp.
SDH	Hilton Davis Chemical Co. Div.	WVA	Westvaco Corp., Polychemicals Dept.
SDW	Sterling Organics 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 167 reporting companies and company divisions for which permission to publish was not restricted.

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 1979 amounted to 1,429 million pounds--0.9 percent greater than the 1,416 million pounds reported for 1978 (table 1).¹ Sales in 1979 were 1,369 million pounds, an increase of 5.3 percent, as compared with 1,300 million pounds reported in 1978; the value of sales was \$3,631 million in 1979, compared with \$3,041 million in 1978--an increase of 19.4 percent.

The output of cyclic pesticides and related products amounted to 971 million pounds in 1979--1.1 percent less than the 982 million pounds produced in 1978. Sales in 1979 were 979 million pounds, valued at \$2,811 million, compared with 944 million pounds, valued at \$2,314 million in 1978. Production of acyclic pesticides and related products in 1979 amounted to 459 million pounds, compared with 434 million pounds reported for 1978, an increase of 5.7 percent. Sales in 1979 were 390 million pounds, an increase of 9.4 percent, as compared with 357 million pounds reported in 1978; the value of sales was \$820 million in 1979, compared with \$728 million in 1978--an increase of 12.7 percent.

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

TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1979

[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	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,429,408	1,369,069	3,630,688	\$2.65
Benzenoid-----	760,899	773,868	2,283,864	2.95
Nonbenzenoid-----	668,509	595,201	1,346,824	2.26
CYCLIC				
Total-----	970,623	979,081	2,810,772	2.87
Fungicides, total-----	126,876	109,281	208,802	1.91
Naphthenic acid, copper salt-----	1,606	1,137	977	.86
Pentachlorophenol (PCP)-----	51,412	38,405	17,004	.44
All other cyclic fungicides ² -----	73,858	69,739	190,821	2.74
Herbicides and plant growth regulators, total-----	527,254	575,416	1,802,131	3.13
2,4-Dichlorophenoxyacetic acid-----	12,705	13,641	10,416	.76
2,4-Dichlorophenoxyacetic acid, dimethylamine salt--	18,572	20,940	18,867	.90
2,4-Dichlorophenoxyacetic acid, iso-octyl ester-----	7,605	8,719	7,009	.80
Plant growth regulators ³ -----	8,121	6,289	25,067	3.99
All other cyclic herbicides ⁴ -----	480,251	525,827	1,740,772	3.31
Insecticides and rodenticides, total-----	316,493	294,384	799,839	2.72
Organophosphorus insecticides ⁵ -----	109,204	113,009	293,990	2.60
All other cyclic insecticides and rodenticides ⁶ -----	207,289	181,375	505,849	2.79
ACYCLIC				
Total-----	458,785	389,988	819,916	2.10
Fungicides, total-----	28,031	34,217	44,681	1.31
Dithiocarbamic acid salts ⁷ -----	24,391	31,236	37,437	1.20
All other acyclic fungicides ⁸ -----	3,640	2,981	7,244	2.43
Herbicides and plant growth regulators ⁹ -----	129,890	127,961	363,454	2.84
Insecticides, rodenticides, soil conditioners and fumigants, total-----	300,864	227,810	411,781	1.81
Organophosphorus insecticides ¹⁰ -----	93,999	74,501	234,941	3.15
Trichloronitromethane (Chloropicrin)-----	7,478	7,406	5,725	.77
All other acyclic insecticides, rodenticides, soil conditioners and fumigants ¹¹ -----	199,387	145,903	171,115	1.17

¹Calculated from unrounded figures.

²Includes benomyl, captafol, captan, chlorothalonil, dinocap, DMTT, folpet, pentachloronitrobenzene, PMA, sodium pentachlorophenate, 2,4,5-trichlorophenol salts, 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, 2,4,5-T acid (esters and salts), triazines, trifluralin, uracils, and others.

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

⁶Includes carbaryl, carbofuran, chlorinated insecticides (chlordan, chlorobenzilate, DDT, endrin, 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, sodium TCA, 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, 1979
 [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:	
2,6-Bis(dimethylaminomethyl)cyclohexanone	MRK.
2-Bromo-4'-hydroxyacetophenone	BKM.
5-Chloro-2-benzothiazolethiol, laurylpyridinium salt-	VNC.
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)	
5-Ethoxy-3-(trichloromethyl)-1,2,4-thiadiazole	MON.
Hexahydro-1,3,5-triethyl-s-triazine	OMC.
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.
* Naphthenic acid, copper salt-	CCA, MCI, TRO, WTC, X.
2-n-Octyl-4-isothiazolin-3-one	RH.
Pentachloronitrobenzene (PCNB)	OMC.
* Pentachlorophenol (PCP)-	DOM, FRO, MON, RCI.
Pentachlorophenol, potassium salt-	X.

TABLE 2. -- PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979 -- CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
* FUNGICIDES--CONTINUED	
Pentachlorophenol, sodium salt	DOM.
Phenylmercuric acetate (PMA)	CLY, MRK, TRO.
Phenylmercuric ammonium acetate	TRO.
Phenylmercuric oleate	TRO.
Phenylmercuric propionate	MRK.
8-Quinolol(8-hydroxyquinoline), copper salt	SOL, X.
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- thione (DMTT)	MRK, VCC.
2-(Thiocyanomethylthio)benzothiazole	BKM.
N-Trichloromethylthio-4-cyclohexene-1,2-dicarbox- imide (Captan)	SFA, SFC, X. SFA, SFC.
N-Trichloromethylthiophthalamide (Folpet)	DOM.
2,4,5-Trichlorophenol	X.
2,4,5-Trichlorophenol, potassium salt	GAF, MRK.
2,4,5-Trichlorophenol, sodium salt	EFH.
1,3,5-Tri(2-isopropanol)-s-triazine	HXL, LIL, RH, X.
Cyclic fungicides, all other	
* 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.
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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
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-toluidine (Benefin)	LLI.
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)	CGY.
2-Chloro-4,6-bis(isopropylamino)-s-triazine (Propazine)	CGY.
2-Chloro-2',6'-diethyl-N-(n-butoxymethyl)acetanilide (Butachlor)	MON.
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (Alachlor)	MON.
2-Chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene (Oxyfluorfen)	RH.
2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine (Atrazine)	CGY, FRI, SHC, VTC.
2-[4-Chloro-6-(ethylamino)-s-triazin-2-ylamino]-2-methylpropionitrile (Cyanazine)	CGY, SHC.
N-(2-Chloroethyl)- α,α -trifluoro-2,6-dinitro-N-propyl-p-toluidine (Fluchloralin)	BAS.
2-Chloro-N-isopropylacetanilide (Propachlor)	DOM, MON.
2-(4-Chloro-2-methylphenoxy)propionic acid (MCPP)-amine salt	FLC.
2-(4-Chloro-2-methylphenoxy)propionic acid, dimethyl amine salt	FLC.
3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4-(1H,3H)-dione	DUP.
N-(Cyclopropylmethyl)- α,α -trifluoro-2,6-dinitro-N-propyl-p-toluidine (Profluralin)	CGY.
3,5-Dibromo-4-hydroxybenzoxazole, octanoic acid esters (Bromoxynil octanoate)	RDA.
3,6-Dichloro-2-anisic acid (Dicamba)	VEI.
4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB Acid)	RDA.
2-(2,4-Dichlorophenoxy)butyric acid, iso-octyl ester	RDA.
2-(2,4-Dichlorophenoxy)propionic acid, 2-butoxyethyl ester	DOW.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)	DUP.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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-methoxy-1-methylurea (Linuron)	
2,4-Dichlorophenyl p-nitrophenyl ether	DUP.
3',4'-Dichloropropionanilide (Propanil)	RH.
S-(O,O-Diisopropyl phosphorodithioate) ester of N-(o-mercaptoethyl)benzenesulfonamide (Bensulide)	RH, VTC.
1,1'-Dimethyl-4,4'-bipyridinium dichloride	SFA.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamid)	ICI.
N-(1,1-Dimethyl-2-propynyl)-3,5-dichlorobenzamide (Pronamide)	CMN, LIL.
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)	RH.
1,1-Dimethyl-3-(α,α,α -trifluoro-m-tolyl)urea (Fluometuron)	DA.
Dinitrobutylphenol (DNBP)	CGY.
Dinitrobutylphenol, ammonium salt	DOM, VTC.
Dinitrobutylphenol, triethanolamine salt	DOM.
2,6-Dinitro-N,N-dipropyl cumidine	DOM, VTC.
3,5-Dinitro-N,N-dipropylsulfanilamide	LIL.
2-(Ethylamino)-4-(isopropylamino)-6-(methylthio)-s-triazine (Ametryne)	LIL, SDG, X.
5-Ethyl cyclohexylethylthiocarbamate	CGY.
S-Ethyl-hexahydro-1H-azepine-1-carbothioate (Molinate)	SFA.
N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine	SFA.
2-(Ethylthio)-4,6-bis(isopropylamino)-s-triazine	ACY, X.
3-Isopropyl-1H-2,1,3-benzothiadiazin-4(3H)-one 2,2-dioxide	CGY.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)	BAS.
Isopropyl N-phenylcarbamate (IPC)	PPG, RBC.
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	PPG, RBC.
Methyl 5-(2',4'-dichlorophenoxy)-2-nitrobenzoate	DUP.
1-Naphthylphthalamic acid (NPA)	SM.
7-Oxabicyclo-[2.2.1]-heptane-2,3-dicarboxylic acid, disodium salt (Endothall)	USR.
	PAS.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979.--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:	
4-Chloro-2-methylphenoxyacetic acid (MCPA)	FLC.
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt	FLC.
2,4-DICHLOROPHENOXYACETIC ACID, ESTERS AND SALTS:	
*2,4-Dichlorophenoxyacetic acid (2,4-D)	DOM, FLC, RDA.
2,4-Dichlorophenoxyacetic acid, butoxyethanol ester	DOM, RIV.
2,4-Dichlorophenoxyacetic acid, butoxypolypropylene glycol ester	DOM.
2,4-Dichlorophenoxyacetic acid, n-butyl ester	FLC, PBI.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	DOM.
*2,4-Dichlorophenoxyacetic acid, dimethylamine salt	DOM, FLC, 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, lithium salt	GTH.
2,4-Dichlorophenoxyacetic acid, sodium salt	RIV.
2,4-Dichlorophenoxyacetic acid, esters and salts, all other	VEL.
2,4,5-TRICHLOROPHENOXYACETIC ACID, ESTERS AND SALTS:	
2,4,5-Trichlorophenoxyacetic acid, butoxyethanol ester	DOM.
2,4,5-Trichlorophenoxyacetic acid, butoxypolypropylene glycol 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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
* HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
* PLANT GROWTH REGULATORS--Continued	
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.
2-(2,4,5-Trichlorophenoxy)propionic acid, 2-butoxy-polypropylene ester	DOM.
2-(2,4,5-Trichlorophenoxy)propionic acid, dimethyl-ame salt	RIV.
2-(2,4,5-Trichlorophenoxy)propionic acid, iso-octyl ester	RIV.
α , α -Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin)	LLL.
1,1,1-Trifluoro-N-(2-methyl-4-(phenylsulfonyl)-phenyl)methanesulfonamide	CGY.
Cyclic herbicides, all other	MMM, S.
INSECT ATTRACTANTS AND REPELLENTS:	
tert-Butyl 4(or 5)-chloro-2-methylcyclohexanecarboxylate (Trimedlure)	UOP.
N,N-Diethyltoluamide (DEET)	HDM, PFZ, TNA, VGC.
* INSECTICIDES:	
Bacillus thuringiensis	ABB, S.
(5-Benzyl-3-furyl)methyl-2,2-dimethyl-3-(2-methyl-propenyl)cyclopropane carboxylate (Resmethrin)	PEN.
2,3,4,5-6-2-Butenylene-tetrahydrofurfural	PLC.
2-(p-tert-Butylphenoxy)cyclohexyl-2-propynyl sulfite	USR.
CHLORINATED INSECTICIDES:	
Ethyl 4,4'-dichlorobenzilate (Chlorobenzilate)	CGY.
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor)	VEL.
Hexachloroepoxyoctahydro-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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
*INSECTICIDES--CONTINUED	
CHLORINATED INSECTICIDES--Continued	
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.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate	FMN.
Di-n-propylisocinchomeronate	MGK.
Distinnaxane, hexakis(2-methyl-2-phenylpropyl)	SHC.
m-(1-Ethylpropyl)phenyl methylcarbamate	SOC.
m-(Methylbutyl)phenyl methylcarbamate	SOC.
Methyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboate	FMN.
1-Naphthyl N-methylcarbamate (Carbaryl)	UCC.
Permethrin	ICI.
*ORGANOPHOSPHORUS INSECTICIDES:	
O-(4-Bromo-2,5-dichlorophenyl) O-methylphenylphosphorothioate (leptophos)	VEL.
S-[[p-Chlorophenyl]thio]methyl O,O-diethyl phosphorodithioate (Carbophenothion)	SFA.
N'-(Chloro-o-tolyl-N,N-dimethylformamidine (Chloridimeform))	CGY.
O-(2,4-Dichlorophenyl) O-ethyl S-propyl phosphorodithioate	CHG.
2-(Diethoxyphosphinylimino)-4-methyl-1,3-dithiolane	ACY.
O,O-Diethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate (Diazinon)	CGY.
O,O-Diethyl O-[4-(methylsulfinyl)phenyl]phosphorothioate	CHG.
O,O-Diethyl O-(p-nitrophenyl)phosphorothioate (Parathion)	MON.
O,O-Diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate	DOM, SHC.
O,O-Dimethyl O-[4-(methylthio)-m-tolyl]phosphorothioate (Fenthion)	CHG.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*INSECTICIDES--CONTINUED	
*ORGANOPHOSPHOROUS INSECTICIDES--Continued	
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.
0,0-Dimethyl 0-(2,4,5-trichlorophenyl)phosphorothioate (Rommel)	DOM.
2,3-p-Dioxanedithiol S,S-bis-(0,0-diethyl phosphorodithioate (Dioxathion))	BHA.
0-Ethyl 0-[4-(methylthio)phenyl] S-propyl phosphorodithioate	CHG.
0-Ethyl 0-(p-nitrophenyl)phenylphosphonothioate (EPN)	DUP, SFA, VEL.
0-Ethyl-S-phenylethylphosphonodithioate	SFA.
2-Imino-1,3-dithiolane, dihydrogen sulfate	ACY.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-crotonate	SHC.
0,0,0',0'-Tetramethyl-0,0'-thiodi-p-phenylene phosphorothioate	ACY.
Organophosphorus insecticides, cyclic, all other	SFA.
Cyclic insecticides, all other	CGY, FMN, ICI, S, VTC, X.
NEMATOCIDES:	
0,0-Diethyl 0-(2,4-dichlorophenyl)phosphorothioate (Dichlofenthion)	SM.
RODENTICIDES:	
3-(α-Acetylbenzyl)-4-hydroxycoumarin (Warfarin)	MOT.
2-Pivaloyl-1,3-indandione (Pindone)	MOT, PIC.
Rodenticides, cyclic, all other	MOT.
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-dicarboximide	MGK.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--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	TKO
Disodium cyanodithioimidocarbonate	BKM.
n-Dodecylguanidine acetate (Dodine)	ACY.
Methylene bis(thiocyanate)	MRK, VCC.
* DITHIOCARBAMIC ACID FUNGICIDES:	
Dimethyldithiocarbamic acid, ferric salt (Ferbam)	FMN.
Dimethyldithiocarbamic acid, potassium salt	BKM.
Dimethyldithiocarbamic acid, sodium salt	VCC.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)	ALC, VCC.
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb)	DUP, RH.
Ethylene bis(dithiocarbamic acid), manganese salt with zinc ions	RH.
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)	FMN.
N-Methyldithiocarbamic acid, potassium salt	BKM.
Dithiocarbamic acid fungicides, acyclic, all other	FMN, VNC, X.
Acyclic fungicides, all other	BKM, MRK.
* 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)	DOW.
N-[5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl]-N,N'-dimethylurea (Tebuthiuron)	LIL, MRT.
Ethyl carbamoylphosphonate, ammonium salt	DUP.
S-Ethyl disobutylthiocarbamate (Butylate)	SFA.
S-Ethyl dipropylthiocarbamate (EPTC)	SFA.
Ethyl xanthogen disulfide	RBC.
Methanearsonic acid, disodium salt (DSMA)	DA, VIN.
Methanearsonic acid, dodecyl- and octyl- ammonium salts	CLY.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

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

ACYCLIC--CONTINUED

* HERBICIDES AND PLANT GROWTH REGULATORS--CONTINUED	
N-(Phosphonomethyl)glycine, isopropylamine salt	MON.
S-Propyl butylethylthiocarbamate (Pebulate)	SFA.
S-Propyl dipropylthiocarbamate (Vernolate)	SFA.
S,S-Tributyl phosphorotriothioate	PLC.
Tributyl phosphorotriothioate (Merphos)	SM.
Trichloroacetic acid, sodium salt (TCA)	DOM.
PLANT GROWTH REGULATORS:	
2-(Chloroethyl)phosphonic acid	GAF, UCC.
Ethanedial dioxime	CGY.
Succinic acid, 2,2-dimethylhydrazide	USR.
Acyclic herbicides, all other	S.
INSECTICIDES:	
2-(2-Butoxyethoxy)ethyl thiocyanate	RH.
Methyl N',N'-dimethyl-N-[(methylcarbamoyl)oxy]-1-thiooxamide	DUP.
S-Methyl-N-[(methylcarbamoyl)oxy]thioacetimidate (Methomy)	DUP, SHC, VTC.
2-Methyl-2-(methylthio)propionaldehyde O-(methylcarbamoyl)oxime (Aldicarb)	UCC.
* ORGANOPHOSPHORUS INSECTICIDES:	
S-[1,2-Bis(ethoxycarbonyl)ethyl]O,O-dimethyl phosphorodithioate (Malathion)	ACY.
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate	SHC.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled)	SHC.
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate (Disulfoton)	CHG.
O,O-Diethyl O-[2-(ethylthio)ethyl] phosphorothioate (Demeton O)	CHG.
O,O-Diethyl S-[(ethylthio)methyl] phosphorodithioate (Phorate)	ACY.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide	SHC.
O,S-Dimethylacetylphosphoramidothioate (Acephate)	SOC.
O,O-Dimethyl-O-2,2-dichlorovinyl phosphate (DDVP)	SHC.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

PESTICIDES AND RELATED PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
INSECTICIDES--CONTINUED	
*ORGANOPHOSPHOROUS. INSECTICIDES--Continued	
Dimethyl phosphate of 3-hydroxy-N-methyl-cis-crotonamide	SHC.
O,S-Dimethyl phosphoramidothioate	CHG.
O,O-Dimethyl phosphorochloridothioate	CHG.
S-[2-(Ethylsulfinyl)ethyl]O,O-dimethyl phosphorothioate (Oxydemetonmethyl)	CHG.
O,O',O'-Tetraethyl S,S'-methylene bisphosphorodithioate (Ethion)	FMN.
O,O,O-Tetra-n-propyldithiopyrophosphate	SFA.
Organophosphorus insecticides, acyclic, all other	X.
Acyclic insecticides, all other	X.
RODENTICIDES:	
2-Hydroxyethyl n-octyl sulfide	PLC.
Rodenticides, acyclic, all other	PLC, RBC.
SOIL CONDITIONS:	
Polyacrylonitrile, hydrolyzed, sodium salt	ACY.
SOIL FUNGICIDES:	
1,3-Dichloropropene	DOM.
1,3-Dichloropropene, 1,2-dichloropropene	DOM, SHC.
Methyl bromide (Bromomethane)	DOM, GTL, VEL.
N-Methyldithiocarbamic acid, sodium salt (Metham)	SFA.
Methyl isothiocyanate	MRT.
*Trichloronitromethane (Chloropicrin)	DOM, IMC, NIO.
ACYCLIC PESTICIDES, ALL OTHER:	
Diamino acetate	X.
2-[(Hydroxymethyl)amino]-2-methylpropanol	TRO.
2-[(Hydroxymethyl)ethanol]	TRO.
3-Iodo-2-propynyl butylcarbamate	TRO.
Pesticides and related products, acyclic, all other	PCM, RBC, SHC, X.

TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1979

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 1979 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	MRK	Merck & Co., Inc.
ACY	American Cyanamid Co.	MRT	Morton-Norwich Products, Inc., Morton Chemical Co. Div.
ADC	Anderson Development Co.	MTO	Montrose Chemical Corp. of California
ALC	Alco Chemical Corp.	MTP	Mount Pleasant Chemical Co.
ALP	Alpha Laboratories, Inc.		
AMP	Kerr-McGee Chemical Corp.	NLO	Niklor Chemical Co., Inc.
BAS	BASF Wyandotte Corp.	OMC	Olin Corp., Agricultural Products Dept.
BHA	Boots Hercules Agrochemicals Co.		
BKM	Buckman Laboratories, Inc.	PAS	Pennwalt Corp.
		PBI	PBI Gordon Corp.
		PCW	Pfister Chemical, Inc.
CCA	Interstab Chemicals, Inc.	PEN	CPC International, Inc., Penick Div.
CGY	Ciba-Geigy Corp., Agricultural Div.	PFZ	Pfizer, Inc.
CHF	Chemical Formulators	PIC	Pierce Chemical Co.
CHG	Mobay Chemical Corp., Agricultural Chemicals Div.	PLC	Phillips Petroleum Co.
CLY	W. A. Cleary Corp.	PPG	PPG Industries, Inc.
CWN	Upjohn Co., Fine Chemical Div.		
		RBC	Fike Chemicals, Inc.
DA	Diamond Shamrock Corp.	RCI	Reichhold Chemicals, Inc.
DOW	Dow Chemical Co.	RDA	Rhone-Poulenc, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.	RH	Rohm & Haas Co.
		RIV	Riverdale Chemical Co.
EFH	E. F. Houghton & Co.	S	Sandoz Inc., Crop Protection Dept.
		SDC	Martin-Marietta Corp., Sodyeco Div.
FLC	Fallek-Lankro Corp.		Stauffer Chemical Co.:
FMN	FMC Corp., Agricultural Chemical Div.	SFA	Agricultural Div.
FMT	Fairmount Chemical Co.	SFC	Calhio Chemicals, Inc.
FRI	Farmland Industries, Inc.	SHC	Shell Oil Co., Shell Chemical Co. Div.
FRO	Vulcan Materials Co., Chemicals Div.	SM	Mobil Oil Corp., Mobil Chemical Co., Phosphorus Div.
		SOC	Standard Oil Co. of California, Chevron Chemical Co.
GAF	GAF Corp.	SOL	Southland Corp., Chemical Div.
GNW	Greenwood Chemical Co.		
GTH	Guth Corp.	TMH	Thompson-Hayward Chemical Co.
GTL	Great Lakes Chemical Corp.	TNA	Ethyl Corp.
		TRO	Troy Chemical Corp.
HDW	Hardwicke Chemical Co.	UCC	Union Carbide Corp.
HXL	Hexcel Corp., Hexcel Specialty Chemicals	UOP	UOP, Inc., Chemical Div.
		USR	Uniroyal, Inc., Uniroyal Chemical Div.
ICI	ICI Americas, Inc., Agricultural Chemicals Div.	VCC	Vinings Chemical Co.
IMC	International Minerals & Chemicals Corp.	VEL	Velsicol Chemical Corp.
		VGC	Virginia Chemicals, Inc.
LAK	Bofors Lakeway, Inc.	VIN	Vineland Chemical Co., Inc.
LIL	Eli Lilly & Co.	VNC	Vanderbilt Chemical Corp.
		VTC	Vertac, Inc.
MCI	Mooney Chemical, Inc.		
MGK	McLaughlin Gormley & King Co.	WTC	Witco Chemical Corp.
MMM	Minnesota Mining & Manufacturing Co.		
MON	Monsanto Co.		
MOT	Motomoco, 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 84 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

David B. Beck and Ken 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 gasoline additives and tanning materials, both production and sales of all end-use groups contained within this section increased over 1978 levels.

In 1979 the production of miscellaneous end-use chemicals exceeded 22.3 billion pounds, an increase of 8.5 percent over the more than 20.6 billion pounds of production reported for 1978. Sales in 1979 totaled 11.5 billion pounds, valued at \$3.0 billion. The sales quantity decreased 1.9 percent from that of 1978 with the value of sales increasing by 11.8 percent. As in 1978, polymers for fibers and urea again collectively accounted for 84 percent of the 1979 production of these miscellaneous end-use chemicals. Urea accounted for 73 percent of the 1979 sales quantity of these chemicals.

In 1979 the production of lubricating oil and grease additives totaled 1.8 billion pounds, an increase of 10 percent over 1978. Total sales quantity for 1979 was 1.3 billion pounds, up 9 percent from the 1978 sales quantity of 1.2 billion pounds, while the value of sales increased 19 percent to \$774 million.

Production of gasoline additives for 1979 totaled 1.3 billion pounds, an increase of 23 percent from the previous year. Total sales quantity for 1979 was 875 million pounds, up 9 percent from the 1978 sales quantity of 801 million pounds, with sales value decreasing 2 percent to \$801 million.

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S.
PRODUCTION AND SALES, 1979

[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-----	22,341,738	11,478,283	3,032,188	\$0.26
Chelating agents, nitriloacids and salts, total-----	190,655	189,856	92,772	.49
(Diethylenetrinitrilo)pentaacetic acid, penta- sodium salt-----	6,032	7,392	2,855	.39
(Ethylenedinitrilo)tetraacetic acid (EDTA)-----	9,877	7,419	7,339	.99
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt-----	931	...	...	...
(Ethylenedinitrilo)tetraacetic acid, diammonium salt-----	...	566	550	.97
(Ethylenedinitrilo)tetraacetic acid, manganese salt- (Ethylenedinitrilo)tetraacetic acid, tetrasodium salt-----	1,133	1,867	1,137	.61
(N-Hydroxyethylethylenedinitrilo)triacetic acid, iron salt-----	59,725	64,048	23,716	.37
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt-----	647	...	...	...
All other-----	5,434	5,852	3,074	.53
Chemical indicators-----	106,876	102,712	54,101	.53
Chemical indicators-----	10	10	570	54.52
Enzymes, total-----	(²)	(²)	30,430	...
Hydrolytic enzymes, total-----	(²)	(²)	27,185	...
Amylases-----	(²)	(²)	4,089	...
Proteases, total-----	(²)	(²)	16,251	...
Rennin-----	(²)	(²)	8,452	...
All other proteases-----	(²)	(²)	7,799	...
All other hydrolytic enzymes-----	(²)	(²)	6,845	...
Non-hydrolytic enzymes-----	(²)	(²)	3,245	...
Flotation reagents-----	4,002	...	...	...
Gasoline additives, total ³ -----	1,333,921	875,275	801,394	.92
N,N'-Di-sec-butyl-p-phenylenediamine-----	...	3,293	5,006	1.52
N,N'-Disalicylidene-1,2-propanediamine-----	745	...	...	...
Ethylenedibromide-----	285,941	133,767	30,855	.23
Tetraethyl lead-----	412,410	288,015	292,370	1.02
Tetra(methyl-ethyl) lead, (TEL-TML, reacted)-----	432,652	361,797	362,094	1.00
All other gasoline additives-----	202,173	88,403	111,069	1.26
Lubricating oil and grease additives, total-----	1,762,899	1,309,842	774,120	.59
Oil soluble petroleum sulfonate, calcium salt-----	329,121	256,664	148,683	.58
Oil soluble petroleum sulfonate, sodium salt-----	126,396	131,457	41,558	.32
Phenol salts, total-----	159,131	140,968	73,165	.52
Nonylphenol, barium salt-----	6,779	...	...	...
All other-----	152,352	140,968	73,165	.52
Sulfur compounds, total-----	182,521	177,697	92,643	.52
Sulfurized lard oil-----	13,064	...	...	...
All other sulfur compounds-----	169,457	177,697	92,643	.52
Zinc dialkyldithiophosphate-----	17,039	7,418	8,210	1.11
All other lubricating oil and grease additives-----	948,691	595,638	409,861	.69
Paint driers, naphthenic acid salts, total ^{4 5} -----	15,877	10,720	17,804	1.66
Calcium naphthenate-----	807	758	531	.70
Cobalt naphthenate-----	3,104	2,888	11,808	4.09

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: U.S. PRODUCTION
AND SALES, 1979--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
Paint driers, naphthenic acid salts--Continued				
Lead naphthenate-----	6,445	4,004	2,737	\$0.68
Manganese naphthenate-----	846	742	504	.68
Zinc naphthenate-----	1,907	1,709	1,338	.78
All other-----	2,768	619	886	1.43
Photographic chemicals-----	...	2,737	12,916	4.72
Polymers for fibers, total-----	6,724,637	467,429	261,660	.56
Nylon 6 and 6/6-----	2,150,196	...	...	...
Polyethylene terephthalate-----	3,007,450	247,742	130,619	.53
All other polymers for fiber-----	1,566,991	219,687	131,041	.60
Polymers, water soluble, total-----	265,899	233,657	312,128	1.34
Cellulose ethers and esters-----	150,403	147,466	209,274	1.42
Polyacrylamide-----	59,280	48,827	49,099	1.01
Polyacrylic acid salts, total-----	30,397	...	...	...
Sodium polyacrylate-----	15,916	4,486	4,193	.93
All other polyacrylic acid salts-----	14,481	...	...	...
All other water soluble polymers-----	25,819	32,878	49,562	1.51
Tanning materials, synthetic-----	61,274	52,087	22,065	.42
Textile chemicals, other than surface-active agents---	7,394	3,576	2,504	.70
Urea, total-----	11,948,058	8,325,209	673,252	.08
In feed compounds-----	387,318	317,937	21,642	.07
In liquid fertilizer-----	3,457,711	3,055,681	221,458	.07
In solid fertilizer-----	7,279,096	4,637,871	405,426	.09
In plastics-----	765,540	255,543	19,472	.08
All other-----	58,393	58,177	5,254	.09
All other miscellaneous end-use chemicals and chem- ical products ⁶ -----	27,112	7,885	30,573	3.88

¹Calculated from rounded 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, 1979

[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 1979 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.
(Diethylenetriamino)pentaacetic acid	CGY, HMP.
(Diethylenetriamino)pentaacetic acid, monosodium	
hydrogen ferric salt	CGY.
*(Diethylenetriamino)pentaacetic acid, pentasodium	
salt	CGY, DAN, DOW, HMP, RPC.
N,N-dihydroxyethylglycine, sodium salt	DAN, HMP.
Ethanol diglycine, disodium salt	HMP.
(Ethylene-bis-nitrilo)dimethylene phosphonic acid,	
potassium salt	WAY.
*(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine	
tetraacetic acid) (EDTA)	CGY, DOW, HMP.
*(Ethylenedinitrilo)tetraacetic acid, calcium disodium	
salt	CGY, DOW, HMP.
*(Ethylenedinitrilo)tetraacetic acid, diammonium salt	
(Ethylenedinitrilo)tetraacetic acid, disodium copper	
salt, dihydrate	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium salt	
(Ethylenedinitrilo)tetraacetic acid, disodium zinc	
salt, dihydrate	CGY, DOW, HMP.
*(Ethylenedinitrilo)tetraacetic acid, manganese salt	
(Ethylenedinitrilo)tetraacetic acid, monosodium iron	
salt	CGY, 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, 1979--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, tetraammonium salt	CGY, DOM, 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.
Hexamethylenediaminetetra(methylenephosphonic acid), potassium salt	WAY.
Hexamethylenediaminetetra(methylenephosphonic acid)	WAY.
Hydroxyethane-1-diphosphonic 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, RPC.
Nitrilotriacetic acid	DAN, HMP.
Nitrilotriacetic acid, trisodium salt	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, RSA, X.
*ENZYMES:	
*HYDROLYTIC ENZYMES:	
*AMYLASES:	
*Amylases, all other	CRN, MLS, PFZ, RH.
*PROTEASES:	
Bromelain	DOL.
Papain	BAX, PFZ.
Pepsin	CHH, SPR.
*Rennin	CHH, MLS, PFZ.
Proteases, all other	BAX, MLS, PIC, PMP, SPR.

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, 1979--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*ENZYMES--CONTINUED	
*HYDROLYTIC ENZYMES--Continued	
*Hydrolytic enzymes including pectic enzymes and lipase, all other--	JFR, MLS, PFN, PMP, RH, WBC(E).
*NON-HYDROLYTIC ENZYMES:	
*Nonhydrolytic enzymes--	DLI, ICI, OMS, PLB.
RARE SUGARS:	
Rare sugars--	PFN.
*FLOTATION REAGENTS:	
PHOSPHORODITHIOATES (DITHIOPHOSPHATES):	
Dicresylphosphorodithioic acid--	ACY.
Dicresylphosphorodithioic acid, ammonium salt--	ACY.
Dicresylphosphorodithioic acid, sodium salt--	KCU.
OTHER FLOTATION REAGENTS:	
2,2'-Dimethylthiocarbaniilide (Di-o-tolylthiourea)	RBC.
Rosin amines--	HPC.
Thiocarbaniilide (Diphenylthiourea)--	ACY.
*GASOLINE ADDITIVES:	
N-sec-Butyl-N-phenylphenylenediamine--	X.
4,4'-Di-sec-butylaminodiphenylmethane--	X.
*N,N'-Di-sec-butyl-p-phenylenediamine--	TX, USR, X.
N,N'-Diisopropyl-p-phenylenediamine--	DUP, USR.
*N,N'-Disalicylidene-1,2-propanediamine--	DUP, FER, SM, TX.
*Ethylene dibromide--	DOM, GTL, PPG, TNA.
Methyl-t-butyl ether--	PTT.
Methylcyclopentadienylmanganese tricarbonyl--	TNA.
4,4'-Methylenebis(2,6-di-tert-butylphenol)--	TNA.
*Tetraethyl lead--	DUP, PPG, TNA.
*Tetra(methyl-ethyl)lead, (TEL-TML, reacted)--	DUP, PPG, TNA, X.
Tetramethyl lead--	DUP, PPG, TNA, X.
1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)mesityl-ene--	TNA.
Gasoline additives, all other--	DUP, SM, TNA, X.
*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--	GLY.

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, 1979--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*LUBRICATING OIL AND GREASE ADDITIVES--CONTINUED	
OIL-SOLUBLE PETROLEUM SULFONATES:	
Oil-soluble petroleum sulfonate, ammonium salt	NTL.
Oil-soluble petroleum sulfonate, barium salt	PAR, WTC, X.
*Oil-soluble petroleum sulfonate, calcium salt	ENJ, ORO, PAR, PLC, TNA, TX, WTC, X.
Oil-soluble petroleum sulfonate, magnesium salt	WTC.
*Oil-soluble petroleum sulfonate, sodium salt	DA, ENJ, MOR, PAR, SHC, WTC, X.
Oil-soluble petroleum sulfonate, all other	SHC.
*PHENOL SALTS:	
Alkylphenol, calcium salt	ORO.
*Nonylphenol, barium salt	CCA, ENJ, X.
Phenol salts, all other	TNA, TX, WTC, X.
PHOSPHORODITHIATES (DITHIOPHOSPHATES):	
Di-2-ethylhexylphosphorodithioic acid	ELC, SFA.
Di-N-propylphosphorodithioic acid	ELC, SFA.
*Zinc dialkyldithiophosphate	ELC, ORO, TNA, TX.
Zinc hydrocarbon dithiophosphate	X.
Phosphorodithiotes used as lubricating oil and grease additives, all other	ELC, TX.
*SULFUR COMPOUNDS:	
Aliphatic hydrocarbon sulfides	ELC, X.
Aliphatic imides, sulfur compounds	ORO.
Chlorosulfurized sperm oil	CCM.
Diisobutylene polysulfide	TX.
Di-tertiary nonylpolysulfide	PAS.
*Sulfurized lard oil	CCM, FER, QCP, WBG.
Sulfurized sperm oil substitutes	ELC, FER.
Sulfur compounds, all other	CCM, ORO, TX.
Lubricating oils and grease additives, all other	ALX, ELC, ENJ, HCC, MIL, ORO, PIC, SHC, SM, TNA, TX, X.
*PAINT DRIERS, NAPHTHENIC ACID SALTS:	
Barium naphthenate	CCA.
Cadmium naphthenate	CCA.
*Calcium naphthenate	CCA, HN, MCI, TRO, WTC, X.
Chromium naphthenate	MCI, WTC.

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, 1979--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*PAINT DRIERS, NAPHTHENIC ACID SALTS--CONTINUED	
*Cobalt naphthenate	CCA, HN, MCI, SHP, TRO, WTC, X.
Iron naphthenate	HN, WTC.
*Lead naphthenate	CCA, MCI, SHP, SM, WTC, X.
Lithium naphthenate	CCA.
*Manganese naphthenate	CCA, HN, MCI, SM, SW, WTC, X.
Rare earths naphthenate	CCA.
*Zinc naphthenate	CCA, HN, MCI, SM, TRO, WTC, X.
Paint dryers, naphthenic acid salts, all other	EK, MCI, SM, SW.
*PHOTOGRAPHIC CHEMICALS:	
3-Amino-1,2,4-triazole (5-Amino-1,3,4-triazole)	FMT.
Benzotriazole	FMT.
3-Chloro-4-diethylaminobenzenediazonium chloride (p-Diazo-2-chloro-N,N-diethylaniline)-zinc chloride	ESA.
Chlorohydroquinone	EK.
4-Diazo-3,5-diethoxythiocresol salts	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, WAY.
p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline)-zinc chloride	ALL, ESA, FMT.
p-Diphenylaminediazonium sulfate	FMT.
p-(N-Ethylbenzimidol)benzenediazonium chloride (p-Diazo-N-benzyl-N-ethylaniline)-zinc chloride	ESA.
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride (p-Diazo-N-ethyl-N-hydroxyethylaniline)-zinc chloride	ESA, FMT.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate (Hydroquinol)	WAY.
Hydroquinone	EKT.
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline)-zinc chloride	ESA, FMT.
4-Methoxy-1-naphthol	X.
p-Methylaminophenol sulfate (Metol)	EK.
5-Methylbenzotriazole	EK.
4-Methyl-1-phenyl-3-pyrazolidione	WAY.

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, 1979--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*PHOTOGRAPHIC CHEMICALS--CONTINUED	
P-Morpholinyl-2,5-dibutoxybenzene diazonium chloride	ALL, ESA.
6-Nitrobenzimidazole	EK(E), FMT.
Phenyl-5-mercaptotetrazole	FMT.
1-Phenyl-3-pyrazolidine	CGY.
1-Phenyl-3-pyrazolidone	MAY.
4-N-(1-Pyrazolidyl)-m-toluenediazonium chloride	ALL.
Photographic chemicals, all other	ALL, DUP, FMT, HST, MAY, X, X.
*POLYMERS FOR FIBERS:	
Cellulose acetate	CEL, EKT, MIL.
*Nylon 6 and 6/6	ALF, DUP, END, 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, EK, EKT, MON.
*POLYMERS, WATER SOLUBLE:	
*CELLULOSE ETHERS AND ESTERS:	
Hydroxyethylcellulose	UCC, X.
Methylcellulose	DOM.
Sodium carboxymethylcellulose (100%)	BUK, MAK, X.
Cellulose ethers and esters, all other	UCC, X.
Dextran	DA.
*Polyacrylamide	ACY, CEL, DOM, HPC, MRK, X.
*POLYACRYLIC ACID SALTS:	
Ammonium polyacrylate	BFG.
*Sodium polyacrylate	ALC, BFG, BKM, CEL, DA, MYO, RH, X.
Polyacrylic acid salts, all other	ACY, BFG, DA, X.
Polythacrylic acid, sodium salt	GRD, X.
1-Vinyl-2-pyrrolidinone, polymers	DAN, GAF, UCC.
Polymers, water soluble, all other	BKM, MRK, ONX, PFM, S, SCP, 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.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated)	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, 1979--CONTINUED

MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
*TANNING MATERIALS, SYNTHETIC--CONTINUED	
Tanning materials, synthetic, all other	DA, MIL.
*TEXTILE CHEMICALS, OTHER THAN SURFACE-ACTIVE AGENTS:	
Dimethyldihydroxyethylene urea	CHP, DAN.
Textile chemicals, other than surface active agents, all other	DAN, DUP, HDG, MIL.
*UREA, BY END-USE MARKETS:	
*Urea, primary solution (Report on 100% urea-content basis)	ACN, AGY, APD, ARM, BNP, BOR, CFA, CFI, CHN, CNC, FRI, GCC, GPI, HKY, HPC, MSC, OMC, PFN, PLC, SMP, SNI, SOH, TER, TRI, TVA, UOC, VLN, WLC, WYC, X.
UREA IN COMPOUNDS OR MIXTURES (100% BASIS):	
*Urea in feed compounds (100% Basis)	ACN, AGY, APD, ARM, BNP, CFA, CFI, CHN, CNC, FRI, GPI, HPC, MSC, PLC, SMP, SNI, SOH, TER, TRI, TVA, VLN, WLC, WYC, X.
*Urea in liquid fertilizer (100% Basis)	ACN, AGY, APD, ARM, BNP, CFA, CFI, CHN, CNC, FRI, GPI, HPC, MSC, PLC, SMP, SNI, SOH, TER, TRI, TVA, VLN, WLC, WYC, X.
*Urea in plastics (100% Basis)	BOR, OMC, SOH, TRI.
*Urea in solid fertilizer (100% Basis)	ACN, 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.

TABLE 3.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY
OF MANUFACTURERS, 1979

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production and/or sales of miscellaneous end-use chemicals and chemical products to the U.S. International Trade Commission for 1979 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ACN	Allied Chemical Corp., Agricultural Div.	FRI	Farmland Industries, Inc.
ACY	American Cyanamid Co.	GAF	GAF Corp.
AGY	Agway, Inc., Olean Nitrogen Complex	GCC	W. R. Grace & Co.
AKS	Arkansas Co., Inc.	GFS	G. Frederick Smith Chemical Co.
ALC	Alco Chemical Corp.	GLY	Glyco Chemicals, Inc.
ALF	Allied Chemical Corp., Fibers Div.	GPI	Goodpasture, Inc.
ALL	Alliance Chemical Corp.	GRD	W. R. Grace & Co., Polymers & Chemical Div.
ALX	Alox Corp.	GYR	Goodyear Tire & Rubber Co.
APD	Atlas Powder Co. Sub. of Tyler Corp.	HCC	Hatco Chemical Corp.
ARM	USS Agri-Chemicals Div. of U.S. Steel Corp.	HDG	Hodag Chemical Corp.
BAX	Baxter Travenol Laboratories, Inc.	HKY	Hawkeye Chemical Co.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	HMP	W. R. Grace & Co., Organic Chemicals Div.
BKL	Millmaster Onyx Group, Millmaster Chemical Co. Div.	HN	Tenneco Chemicals, Inc.
BKM	Buckman Laboratories, Inc.	HPC	Hercules, Inc.
BNP	Bison Nitrogen Products Co.	HST	American Hoechst Corp., Industrial Chemicals Div.
BOR	Borden, Inc., Borden Chemical Div.	HXL	Hexcel Corp., Hexcel Specialty Chemicals
BUK	Buckeye Cellulose Corp.	ICI	ICI Americas, Inc., Chemical Specialties Co.
CCA	Interstab Chemicals, Inc.	JFR	George A. Jeffreys & Co., Inc.
CCW	Cincinnati Milacron Chemicals, Inc.	KCU	Kennecott Minerals Co., Utah Copper Div.
CEL	Celanese Corp.: Celanese Fibers Co. Celanese Polymer Specialties Co.	MAK	MAK Chemical Corp.
CFA	Cooperative Farm Chemicals Association	MCI	Mooney Chemicals, Inc.
CFI	CF Industries, Inc.	MIL	Milliken & Co., Milliken Chemical Co.
CGY	Ciba-Geigy Corp.	MLS	Miles Laboratories, Inc., Industrial Products Group
CHH	CHR. Hansen's Laboratory, Inc.	MMC	MCB Manufacturing Chemists, Inc.
CHN	N-ReN Corp., Cherokee Nitrogen Div.	MON	Monsanto Co.
CHP	C. H. Patrick & Co., Inc.	MOR	Marathon Morco, Co.
CNC	Columbia Nitrogen Corp.	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 Dept.	OMC	Olin Corp.
DCC	Dow Corning Corp.	OMS	E. R. Squibb & Sons, Inc.
DLI	Dawe's Laboratories, Ltd.	ONX	Onyx Chemical Co.
DOL	Castle & Cooke, Inc., Castle & Cooke Foods, Hawaii Pineapple Div.	ORO	Chevron Chemical Co.
DOW	Dow Chemical Co.	PAR	Pennzoil Co., Penreco Div.
DUP	E. I. DuPont de Nemours & Co., Inc.	PAS	Pennwalt Corp.
EK	Eastman Kodak Co.:	PFN	Pfanstiehl Laboratories, Inc.
EKT	Tennessee Eastman Co. Div.	PFZ	Pfizer, Inc.
ELC	Elco Corp., Sub. of Detrex Chemical Industries, Inc.	PIC	Pierce Chemical Co.
ENJ	Exxon Chemical Co. U.S.A.	PLB	P-L Biochemicals, Inc.
ESA	East Shore Chemical Co.	PLC	Phillips Petroleum Co.
FER	Ferro Corp., Keil Chemical Div.	PMP	Premier Malt Products, Inc.
FMT	Fairmount Chemical Co., Inc.	PPG	PPG Industries, Inc.
FND	Fiber Industries, Inc.	PTT	Petro-Tex Chemical Corp.
FRF	Firestone Tire & Rubber Co., Firestone Synthetic Fibers Co.		

TABLE 3.--MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS: DIRECTORY OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
QCP	Quaker Chemical Corp.	SW	Sherwin-Williams Co.
		SWS	Stauffer Chemical Co., SWS Silicones Div.
RBC	Fike Chemicals, Inc.	TER	Terra Chemicals International, Inc.
RH	Rohm & Haas Co.	TER	Terra Nitrogen, Inc.
RPC	Millmaster Onyx Group, Refined Onyx Co. Div.	TNA	Ethyl Corp.
RSA	R.S.A. Corp.	TRI	Triad Chemical
		TRO	Troy Chemical 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 Oil Co., Shell Chemical Co. Div.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SHP	Shepherd Chemical Co.		
SKP	Shakespeare Co., Monofilaments Div.	VLN	Valley Nitrogen Producers, Inc.
SM	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.	WAY	Phillip A. Hunt Chemical Corp., Organic Chemical Div.
SMP	J.R. Simplot Co., Minerals & Chemical Div.	WBC	Worthington Diagnostic Div. of Millipore Corp.
SNI	Kaiser Aluminum & Chemicals Corp., Kaiser Agricultural Chemicals Div.	WBG	White & Bagley Co.
SOH	Vistron Corp.	WLC	Agrico Chemical Co.
SPD	General Electric Co., Silicone Products Dept.	WTC	Witco Chemical Corp.
SPR	Scientific Protein Laboratories, Inc.	WYC	Wycon 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 133 reporting companies and company divisions for which permission to publish was not restricted.

STATISTICAL HIGHLIGHTS

David B. Beck

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 1979 amounted to 98.8 billion pounds, an increase of 7.2 percent over 1978. U.S. sales for 1979 totaled 39.7 billion pounds valued at \$10.2 billion. Compared with 1978, sales quantity increased 2.0 percent, while sales value increased by 18.8 percent. Production of miscellaneous cyclic chemicals comprised only 2.3 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, increased from 23.6 billion pounds in 1978 to 24.8 billion pounds in 1979, or by 5.0 percent. However, sales of chlorinated hydrocarbons declined from 9.1 billion pounds in 1978 to 8.6 billion pounds in 1979, or by 6.3 percent. Production of fluorinated hydrocarbons declined for the third consecutive year, falling from 914.9 million pounds in 1978 to 873.5 million pounds in 1979, or by 4.5 percent. This segment of the halogenated hydrocarbons industry is expected to continue 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, 1979

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

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	98,776,832	39,695,586	10,196,399	\$0.26
CYCLIC				
Total-----	2,315,591	1,130,391	887,632	.79
Benzoic acid, sodium salt-----	16,133	15,372	8,440	.55
Benzoyl peroxide-----	8,872	8,560	22,154	2.59
Benzyl alcohol-----	7,512	7,740	6,877	.89
tert-Butyl peroxybenzoate-----	3,578	3,993	8,083	2.02
Caprolactam-----	945,395	...	...	...
2,6-Di-tert-butyl-p-cresol (BHT):				
Food grade-----	9,269	8,838	11,576	1.31
Tech. grade-----	13,051	12,368	13,207	1.07
Hexamethylenetetramine, tech. grade-----	94,378	46,116	14,319	.31
Maleic anhydride-----	323,226	220,547	80,049	.36
α-Pinene-----	100,229	...	...	...
β-Pinene-----	47,388	4,785	1,350	.28
Tall oil, chemically modified-----	2,274	...	...	...
Tall oil salts-----	7,223	6,874	6,191	.90
All other miscellaneous cyclic chemicals-----	737,063	795,198	715,386	.90
ACYCLIC				
Total-----	96,461,241	38,565,195	9,308,767	.24
NITROGENOUS COMPOUNDS				
Total-----	8,173,986	2,370,614	965,818	.41
Amides, total-----	310,896	143,078	92,030	.64
Acrylamide-----	66,157	...	...	...
Erucamide-----	5,386	5,276	9,968	1.89
All other amides-----	239,353	137,802	82,062	.60
Amines, total ² -----	1,600,907	432,154	262,363	.61
Butylamines, total-----	63,226	55,698	31,188	.56
n-Butylamine, mono-----	5,730	4,203	2,441	.58
Di-n-butylamine-----	5,212	4,148	2,795	.67
Tri-n-butylamine-----	...	1,242	1,097	.88
All other butylamines-----	52,284	46,105	24,855	.54
Dipropylamine-----	...	38,815	25,368	.65
Ethyamines, total-----	61,357	...	...	...
Diethylamine-----	14,386	5,799	3,685	.64
Monoethylamine-----	34,159	34,140	14,872	.44
Triethylamine-----	12,812	...	...	...
Isopropylamine, mono-----	39,494	36,243	13,530	.37
All other-----	1,436,830	261,459	173,720	.66
2-Dimethylaminoethanol (N,N-Dimethylethanol-amine)-----	...	7,188	5,353	.74
Dimethylaminoethyl methacrylate-----	2,202	1,728	2,884	1.67

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1979--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued				
NITROGENOUS COMPOUNDS--Continued				
	1,000	1,000	1,000	Per
	pounds	pounds	dollars	pound
Ethanolamines, total-----	420,140	368,921	157,916	\$0.43
2,2'-Aminodiethanol (Diethanolamine)-----	135,345	118,221	45,272	.38
2-Aminoethanol (Monoethanolamine)-----	154,443	133,090	67,163	.50
2,2',2''-Nitrilotriethanol (Triethanolamine)-----	130,352	117,610	45,481	.39
Hexamethylene diamine adipate (Nylon salt)-----	997,336	...	...	...
2,2'-(Methylamino)diethanol (Methyldiethanol-amine)-----	...	1,991	1,659	.83
Nitriles, total-----	4,072,549	999,921	242,604	.24
Acrylonitrile-----	2,017,761	918,597	218,717	.24
2-Methylactonitrile (Acetone cyanohydrin)-----	651,742	...	...	...
Nitriles, all other-----	1,403,046	81,324	23,887	.29
All other nitrogenous compounds-----	769,956	415,633	201,009	.48
ACIDS, ACYL HALIDES, AND ANHYDRIDES				
Total-----	8,660,104	1,559,452	540,952	.35
Acetic acid, 100%-----	3,265,109	573,636	92,548	.16
Acetic anhydride, 100%-----	...	123,878	29,543	.24
Acrylic acid-----	608,003	56,498	19,975	.35
Dodecenylsuccinic anhydride-----	1,934	1,293	933	.72
Fumaric acid-----	50,878	40,285	18,819	.47
Propionic acid-----	111,377	74,305	14,016	.19
All other acids, acyl halides, and anhydrides-----	4,622,803	689,557	365,118	.53
SALTS OF ORGANIC ACIDS				
Total-----	347,088	303,963	190,284	.63
Acetic acid salts, total-----	30,166	29,855	16,402	.55
Barium acetate-----	...	67	146	2.17
Potassium acetate-----	1,277	2,337	1,352	.58
Sodium acetate-----	24,304	22,978	8,654	.38
Zinc acetate-----	473	474	555	1.17
All other-----	4,112	3,999	5,695	1.42
2-Ethylhexanoic acid (α -Ethylcaproic acid) salts, total-----	16,550	15,214	30,353	2.00
Calcium 2-ethylhexanoate-----	2,357	2,356	1,818	.77
Cobalt 2-ethylhexanoate-----	3,759	3,139	15,215	4.85
Lead 2-ethylhexanoate-----	1,816	1,733	1,411	.81
Manganese 2-ethylhexanoate-----	1,292	1,264	1,019	.81
Nickel 2-ethylhexanoate-----	...	476	747	1.57
Zinc 2-ethylhexanoate-----	917	886	694	.78
Zirconium 2-ethylhexanoate-----	2,990	2,753	4,602	1.67
All other-----	3,419	2,607	4,847	1.86
Maleic acid salts-----	681	679	3,156	4.65
Neodecanoic acid, calcium salt-----	86	70	97	1.37
Oxalic acid salts-----	205	200	429	2.15

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1979--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 ³ -----	90,799	88,677	64,127	\$0.72
Aluminum distearate-----	1,613	1,611	1,734	1.08
Aluminum mono- and tristearates-----	2,039	1,962	1,811	.92
Barium stearate-----	595	593	530	.89
Calcium stearate-----	53,120	51,995	32,443	.62
Lead stearate-----	1,076	1,076	1,094	1.02
Magnesium stearate-----	6,553	6,894	5,361	.78
Zinc stearate-----	23,752	22,519	18,216	.81
All other-----	2,051	2,027	2,938	
Xanthic acid salts-----	9,918	...	...	...
All other salts of organic acids-----	198,683	169,268	75,720	.45
<i>ALDEHYDES</i>				
Total-----	8,989,028	2,371,427	240,864	.10
Butyraldehyde-----	950,646	87,002	15,468	.18
Formaldehyde (37% by weight)-----	5,971,112	1,866,319	123,609	.07
Isobutyraldehyde-----	393,318	9,661	1,468	.15
All other-----	1,673,952	408,445	100,319	.25
<i>KETONES</i>				
Total-----	3,829,945	2,798,454	547,292	.20
Acetone:				
From cumene-----	1,724,557	1,155,707	181,045	.16
From isopropyl alcohol-----	928,002	612,076	104,094	.17
2-Butanone (Methyl ethyl ketone)-----	656,164	685,653	148,605	.22
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	...	44,598	14,442	.32
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	190,027	189,422	55,624	.29
4-Methyl-3-penten-2-one (Mesityl oxide)-----	21,744	8,540	2,938	.34
All other-----	309,451	102,458	40,544	.40
<i>ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED</i>				
Total-----	15,492,554	8,342,334	1,282,733	.15
Alcohols, C ₁₁ or lower, unmixed, total-----	14,437,929	7,809,018	1,033,541	.13
Butyl alcohols:				
n-Butyl alcohol (n-Propylcarbinol)-----	766,497	445,501	94,812	.21
Isobutyl alcohol (Isopropylcarbinol)-----	143,050	117,898	19,438	.16
Ethyl alcohol, synthetic ⁴ -----	1,408,464	1,212,395	226,971	.19
2-Ethyl-1-hexanol-----	317,570	183,237	42,675	.23
n-Hexyl alcohol-----	44,212	23,071	7,676	.33
Isopropyl alcohol-----	1,900,376	1,194,696	201,643	.17
Methanol, synthetic-----	7,367,404	3,710,003	256,994	.07
Propyl alcohol (Propanol)-----	187,520	150,086	38,296	.26
All other-----	2,302,836	772,131	145,036	.19
Alcohols, C ₁₂ and higher, unmixed-----	169,208	72,881	34,796	.48
Mixtures of alcohols-----	885,417	460,435	214,396	.47

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1979--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-----	4,895,130	2,694,654	901,693	\$0.33
Allyl methacrylate-----	1,461	...	...	...
n-Butyl acetate-----	138,802	119,213	35,065	.29
Butyl acrylate-----	297,533	157,006	60,064	.38
tert-Butyl peroxyphthalate-----	2,094	2,089	7,777	3.72
Dibutylmaleate-----	5,186	5,373	2,473	.46
Di(2-ethyl-1-hexyl) maleate-----	409	...	...	...
Dilauryl-3,3'-thiodipropionate-----	2,597	2,584	3,319	1.28
Ethyl acetate (85%)-----	262,377	155,558	28,854	.19
Ethyl acrylate-----	315,980	147,727	49,862	.34
2-Ethyl-1-hexyl acrylate-----	67,724	57,986	26,173	.45
Fatty acid esters, not included with plasticizers or surface-active agents, total-----	26,933	26,100	18,345	.70
Methyl esters of tallow-----	1,060	1,058	512	.48
All other-----	25,873	25,042	17,833	.71
Isobutyl acetate-----	...	48,322	12,494	.26
Methyl methacrylate-----	930,873	277,626	113,212	.41
Phosphorus acid esters, not elsewhere specified-----	134,830	115,219	99,470	.86
Propyl acetate-----	50,931	50,990	14,703	.29
Vinyl acetate-----	1,982,114	1,089,843	235,595	.22
All other-----	675,286	439,018	194,287	.44
POLYHYDRIC ALCOHOLS				
Total ⁵ -----	6,283,947	4,538,073	1,175,244	.26
Ethylene glycol-----	4,728,572	3,348,230	739,802	.22
Glycerol, synthetic only-----	149,884	133,468	59,648	.45
Pentaerythritol-----	114,650	116,675	55,036	.47
Propylene glycol-----	610,341	582,408	154,084	.26
Sorbitol (70% by weight)-----	255,927	149,372	62,934	.42
All other-----	424,573	207,920	103,740	.50
POLYHYDRIC ALCOHOL ESTERS				
Total-----	159,618	138,141	72,004	.52
POLYHYDRIC ALCOHOL ETHERS				
Total-----	1,910,185	1,493,716	486,007	.33
2-Butoxyethanol-----	218,987	208,104	67,767	.33
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)-----	42,562	36,633	12,687	.35
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)-----	9,955	...	...	...
Diethylene glycol-----	393,415	290,987	65,419	.22
Dipropylene glycol-----	57,830	61,592	15,382	.25
2-Ethoxyethanol ⁶ -----	248,058	122,217	36,997	.30
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)-----	34,092	33,324	9,280	.28
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-----	24,269	...	...	...

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: U.S. PRODUCTION AND SALES, 1979--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
2-Methoxyethanol (Ethylene glycol monomethyl ether)---	102,588	104,479	28,756	\$0.28
2-(2-Methoxyethoxy)ethanol (Diethylene glycol mono- methyl ether)-----	20,372	17,683	5,674	.32
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)-----	31,759	...	...	...
Polyethylene glycol-----	89,629	82,364	34,502	.42
Polypropylene glycol-----	24,787	21,899	8,577	.39
Tetraethylene glycol-----	23,328	20,664	7,749	.37
Triethylene glycol-----	130,756	112,022	36,702	.33
All other-----	457,798	381,748	156,515	.41
HALOGENATED HYDROCARBONS				
Total-----	...	9,228,634	1,824,668	.20
Chlorinated hydrocarbons, total-----	24,829,983	8,560,420	1,430,627	.17
Carbon tetrachloride-----	714,461	350,844	40,023	.11
Chlorinated paraffins (C ₁₀ -C ₃₀):				
35%-64% chlorine-----	91,400	92,085	27,976	.30
65% or more chlorine-----	21,552	14,950	6,662	.45
Chloroethane (Ethyl chloride)-----	581,915	179,869	30,103	.17
Chloroform-----	356,039	337,855	62,568	.19
Chloromethane (Methyl chloride)-----	462,829	224,802	33,918	.15
1,2-Dichloroethane (Ethylene dichloride)-----	11,794,129	1,395,844	151,197	.11
Dichloromethane (Methylene chloride)-----	633,248	595,796	116,727	.20
1,2-Dichloropropane (Propylene dichloride)-----	69,823	...	...	...
Tetrachloroethylene (Perchloroethylene)-----	773,029	643,222	73,323	.11
1,1,1-Trichloroethane (Methyl chloroform)-----	716,336	475,199	70,887	.15
Trichloroethylene-----	319,432	292,059	34,806	.12
Vinyl chloride, monomer (Chloroethylene)-----	6,388,833	3,788,398	728,132	.19
All other chlorinated hydrocarbons-----	1,906,957	169,497	54,305	.32
Fluorinated hydrocarbons, total-----	873,480	...	...	...
Chlorodifluoromethane (F-22)-----	210,665	143,322	116,911	.82
Dichlorodifluoromethane (F-12)-----	293,916	268,889	125,977	.47
Trichlorofluoromethane (F-11)-----	167,135	130,500	49,566	.38
All other fluorinated hydrocarbons-----	201,764	...	...	...
All other halogenated hydrocarbons-----	...	125,503	101,587	.81
ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS				
Total-----	37,719,656	2,725,733	1,081,208	.40
2-Butanone peroxide-----	8,533	8,867	13,778	1.55
tert-Butyl hydroperoxide-----	...	592	867	1.47
tert-Butyl peroxide (Di-tert-butyl peroxide)-----	17,704	18,396	15,816	.86
Carbon disulfide-----	448,023	390,594	34,181	.09
Epoxides, ethers, and acetals, total-----	8,542,127	1,778,513	493,795	.28
Ethylene oxide-----	5,665,368	560,127	151,247	.27
Propylene oxide-----	2,248,793	...	...	...
All other epoxides, ethers, and acetals-----	627,966	1,218,386	342,548	.28
Pine oil, synthetic-----	48,187	50,566	17,338	.34
Phosgene (Carbonyl chloride)-----	1,193,760	7,520	1,610	.21
Silicone fluids-----	219,635	74,990	147,209	1.96

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS; U.S. PRODUCTION
AND SALES, 1979--CONTINUED

MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS	PRODUCTION	SALES		
		QUANTITY	VALUE	UNIT VALUE ¹
ACYCLIC--Continued				
<i>ALL OTHER MISCELLANEOUS ACYCLIC CHEMICALS--Continued</i>	<i>1,000</i> <i>pounds</i>	<i>1,000</i> <i>ppunds</i>	<i>1,000</i> <i>dollars</i>	<i>Per</i> <i>pound</i>
Sodium methoxide (Sodium methylate)-----	9,267	8,486	7,208	\$0.85
All other miscellaneous acyclic chemicals-----	27,002,820	169,029	268,602	1.59
Mixtures not specifically itemized-----	229,600	218,180	80,804	.37

¹Calculated from rounded figures.

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

³Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section "Surface-Active Agents."

⁴Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Department of the Treasury, Bureau of Alcohol, Tobacco, and Firearms.

⁵Some polyols which are used as intermediates for urethanes have been included in the section "Plastics and Resin Materials."

⁶The 1978 production has been corrected to 254,749,000 pounds.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979

[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 1979 AND THE VOLUME OF PRODUCTION AND SALES HAS BEEN ESTIMATED BY THE USITC STAFF MEMBERS.]

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
6-Acetoxy-2,4-dimethyl-1,3-dioxane	GIV.
Acetylcyclohexane sulfonyl peroxide	WTL.
1-(2-Aminoethyl)piperazine	JCC, UCC.
1-(2-Aminoethyl)piperazine, technical	UCC.
1-(3-Aminopropyl)morpholine	JCC.
BENZOIC ACID SALTS:	
*Sodium benzoate	HCP, HN, KLM, MAL, MON, PFZ.
Benzoic acid salts, all other	MON.
p-Benzoquinone (p-quinone)	EKT.
Benzothiazole	ACY, RCI.
Benzotriazole, substituted	CGY.
*Benzoyl peroxide	AZT, CAD, NOC, WTC, WTL.
*Benzyl alcohol	MNR, SFS, UOP(E), VEL.
Bis(2,4-dichlorobenzoyl)peroxide	CAD, WTL.
Bis(α,α-dimethylbenzyl)peroxide	WTL.
Boron fluoride - phenol complex	ACS.
N-Bromosuccinimide (Succinibromimide)	ARA.
Butyl benzoate	CIN, VEL.
2-(and 3)-tert-Butyl-4-methoxyphenol (BHA)	EKT, X.
*tert-Butyl peroxybenzoate	AZT, CAD, WTC, WTL.
tert-Butyl peroxy-3,5-trimethyl cyclohexane	DOM.
4-tert-Butylpyrocatechol	BKL, CRZ.
Camphene	HPC, SCM.
*Caprolactam (2-Oxohexamethylenimine)	ALF, CNP, DBC.
Cellulose acetate phthalate	X.

CYCLIC

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURERS, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	DOM.
Cumene hydroperoxide	ACS, CLK.
Cyanuric acid	FMB, MON, OMC.
1,4-Cyclohexylenedimethanol	EKT.
Cyclopropane	OH.
Decabromobiphenyl or ether	DOM, GTL.
Decahydronaphthalene (Decalin)	DUP.
Dehydroacetic acid or sodium salt	EKT, GAN.
1,4-Diazobicyclo(2.2.2)octane	JCC, X.
Diazodinitrophenol	HPC.
2,5-Di(benzoyl peroxy)-2,5-dimethylhexane	WTL.
*2,6-Di-tert-butyl-p-cresol, (BHT), Food grade	KPT, SHC, SHX, USR.
*2,6-Di-tert-butyl-p-cresol, (BHT), Technical grade	KPT, SHC, SHX, USR.
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.
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.
Disopropylbenzene hydroperoxide	HPC, WTC.
Diketene	BRD, EKT.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL, EKT.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol	MRK.
Dioxane (1,4-Diethylene oxide)	CWN, DOM, FER.
1,3-Dioxolane	FER.
4-(Dodecyloxy)-2-hydroxybenzophenone	EKT.
Ethyl cellulose phthalate	EK.
Ethyleneimine, monomer	DOM.
2-Ethylhexyl benzoate	TCC.
Ethylidene norbornene	UCC.
4-Ethylmorpholine	JCC.

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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
FURAN DERIVATIVES:	
2-Furaldehyde (Furfural)	: QKO.
Tetrahydrofurfuryl alcohol	: QKO.
Gallic acid, tech.	: MAL.
Glyceryl p-aminobenzoate	: VND.
*Hexamethylenetetramine, tech.	: BOR, HKD, HMP, HN, PLS, WCL.
Homomethyl salicylate	: HUM, NEO.
Hydrindantin	: HEX.
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.
2-Hydroxy-4-methoxybenzophenone	: ACY, GLY.
2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole	: ACY.
1,2,3-Indantrione monohydrate (Ninhydrin)	: PIC.
LACTONES:	
Butyrolactone	: GAF.
Glucono-δ-lactone	: PFZ.
Lactones, all other	: PFN.
*Maleic anhydride	: AMO, DKA, HN, KPT, MON, RCI, USS.
p-Menthane	: HPC.
8-p-Menthyl hydroperoxide	: HPC.
p-Methoxybenzylidenemalonamic acid, dimethyl ester	: ACY.
4-Methoxyphenol	: ASL, EKT.
2,2'-Methylenebis[4-chlorophenol] (Dichlorophene)	: GIV.
2,2'-Methylenebis[3,4,6-trichlorophenol] (Hexachlorophene)	: GIV.
Methyl gallate	: BKL.
4-Methylmorpholine	: JCC, UCC.
1-Methyl-2-pyrrolidone, monomer	: GAF.
Morpholine	: DOM, JCC.
Morpholine salt of p-toluene sulfonic acid	: AMB, SHX, SOL(E).
Phenothiazine	: WAG.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	: DOM, TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether)	: DOM, TCH.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
Phthalic acid, lead salt, (Dibasic)-	MTL.
Picramic acid, sodium salt	SDC.
* α -Pinene	ARZ, MCI, SCM.
* β -Pinene	ARZ, HPQ, MCI, SCM.
Pinene, sulfate-	ARZ.
Poly-4-(2-acryloxyethoxy)-2-hydroxybenzophenone-	ACY.
Propyl gallate	EKT.
Resorcinol monobenzoate-	EKT.
Salicylic acid, lead salt-	NTL.
Styrene oxide-	UCC.
Succinic anhydride	ORO.
*Tall oil, chemically modified-	ARC, ARZ, FOC, ZGL, X, X.
*TALL OIL SALTS (LINOLEIC-ROSIN ACID SALTS):	
Calcium manganese tellurate	ARC, MCI.
Calcium tellurate	CCA, HN, MCI, X.
Cobalt tellurate	HN, MCI, SHP.
Iron tellurate	SHP.
Lead manganese tellurate	MCI, SHP.
Lead tellurate	HN, MCI.
Manganese tellurate-	HN, MCI, SHP.
Zinc tellurate	HN, MCI.
Tall oil salts, all other (Linoleic-rosin acid salts)	CBY, KCH, MCI, SHP.
Tannic acid, U.S.P.-	MAL.
Terpene hydrocarbons, monocyclic (Solvenol)-	MCI, SCM.
Tetradromobisphenol A-	GTL.
1,2,3,4-Tetrahydronaphthalene (Tetralin)	DUP.
Tetrahydrothiophene-	PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)-	PLC.
[2,2'-Thiobis(4-octylphenolate)]-n-butylamine nickel salt	ACY.
Thiophene-	PAS.
Triallyl cyanurate	ACY.
3,4,4'-Trichlorocarbaniide-	MON.
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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
CYCLIC--CONTINUED	
3,3,5-Trimethylcyclohexanol (m-homomenthol)-	ARS.
3,5,5-Trimethyl-2-cyclohexene-1-one (Isophorone)	ENJ, UCC.
2,4,6-Trinitroresorcinol and lead derivative	REM.
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.
Cyclic chemicals, all other-	AAC, ABB, ACY, ALD, AMB, ARA, ARS, AZT, BAS, BKL, BOC, CAD, CGY(E), CHP, DOM, EK, EKT, EKX, FMT, GAF, GIV, GLY, GOC, GRO, HK, HMY, JCC, KCH, MOB, MON, NES, OMC, PAS, PD, PEN, PFM, PIC, PPG, RSA, SBC, SCM, SDM, SFS, SM, STC, SW, TCC, TJC, TNA, TNI, VEL, VIK, MCC, WTC, WTL, X, X, X, X, X, X.
ACYCLIC	
*NITROGENOUS COMPOUNDS:	
Acetamidoethanol (N-Acetyl-ethanolamine)	ALB.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea-	FMT.
Allyl trimethylammonium chloride	UOC.
2-Aminoethanol (Monoethanol amine) sulfite	EVN.
Aminoethoxyethanol	JCC.
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(hy- droxymethyl)aminomethane]	IMC.
2-Amino-2-methyl-1,3-propanediol	IMC.
2-Amino-2-methyl-1,3-propanediol condensate-	IMC.
2-Amino-2-methyl-1-propanol-	IMC.
*AMIDES:	
Acetamide-	ACS, SBC.
*Acrylamide monomer	ACY, DOM, X.
1,1'-Azobisformamide	FMT, NPI, USR.
N-Bromoacetamide	ARA.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMIDES--Continued	
Coconut oil amide	ARC.
N,N-Diethyldodecanamide	UPJ.
N,N-Dimethylacetamide	DUP, MON.
N,N-Dimethylformamide	AIP, DUP.
*Erucamide	ARC, HUM, HXL, SHX.
Erucamide - lauramide	HXL.
N,N'-Ethylenebis-oleamide (Oleic acid-ethylenedi- amine condensate (amine/acid ratio = 1/2))	GLY, HUM.
N,N'-Ethylenebis(stearamide)	CCM, GLY, HUM.
Ethylmonoethanolamide	DA, GAF.
Fish oil fatty acid amide	HUM.
Formamide	DUP.
12-Hydroxystearamide	CCM.
Methacrylamide	DUP.
N,N'-Methylenebis(acrylamide)	ACY.
Oleamide (Octadecene amide)	ARC, HUM, HXL.
Oleoylpalmitamide	HUM, HXL.
Stearamide (Octadecane amide)	ARC, GLY, HUM.
Stearylcerucamide	HXL, RPC.
Tallow amide, hydrogenated	ARC, HUM.
Amides, all other	ARA, ARC, ARS, CMP, EK, EKT, HAL, KF, MON, OMC, TKL, X, X, X.
*AMINES:	
Allylamines	SHC.
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, RPC, VGC.
*Tri-n-butylamine	AIP, PAS, VGC.
n-Butylethylamine	PAS.
Diethylenetriamine	DOM, UCC.
Diisopropylamine	AIP, PAS, UCC.
Dimethylaminopropylamine	JCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
*AMINES--Continued	
*ETHYLAMINES:	
*Diethylamine	: AIP, PAS, UCC, VGC.
*Ethylamine, mono-	: AIP, PAS, UCC, VGC.
*Triethylamine	: AIP, PAS, UCC.
Ethylenediamine	: JCC, UCC.
(2-Ethylhexyl)amine, mono-	: DOM, VGC.
1,6-Hexanediamine (Hexamethylenediamine)	: CEL, DUP, MON.
n-Hexylamine	: PAS.
3,3'-Iminobispropylamine	: JCC.
*Isopropylamine, mono	: AIP, PAS, UCC, VGC.
METHYLAMINES:	
Dimethylamine	: AIP, DUP, GAF.
Dimethylamine sulfate	: RH.
Methylamine, mono-	: AIP, DUP, GAF, X.
Trimethyl amine	: AIP, DUP, GAF.
n-Octylamine, mono	: VGC.
Pentaethylenhexamine	: UCC.
PENTYLAMINES (AMYLAMINES):	
Dipentylamine	: PAS.
Pentylamine, mono	: PAS.
1,3-Propanediamine (1,3-Diaminopropane)	: JCC.
Tripentylamine	: PAS.
PROPYLAMINES:	
*Dipropylamine	: AIP, PAS, VGC.
Propylamine, mono	: AIP, PAS.
Tripropylamine	: PAS.
Tetraethylenepentamine	: DOM, UCC.
N,N',N'-Tetramethyl-1,3-butanediamine	: UCC.
Tetramethylethylenediamine	: RH.
Triethylenetetramine	: DOM, UCC.
Amines, all other	: AAC, ALB, DOM, EKT, HCP, HXL, JCC, MIL, MON, OMC, PAS, RH, UCC, VGC, X, X.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)	: GLY.
1-Butyl-3-ethyl-2-thiourea	: PAS.
Butyl isocyanate	: UPJ, X.
Chlorocholeline chloride	: ACY.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
2-Chloro-N,N-diethylethylamine hydrochloride	VEL.
2-Chloro-N,N-dimethylethylamine (Dimethylamino ethyl chloride) hydrochloride	VEL.
3-Chloro-N,N-dimethylpropylamine hydrochloride	VEL.
Choline base	HFT, RH.
Cyanoacetic acid	KF.
1-(2-Cyanoethyl)ethyl urea	GAF.
2-Dibutylaminoethanol	PAS.
1,3-Dibutyl-3-thiourea	PAS, RBC.
1,4-Dicyanobutene	DUP.
2-Diethylaminoethanol (N,N-Diethylethanolamine)	PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol	UCC.
2-Diethylaminoethyl acrylate	BLM, CPS.
2-Diethylaminoethyl methacrylate	BLM, CPS, DUP.
Diethylcarbamoyl chloride	GAF.
Diethylhydroxylamine	PAS.
1,3-Diethyl-2-thiourea	PAS, RBC.
2-Diisopropylaminoethanol (N,N-Diisopropylethanolamine)	PAS.
2-Diisopropylaminoethyl methacrylate	DUP.
Di-(methoxyethyl)hydroxylamine	X.
* 2-Dimethylaminoethanol (N,N-Dimethylethanolamine)	JCC, PAS, UCC.
* Dimethylaminoethyl methacrylate	ACC, BLM, CPS.
Dimethylaminoethylmethacrylate, methyl chloride, quaternary salt	AAC.
Dimethylamino-2-propanol	PAS.
2,5-Dithiobiurea	FMT, GAF.
tert-Dodecylsuccinamide	GAF.
* ETHANOLAMINES:	
* 2,2'-Aminodietanol (Diethanolamine)	DOM, JCC, OMC, UCC.
* 2-Aminoethanol (Monoethanolamine)	DOM, GLY, JCC, OMC, UCC.
* 2,2',2''-Nitrilotriethanol (Triethanolamine)	DOM, JCC, OMC, UCC.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS, UCC.
Ethyl cyanoacetate	KF.
Ethylenediamine sulfate	EK.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	SDM.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--CONTINUED	
Glycine ethyl ester hydrochloride	SFS.
Glycine (Aminoacetic acid), non-medical	CHT, HMP.
*Hexamethylenediamine adipate (Nylon salt)	CEL, DUP, MON.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-(hydroxymethyl)nitromethane)	IMC.
Iminodiacetic acid	HMP.
ISOPROPANOLAMINES:	
1-Amino-2-propanol (Monoisopropanolamine)	DOM, UCC.
1,1'-Iminodi-2-propanol (Diisopropanolamine)	DOM.
1,1',1''-Nitrilotri-2-propanol (Trisopropanolamine)	DOM, UCC(E).
2-Isopropylaminoethanol	PAS.
Isopropyl ethylthiocarbamate	DOM.
Ketimine, tetrafunctional	MIL.
3-Methoxypropylamine	JCC.
2-Methylaminoethanol (N-Methylethanolamine)	PAS, UCC.
Methyl carbamate	BKL.
Methyl cyanoacetate	KF.
Methyl α -cyanoacrylate	EKT.
*2,2'-(Methylimino)diethanol (Methyldiethanolamine)	DOM, PAS, UCC.
Methyl isocyanate	UCC.
2-Methyl-2-nitro-1,3-propanediol	IMC.
2-Methyl-2-nitro-1-propanol	IMC.
*NITRILES:	
Acetonitrile	DUP, EKK, SOH.
* Acrylonitrile, monomer	ACY, DUP, MON, SOH.
Adiponitrile	DUP, MON.
n-Butyronitrile	EKK, WYT.
Cocoonitrile	ARC, SHX.
Crotonitrile	RBC.
3-Dimethylaminopropionitrile	ACY.
3-Ethoxypropionitrile	DIX.
Glycolonitrile	KF.
Isobutyronitrile	AIP, EKK.
Lactonitrile	MON.
Methacrylonitrile	DOM, RH.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*NITROGENOUS COMPOUNDS--COMPOUNDS	
*NITRILES--Continued	
*2-Methylactonitrile (Acetone cyanohydrin)	CYR, DUP, MON.
Oleonitrile (Octadecene nitrile)	ARC.
Stearonitrile (Octadecane nitrile)	SHX.
Tall oil nitrile	SOL(E).
Tallow nitrile	ARC, SHX, SOL(E).
Tallow nitrile, hydrogenated	ARC, SHX, SOL(E).
3,3'-Thiodipropionitrile	EVN.
Vinylacetoneitrile	RBC.
Nitriles, all other	HMP, MON, SOL(E).
Nitroethane	IMC.
Nitromethane	IMC.
1-Nitropropane	IMC.
2-Nitropropane	IMC.
Octadecyl isocyanate	MOB, UPJ.
Pentaerythritol tetranitrate	DUP, HPC.
n-Propyl carbamate	BKL.
Propylisocyanate	HPC.
Sarcosine (N-Methylaminoacetic acid)	HMP.
Semicarbazide hydrochloride	FMT.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine	BAS.
Tetramethylammonium bromide	RSA.
Tetramethylammonium chloride	RSA.
Tetramethylguanidine	ACY.
Thiosemicarbazide	FMT.
Nitrogenous compounds, acyclic, all other	AAC, ABB, ALB, BKL, BIM, BTZ, CHP, DAN, DOM, DUP, EK, FMT, GOC, HLI, JCC, MOB, PAS, PCW, PD, PFN, PFZ, PIC, RBC, REM, RH, RSA, S, SBC, SCP, SK, SM, STC, TCH, TKL, TNA, UCC, USR, WAY, WYC, X, X, X, X, X, X.
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES:	
*ACETIC ACID, 100%:	
Acetic acid, recovered (100%)	CEL, DOM, DUP, EKT, MON, RDA.
Acetic acid, synthetic (100%)	BOR, CEL, EKT, FMP, MON, UCC.
*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.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES--CONTINUED	
*ACETIC ANHYDRIDE, 100%--Continued	
Acetic anhydride from acetic acid, recovered, by vapor-phase process	CEL.
*Acrylic acid	CEL, DBC, RH, UCC.
Adipic acid	ALF, CEL, DUP, MON.
Azelaic acid	EMR.
Bromobutyric acid	GTL.
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.
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, X.
Dodecylsuccinic anhydride	SM.
2-Ethylbutyric acid (Diethylacetic acid)	UCC.
2-Ethylhexanoic acid (α -Ethylcaproic acid)	EKT, UCC.
2-Ethylhexanoyl chloride	AZT(E), WTL.
Fatty acids, hydrogenated	GLY, SHX.
Fatty acids, non-hydrogenated	GLY.
Fatty acids, partially hydrogenated	CBY, GLY, SHX.
Fumaric acid, 90%	CEL, UCC.
*Fumaric acid	AGC, HN, MON, PFZ, USS.
Gluconic acid, technical	PFZ.
Glycolic acid (Hydroxyacetic acid)	DUP.
n-Hexadecenylsuccinic anhydride	HMY.
Isethionic acid (2-Hydroxyethanesulfonic acid)	WTC.
Isoascorbic acid (Erythorbic acid)	PFZ.
Isobutyric acid	EKX.
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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
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.
Lauroyl chloride	UOP, MCC, WTI.
Maleic acid	ACS, PFN, PFZ.
Malic acid	ACS, AGC.
Mercaptoacetic acid (Thioglycolic acid)	CCA, EVN.
3-Mercaptopropionic acid	EVN.
Mercaptosuccinic acid (Thiomalic acid)	DUP, RH.
Methacrylic acid	PAS.
Methanesulfonic acid	PAS.
Methanesulfonyl chloride	ENJ.
Neodecanoic acid	ENJ, UCC.
Neopentanoic acid	ENJ, UCC.
Nonanoic acid (Pelargonic acid)	EMR, GIV.
Nonenylsuccinic anhydride	HMY.
Octanoyl chloride	WCC.
Octenylsuccinic anhydride	HMY.
Oleic acid	ARC, SOL(E).
Oleoyl chloride	HRT.
Oxalic acid	ACS, HK, PFZ.
Oxidized fischer tropsch wax	SNW.
Palmitoyl chloride	WCC, X.
Peroxyacetic acid	FMB, UCC, MCC.
Pivaloyl chloride	AZI.
Polyacrylic acid	BFG, DA, RH, SNW.
*Propionic acid	CEL, EKT, UCC.
Propionic anhydride	EKT.
Sebacic acid	BAS, WTH.
Sebacoyl chloride	WTI.
Stearoyl chloride	MON, UOP(E), MCC.
Succinic acid	ACS.
Thioacetic acid	ARC, EVN.
3,3'-Thiodipropionic acid	EVN.
Thiolactic 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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ACIDS, ACID ANHYDRIDES, AND ACYL HALIDES--CONTINUED	
Valeric acid	UCC.
Acids, acid anhydrides, and acyl halides, all other	ABB, ARC, BCC, DOM, EK, ENJ, EVN, GAF, HMY, MIL, PIC, SK, TX, UCC, WCC, WTL.
*SALTS OF ORGANIC ACIDS:	
*ACETIC ACID SALTS:	
Aluminum acetate	NCC.
Ammonium acetate	ACS, BKC, MAL.
*Barium acetate	BKC, CRN, MAL.
Butyltin acetate (Dibutyltin diacetate)	X.
Calcium acetate	ACS, HFT.
Chromium acetate	SHP.
Cobalt acetate	HSH, SHP, UCC.
Copper acetate	BKC.
Lead acetate	ACS, BKC, MAL.
Lead subacetate	BKC, MAL.
Lead tetraacetate	MAL.
Magnesium acetate	BKC, HCP, SHP.
Manganese acetate	HSH, SHP.
Mercuric acetate	MAL.
Nickel acetate	BKC, HSH, SHP.
*potassium acetate	ACS, BKC, HCP, MAL, NCC.
*Sodium acetate	ACS, ATL, BKC, DAN, EKT, HCP, MAL, NCC.
Sodium diacetate	HCP, NCC.
*Zinc acetate	ACS, BKC, NCC, SHP.
Zirconium acetate	TZC.
Acetic acid salts, all other	RBC, X.
Allylsulfonic acid, sodium salt	IOC, UOP(E).
CITRIC ACID SALTS:	
Ammonium citrate	MAL, PFZ.
Calcium citrate	PFZ.
Ferric ammonium citrate	PFZ.
Potassium citrate	HXL, MLS, PFZ.
Sodium citrate	HXL, MAL, MLS, PFZ.
Citric acid salts, all other	X.
*2-ETHYLHEXANOIC ACID (ALPHA-ETHYLCAPROIC ACID) SALTS:	
Aluminum 2-ethylhexanoate	DA, NOC, WTC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--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--Continued	
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.
Iron 2-ethylhexanoate	CCA, HN.
*Lead 2-ethylhexanoate	CCA, HN, NTL, SHP, TRO, WTC, X.
Lithium 2-ethylhexanoate	WTC.
*Manganese 2-ethylhexanoate	CCA, HN, MCI, SHP, TRO, WTC, X.
*Nickel 2-ethylhexanoate	MCI, SHP, WTC.
Potassium 2-ethylhexanoate	CCA, MCI.
Rare earths 2-ethylhexanoate	CCA.
Stannous 2-ethylhexanoate	WTC, X.
*Zinc 2-ethylhexanoate	CCA, HN, MCI, SHP, WTC, X.
*Zirconium 2-ethylhexanoate	CCA, HN, MCI, TRO, WTC, X.
2-Ethylhexanoic acid salts, all other	LIL, MCI, SHP.
FORMIC ACID SALTS:	
Lead formate	NTL.
Potassium formate	HCP.
Sodium formate, refined	BKC.
Sodium formate, technical	CEL, PST.
Fumaric acid, lead salt	NTL.
GLUCOHEPTANOIC ACID SALTS:	
Calcium glucoheptanoate	ARC, PFN.
Sodium glucoheptanoate	DAN, PFN.
GLUCONIC ACID SALTS:	
Sodium gluconate	PFN, PFZ, SFI.
Gluconic acid salts, all other	PFN.
Humic acids, sodium salts	X.
Isoascorbic acid, sodium salt (Sodium erythorbate)	PFZ.
Iauroauric acid, dibutyltin salt	CCA, X.
Mercaptopropionic acid, dibutyltin salt	CCA.
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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
LACTIC ACID SALTS:	
Calcium lactate	HUM.
Sodium lactate (Malac)	PFN.
Lactic acid salts, all other	PFN.
LACTIC ACID SALTS:	
Lauric acid, barium-cadmium salt	X.
Lauric acid salts, all other	X, X.
LINOLEIC ACID SALTS:	
Calcium linoleate	CCA, SHP.
Cobalt linoleate	SHP.
Manganese linoleate	SHP.
*MALEIC ACID SALTS:	
Maleic acid, dibutyltin maleate salt	CCA.
Maleic acid, dibutyltin salt	X.
Maleic acid, tribasic lead salt	NLL.
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.
Manganese neodecanoate	MCI, SHP.
Zinc neodecanoate	MCI.
Zirconium neodecanoate	MCI, SHP.
Neodecanoic acid salts, all other	MCI, SHP.
OCTANOIC-ACID (CAPRYLIC ACID) SALTS:	
Aluminum octanoate	DA.
Stannous octanoate	X.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
MISCELLANEOUS CHEMICALS	
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
OLEIC ACID SALTS:	
Copper oleate	WTC.
*OXALIC ACID SALTS:	
Ammonium oxalate	ACS, BKC.
Potassium oxalate	BKC.
Sodium oxalate	BKC, DA.
Oxalic acid salts, all other	SHP.
PALMITIC ACID SALTS:	
Palmitic acid salts, all other	HOF.
PHOSPHORODITHIOIC ACID SALTS (DITHIOPHOSPHATES):	
Sodium di-sec-butyl/diethyl 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, PFZ.
Sodium propionate	HFT, PFZ.
Propionic acid salts, all other	DUP, SHP.
RICINOLEIC ACID SALTS:	
Calcium ricinoleate	NIL.
Sodium sorbitol borate	ICI.
*STEARIC ACID SALTS:	
ALUMINUM STEARATES:	
*Aluminum distearate	DA, KCH, NOC, SYP, WTC.
*Aluminum monostearate	DA, NOC, SYP, WTC.
*Aluminum tristearate	NOC, PEN, SYP, WTC.
Ammonium stearate	DA.
*Barium stearate	DA, NOC, SYP, WTC.
Cadmium stearate	NOC, WTC.
*Calcium stearate	DA, FER, HN, MAL, NOC, PEN, SNM, SYP, WTC, X.
Cobalt stearate	SHP, X.
Ferric stearate	WTC.
*Lead stearate	NOC, NTL, WTC, X.
Lithium stearate	DA, 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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*SALTS OF ORGANIC ACIDS--CONTINUED	
*STEARIC ACID SALTS--Continued	
*Magnesium stearate	DA, MAL, NOC, PEN, SYP, WTC.
Manganese stearate	NOC.
Nickel stearate	WTC.
Silver stearate	PEN.
*Zinc stearate	DA, HM, MAL, NOC, PEN, PLS, SYP, WTC, X.
Stearic acid salts, all other	NOC, WTC.
TARTARIC ACID SALTS:	
Potassium sodium tartrate	PFZ.
*XANTHIC ACID SALTS:	
Potassium amyloxanthate	DOM.
Potassium ethyloxanthate	DOM.
Potassium pentyloxanthate	ACY.
Sodium n-butyloxanthate	KCC, USR.
Sodium ethyloxanthate	DOM.
Sodium isobutyloxanthate	DOM.
Sodium isopropyloxanthate	DOM.
Salts of organic acids, all other	CCA, EK, HSH, MCI, PIC, SDH, SHP, STP, WTC, X, X.
*ALDEHYDES:	
Acetaldehyde	CEL, EKK, SHC.
Acrolein (acrylaldehyde)	SHC, UCC.
*Butyraldehyde	CEL, EKK, UCC.
Chloral (Trichloroacetaldehyde)	MTO.
Crotonaldehyde	EKT, UCC.
2-Ethylbutyraldehyde	UCC.
2-Ethylhexanal (α -Ethylcaproaldehyde)	EKK, UCC.
2-Ethyl-2-hexen-1-al (2-Ethyl-3-propylacrolein)	UCC.
*Formaldehyde (37% HCHO by Weight)	ACS, AMR, ARC, BOR, CBD, CEL, DUP, GAF, GOC, GP, HKD, HN, HPG, MON, RCI, WCL.
Glutaraldehyde	UCC.
Glyoxal	ACY, UCC.
*Isobutyraldehyde	CEL, DBC, EKK, UCC.
Isopentaldehyde, mixed isomers	UCC.
2-Methylvaleraldehyde (2-Methylpentaldehyde)	UCC.
Propionaldehyde	EKK, UCC.
Valeraldehyde (Pentanal)	UCC.
Aldehydes, acyclic, all other	HEX, RDA, UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*KETONES:	
ACETONE:	
*Acetone from cumene	ACS, CLK, DOM, 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.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	EKX.
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 isoamyl 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.
2,4-Pentanedione (Acetylacetone)	UCC.
3-Pentanone (Diethyl ketone)	HEX, ORT, UCC.
Pseudoionone	SCM.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	UCC.
Ketones, all other	CHG, EKT, PFZ, SHC, UCC, X.
*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, OXC, SHC, TNA, UCC.
sec-Butyl alcohol (Methylethylcarbinol)	ENJ, SHC.
tert-Butyl alcohol (Trimethylcarbinol)	SHC, X.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS		MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED		
*ALCOHOLS, MONOHYDRIC, UNSUBSTITUTED--CONTINUED		
*ALCOHOLS, C11 OR LOWER, UNMIXED (95% OR MORE PURE)--CONTINUED		
BUTYL ALCOHOLS--Continued		
*Isobutyl alcohol (Isopropylcarbinol)-		CEL, DBC, EKX, OXC, SHC, UCC.
1-Decanol-		CO.
*Ethyl alcohol, synthetic only-		EKX, PUB, SHC, UCC, USI.
*2-Ethyl-1-hexanol-		DBC, EKX, OXC, SHC, UCC.
n-Heptyl alcohol-		EKX.
*n-Hexyl alcohol-		CO, ENJ, TNA, UCC.
Iso-decyl alcohol-		ENO, USS.
Isononyl alcohol-		ENO, USS.
Iso-octyl alcohol-		ENO, USS.
*Isopropyl alcohol-		ARC, ATR, ENJ, SHC, UCC.
*Methanol, synthetic only-		AIP, ALM, BOR, CEL, DUP, GP, HCF, HN, MON.
2-Methyl-1-pentanol-		UCC.
1-Octanol-		CO.
2-Octanol (sec-Capryl alcohol)-		WTH.
*Propyl alcohol (Propanol)-		ARC, CEL, EKX, UCC(E).
2-Propyn-1-ol (Propargyl alcohol)-		GAF.
Alcohols, unmixed C11 or lower, all other-		ENO, HMY, RDA, SHC.
*ALCOHOLS C12 OR HIGHER, UNMIXED (95% OR MORE PURE):		
Dodecyl alcohol (lauryl alcohol)-		CO.
1-Hexadecanol (Cetyl alcohol)-		CO, PG.
1-Octadecanol (Stearyl alcohol)-		CO, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)-		SOL(E).
1-Tetradecanol (Myristyl alcohol)-		CO.
1-Tridecanol-		ENO.
2,6,8-Trimethyl-4-nonanol-		UCC.
Alcohols, unmixed C12 or higher, all other-		UCC.
*MIXTURES OF ALCOHOLS:		
Alcohol mixtures, other-		TNA.
Alcohol mixtures, C-12 or higher only-		SHC, TNA.
Alcohol mixtures, C-11 or lower only-		CO, CPS, EKX, ENJ, NCI, PG, SHC, TNA, UCC, WTH.
*ESTERS OF MONOHYDRIC ALCOHOLS:		
Acrylic monomers, mixed-		RH.
*Allyl methacrylate-		AAC, BLM, GLY, SAR, SHC, UCC.
AMYL ACETATES:		
Amyl acetate (n-Pentyl acetate)-		UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
BUTYL ACETATES:	
*n-Butyl acetate	CEL, EKT, UCC.
*Isobutyl acetate	CEL, EKT, EKX, UCC.
*Butyl acrylate	CEL, DBC, RH, UCC.
sec-Butyl chloroformate	PPG.
Butyl lactate	TCH.
Butyl mercaptopropionate	EVN.
Butyl methacrylate	DUP, RH, TX.
tert-Butyl peroxyacetate	AZT, WTL.
tert-Butyl peroxy-2-ethylhexanoate	AZT, WTL.
tert-Butyl peroxyisobutyrate	AZT, WTL.
tert-Butyl peroxyisopropylcarbonate	WTL.
tert-Butyl peroxyneodecanoate	WTC, WTL.
*tert-Butyl peroxyphenylacetate	AZT, WTC, WTL.
Cetyl lactate	SBC, VND.
Diallyl maleate	FMP.
Dibutyl fumarate	RCI.
*Dibutyl maleate	HN, RCI, USS.
Diethyl carbonate (Ethyl carbonate)	PPG.
*Di(2-ethyl-1-hexyl) maleate	CHP, DAN, HRT, RUB.
Diethyl maleate	ACY.
Diethyl malonate (Malonic ester)	KF.
Diethyl oxalate (Ethyl oxalate)	FMP, PFZ.
Diisobutyl maleate	RUB.
Diiso-nonyl maleate	RUB.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)	EKX, PPG.
*Dilauryl-3,3'-thiodipropionate	ACY, CCM, EVN.
Dimethyl carbonate	PPG.
Dimethyl maleate	AAC.
Dimethyl malonate	KF.
Diethyl maleate	RCI, USS.
Di-n-propyl peroxydicarbonate	WTL.
Distearyl-3,3'-thiodipropionate	ACY, EVN.
Dithiobis(stearyl propionate)	EVN.
Ditridecyl maleate	EPH.
Di(tridecyl)-3,3'-thiodipropionate	ACY, EVN.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
2-Ethoxyethyl acetate	EKX, UCC.
*Ethyl acetate (85%)	CEL, EKT, EKX, MON, PUB, UCC.
Ethyl acetoacetate	BRD, EKT.
*Ethyl acrylate	CEL, RH, UCC.
Ethyl chloroformate	PPG.
Ethylene carbonate	JCC.
2-Ethyl-1-hexyl acetate	EKT.
*2-Ethyl-1-hexyl acrylate	CEL, DBC, UCC.
2-Ethyl-1-hexyl methacrylate	DUP.
Ethyl silicate	SFS.
Ethyl sulfate (Diethyl sulfate)	UCC.
*FATTY ACID ESTERS, NOT INCLUDED WITH PLASTICIZERS OR SURFACE ACTIVE AGENTS:	
Dimethyl brassylate	EMR.
Methyl esters of coconut oil	HUM, PG.
*Methyl esters of tallow	CHL, FER, HUM, PG.
Methyl 12-hydroxystearate	NIL, WTH.
Methyl stearate	CHL, CIN.
Myristyl myristate	SBC, VND.
Tridecyl stearate	CIN.
Fatty acid esters, not included with plasticizers	
surface-active agents, all other	ARC, CCM, CHP, CRN, FER, HUM, SBC, VND, X.
Hexyl acrylate	CPS.
Isobutyl acrylate	UCC.
Isobutyl chloroformate	PPG.
Isobutyl isobutyrate	EKX.
Isodecyl thioglycolate	EVN.
Iso-octyl mercaptoacetate	CCM, EVN.
Iso-octyl-3-mercaptopropionate	EVN.
Isopropyl acetate	EKT, UCC.
Isopropyl chloroformate	PPG.
Isostearyl neopentanoate	SBC, VND.
Lauryl lactate	VND.
Lauryl methacrylate	RH, TX.
Menthallylidene diacetate	RDA.
2-Methoxyethyl acrylate	AAC, CPS.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Methyl acetate	GRD, MON.
Methyl acetoacetate	BRD, EKT.
Methyl acrylate, monomer	CEL.
Methyl borate	SFS.
Methyl chloroformate	PPG.
Methyl formate	CEL, DUP.
*Methyl methacrylate, monomer	CYR, DUP, RH, UCC.
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 phosphite	SM.
Butyl acid phosphate	HK, SM.
Dibutyl hydrogen phosphite	SM.
Didodecyl hydrogen phosphate	DUP.
Diethyl hydrogen phosphite	SM.
Diethyl phosphorochloridothionate	SFA.
Dimethyl hydrogen phosphite	SM.
Dimethyl phosphoridothionate	SFA.
2-Ethylhexyl hydrogen phosphate	SM.
Iso-octyl hydrogen phosphate	SM.
Methyl dihydrogen phosphate	HK.
Trialkyl phosphite	MCB.
Tributyl phosphate	FMP, SFS, SM.
Triethyl phosphite	SFA, SM.
Triiso-octyl phosphite	MCB, SM.
Triisopropyl phosphite	SM.
Trimethyl phosphite	SFA, SM.
Tris(butyl ethyl)phosphate	HN.
Tris(2-chloroethyl)phosphite	SM.
Tris(2-ethylhexyl)phosphite	SM.
Phosphorus acid esters, all other	DUP, HK, JCC, MIL, MON, OMC, SFA, SM, X, X.
*Propyl acetate	CEL, EKT, UCC.
Propylene carbonate	JCC.
Stearyl methacrylate	RH, TX.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*ESTERS OF MONOHYDRIC ALCOHOLS--CONTINUED	
Tetraethyl orthosilicate (Tetraethyl silicate)	UCC.
Tetraethyl silicate, condensed	ADC, UCC.
Tetraoctyl orthosilicate	MON.
TITANIC ACID ESTERS:	
Tetraethyl titanate	DUP, SFS.
Tetraisopropyl titanate	DUP, SFS.
Tetrakis(2-ethylhexyl)titanate	DUP.
Titanic acid esters, all other	DUP.
Triethyl orthoacetate	KF.
Triethyl orthopropionate	KF.
*Vinyl acetate, monomer	BOR, CEL, DUP, NSC, UCC, USI.
Monohydric alcohol esters, all other	CPS, DUP, EK, EKT, EMR, EVN, FER, KF, MON, PPG, SFA, SNM, TKL, UCC, USR, VND, WCC, 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.
2-Butene-1,4-diol	GAF.
2-Butyne-1,4-diol	BAS, GAF.
3-Chloro-1,2-propanediol (Glycerol α -chlorohydrin)	EVN.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	EKK.
*Ethylene glycol	BAS, CAU, CEL, DIX, DOM, EKK, JCC, NMP, OMC, OXI, PPG, SHC, UCC, WVA.
2-Ethyl-1,3-hexanediol	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane)	CEL.
*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.
2-Methyl-2-propyl-1,3-propanediol	BKL.
*Pentaerythritol	CEL, HPC, PST.
*Propylene glycol (1,2-Propanediol)	DOM, JCC, OCC, OMC, UCC.
*Sorbitol (70% by Weight)	BRD, ICI, MRK, PFZ.
2,2,4-Trimethyl-1,3-pentanediol	EKK.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*POLYHYDRIC ALCOHOLS--CONTINUED	
Polyhydric alcohols, all other	ARA, EKK, GAF, GLY, HXL, JCC, MIL, PFM, SHC, UCC.
ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS:	
*POLYHYDRIC ALCOHOL ESTERS:	
1,3-Butanediol dimethacrylate	SAR.
2-(2-Butoxyethoxy)ethyl acetate	EKT.
Diethylene glycol chloroformate	PPG.
2-(2-Ethoxyethoxy)ethyl acetate	EKT, TKL.
Ethylene glycol diacetate	EKT, UCC.
Ethylene glycol dimercaptoacetate	EVN.
Ethylene glycol dimethacrylate	CPS, SAR.
Ethylene glycol hydroxyacetate	CCA.
Glyceryl diacetate (Diacetin)	ARC, HAL.
Glyceryl monoacetate (Monoacetin)	ARC, HAL.
Glyceryl monothioglycolate	EVN.
Glyceryl triacetate (Triacetin)	ARC, EKT, UCC.
Glyceryl trioleate	PVO(E).
Glycol adipate	MM.
1,6-Hexanediol diacrylate	CEL, SAR.
Hexylene glycol diacetate	UCC.
Hydroxyethyl acrylate	DOM.
Hydroxypropyl acrylate	DOM.
Hydroxypropyl methacrylate	CPV, RH.
Ianolin acetate	CRN.
Ianolin alcohol acetate	CRN.
Pentaerythritol stearate	ARC, GLY, X.
Pentaerythritol tetraacrylate	CEL, SAR.
Pentaerythritol tetraakis (3-Mercaptopropionate)	EVN, X.
Polyethylene glycol dimethacrylate	SAR.
Sucrose octa-acetate	HFT, PD.
2-Sulfoethyl methacrylate	DOM.
Tetraethylene glycol diacrylate	CEL, SAR, TKL.
Tetraethylene glycol dimethacrylate	CEL, SAR.
Triethylene glycol diacrylate	CEL, SAR, TKL.
Triethylene glycol dimethacrylate	SAR.
Trimethylolpropane triacrylate	CEL, SAR, TKL.
2,2,3-Trimethyl-1,3-pentanediol monoisobutyrate	EKK.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
ESTERS AND ETHERS OF POLYHYDRIC ALCOHOLS--CONTINUED	
*POLYHYDRIC ALCOHOLS ESTERS--Continued	
Polyhydric alcohol esters, all other	CCW, DA, DUP, EK, EKT, EVN, GOC, HUM, OMC, PFX, PG, SAR, SM, SNW, TKL, UCC, USB, WM.
*POLYHYDRIC ALCOHOL ETHERS:	
Bis(2-butoxyethyl)ether (Diethylene glycol di-n-butyl ether)	ASL.
Bis(2-ethoxyethyl)ether (Diethylene glycol diethyl ether)	ASL, FER, UCC.
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, UCC.
*2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	DOM, EKX, JCC, OMC, SHC, UCC.
*2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether)	DOM, OMC, UCC.
1-Butoxyethoxy-2-propanol	UCC.
*Diethylene glycol	BAS, CEL, DIX, DOM, EKX, JCC, NMP, PPG, SHC, UCC.
Dimethoxyethane (Ethylene glycol dimethyl ether)	ASL, FER.
*Dipropylene glycol	DOM, JCC, OCC, OMC, UCC.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)	DOM, EKX, JCC, OMC, SHC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	DOM, EKX, JCC, OMC, SHC, UCC.
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	DOM, OMC, UCC.
Ethylene glycol monoisobutyl ether	DOM, OMC, UCC.
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, UCC.
*2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	DOM, JCC, OMC, PPG, SHC, UCC.
*2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	DOM, OMC, UCC.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--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-Methoxyethoxy)ethyl-2-methoxyethyl ether (Triethylene glycol dimethyl ether)	ASL, OMC. DUP, UCC.
Methoxypolyethylene glycol	DOM, UCC.
1-Methoxy-2-propanol	DOM, UCC.
3-(3-Methoxypropoxy)propanol	DOM, UCC.
3-[3-(3-Methoxypropoxy)propoxy]propanol	DOM, UCC.
Paraformaldehyde	CEL, HN.
*Polyethylene glycol	BAS, CAU, DA, DOM, DUP, HDG, JCC, OMC, TCH, UCC, X.
POLYPROPOXY ETHERS:	
Polypropoxybutyl ether	BAS, DA.
Polypropoxy ethers, all other	ICI, OMC, TNI, UCC.
Polyglycols, ethylene glycol and glycol ether, mixed	DOM, UCC.
Polyoxypropylene polyoxyethylene glycol, mixed	ICI, JCC, UCC.
*Polypropylene glycol	BAS, DOM, HDG, JCC, OMC.
Polytetramethylene glycol ether	DUP, GKO.
Propylene glycol, mixed ethers	DOM, UCC.
Sorbitol, ethoxylated	GLY, ICI.
Sorbitol, propoxylated	ICI.
*Tetraethylene glycol	DOM, EKX, OMC, UCC.
1,1,3,3-Tetraethoxypropane	KF.
2,2'-Thiodiethanol (Thiodiglycol)	TKL.
*Triethylene glycol	CEL, DIX, DOM, EKX, JCC, OMC, PP6, SHC, UCC.
Tripropylene glycol	DOM, HDG, OMC, UCC.
Polyhydric alcohol ethers, all other	CRN, EKX, JCC, OMC, TX, UCC, X, X.
*HALOGENATED HYDROCARBONS:	
BROMINATED (INCLUDING BROMOCHLORINATED) HYDROCARBONS	
1-Bromobutane (n-Butyl bromide)	MCC.
2-Bromobutane (sec-Butyl bromide)	MCC.
Bromochloromethane	DOM.
Bromoethane (Ethyl bromide)	DOM.
1-Bromo-octadecane	HMY.
1-Bromopentane (n-Amyl bromide)	HMY.
Bromotrichloromethane	DOM, OMC.
Dibromomethane (methylene bromide)	DOM.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*HALOGENATED HYDROCARBONS--CONTINUED BROMINATED (INCLUDING BROMOCHLORINATED) HYDROCARBONS--Continued	
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOM.
Vinyl bromide (Bromoethylene)	TNA.
Brominated (Including bromochlorinated) hydrocarbons, all other	EK, HMY, SDW.
*CHLORINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS	
*Carbon tetrachloride	ACS, DA, DOM, DUP, FMB, FRO, SFI.
*CHLORINATED PARAFFINS (C10-C30):	
*Chlorinated paraffins, 35-64% chlorine	CCH, DA, DVC, FER, ICI, NEV, X.
Chlorinated paraffins, less than 35% chlorine	HK.
*Chlorinated paraffins, 65% or more chlorine	DA, DVC, NEV.
1-Chlorobutane (n-Butyl chloride)	PUB, UCC.
*Chloroethane (Ethyl chloride)	DOM, DUP, HPC, PPG, SFP, SHC, TNA.
*Chloroform	ACS, DA, DOM, FRO, SFI.
*Chloromethane (Methyl chloride)	ACS, CO, DCC, DOM, DUP, SFI, TNA, UCC.
3-Chloro-2-methyl-1-propene (Methallyl chloride)	FMP.
3-Chloropropene (Allyl chloride)	DOM, SHC.
Dichlorobutadiene	DUP.
1,4-Dichlorobutene	DUP, SK.
*1,2-Dichloroethane (Ethylene dichloride)	BAS, BFG, BOR, CO, DA, DOM, FRO, OMC, PPG, SFP, SHC, TNA, UCC.
*Dichloromethane (Methylene chloride)	ACS, DA, DOM, FRO, SFI.
*1,2-Dichloropropane (Propylene dichloride)	BAS, DOM, UCC, OMC.
2,3-Dichloropropene	DOM.
Hexadecyl chloride	SHC.
Octyl chloride	HDM, TNA.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)	HK.
*Tetrachloroethylene (Perchloroethylene)	DA, DOM, DUP, FRO, PPG, SFI, TNA.
*1,1,1-Trichloroethane (Methyl chloroform)	DOM, FRO, PPG.
1,1,2-Trichloroethane (Vinyl trichloride)	DOM.
*Trichloroethylene	DOM, HK, PPG, TNA.
1,2,3-Trichloropropene	DOM, SHC.
1,2,3-Trichloropropene	DOM.
*Vinyl chloride, monomer (Chloroethylene)	BFG, BOR, CO, DOM, FRO, 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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS
(ACCORDING TO LIST IN TABLE 3)

MISCELLANEOUS CHEMICALS

ACYCLIC--CONTINUED

*HALOGENATED HYDROCARBONS--CONTINUED		
*CHLORINATED (NOT OTHERWISE HALOGENATED) HYDROCARBONS--Continued		
Chlorinated (Not otherwise halogenated) hydrocarbons, all other		DUP, HDM, RMA, RH, SCM, TNA, MCC, X.
*FLUORINATED (INCLUDING OTHER FLUOROHALOGENATED) HYDROCARBONS:		
2-Bromo-2-chloro-1,1-trifluoroethane		ICI.
Bromotrifluoromethane		X.
1-Chloro-1,1-difluoroethane		PAS.
*Chlorodifluoromethane (F-22)		ACS, DUP, KAI, PAS, RCN.
Chlorotrifluoroethylene (Trifluorovinyl chloride)		ACS, MMM.
Chlorotrifluoromethane		X.
1,2-Dibromo-1,1,2,2-tetrafluoroethane		DUP.
*Dichlorodifluoromethane (F-12)		ACS, DUP, KAI, PAS, RCN.
Dichlorotetrafluoroethane		ACS, DUP, PAS.
1,1-Difluoroethane		DUP.
Hexafluoropropylene, monomer		DUP.
1-Iodo-perfluorohexane		DUP.
Tetrafluoroethylene, monomer		DUP, ICI.
Tetrafluoromethane		DUP.
*Trichlorofluoromethane (F-11)		ACS, DUP, KAI, PAS, RCN.
Trichlorotrifluoroethane		ACS, DUP.
Vinyl fluoride, monomer		X.
Vinylidene fluoride, monomer		PAS, X.
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.
Iodinated (Not otherwise halogenated) hydrocarbons, all other		RSA.
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS:		
Acetyl peroxide		NOC, WTL.
Aluminum isopropoxide (Aluminum isopropylate)		CHT, KCH.
*2-Butanone peroxide		CAD, NOC, RCI, WTC, WTL.
*tert-Butyl hydroperoxide		AZT, WTC, WTL.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
*tert-Butyl peroxide (Di-tert-butyl peroxide)	AZT, OCC, SHC, WTC, WTL.
*Carbon disulfide	FNB, PAS, PPG, SFI.
Decanoyl peroxide	WTC, WTL.
2,3-Dibromopropanol	GTI.
2,5-Dimethyl-2,5-bis(2-ethyl-1-hexanoyl peroxy) hexane	MTC, WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane	MTC, 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.
Bis(2-chloroethoxy)methane (Dichloroethylformal)	TKI.
Bis(2-chloroethyl)ether (Dichlorodiethyl ether)	DOM.
Bis(2-chloro-1-methylethyl)ether (Dichloroisopropyl ether)	DOM.
Butylene oxide	DOM.
Butyl ether (Di-n-butyl ether)	PUB.
Butyl vinyl ether	GAF.
2-Chloroethyl vinyl ether	AAC.
Chloromethyl methyl ether	DOM, RH.
Dimercaptodiethyl ether	EVN.
Epichlorohydrin	DOM, SHC.
*Ethylene oxide	BAS, CAU, CEL, DOM, EKK, JCC, NWP, OMC, PPG, SHC, SNO, UCC.
Ethyl ether, U.S.P.	MAL, USI.
Ethyl ether, absolute	EKK, MAL, USI.
Ethyl ether, tech.	PUB, UCC, USI.
Ethyl vinyl ether	GAF.
Glycidol (2,3-Epoxy-1-propanol)	DIX.
Isopropyl ether	ENJ, SHC.
Methylal (Dimethoxymethane)	CEL.
Methyl ether (Dimethyl ether)	DUP.
Methyl vinyl ether	GAF, UCC.
*Propylene oxide	BAS, DOM, JCC, OCC, OMC, OXI.
Epoxides, ethers, acetals, all other	ATR, DA, DUP, GAF, OMC, PG, SHC, UCC, VIK, WLN, 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, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
FATS AND OILS, CHEMICALLY MODIFIED:	
Hydrogenated tallow glycerides	CHL, DVC.
Stearic acid glycerides and oxidized stearic acid glycerides	SDM.
Fats and oils, chemically modified, all other	DOM.
Glutaraldehyde bis(sodium bisulfite)	EK, FMT.
n-Hexadecyl disulfide	PAS.
HYDROCARBONS:	
n-Decane	HMY, PLC.
n-Dodecane	HMY, PIC.
Hexadecane	HMY.
Myrcene	SCM, X.
n-Nonane	PLC.
n-Octadecane	HMY.
n-Octane	HMY.
Hydrocarbons, all other	CBY, HMY, PLC, SFS, SM, UCC.
Lauroyl peroxide	WTC, WTL.
2-Mercaptoethanol	PLC.
Methyl sulfide (Dimethyl sulfide)	CRZ, PAS.
Methyl sulfoxide (Dimethyl sulfoxide)	CRZ.
ORGANO-ALUMINUM COMPOUNDS:	
Diethylaluminum chloride	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.
Organo-aluminum compounds, all other	HXL, REH, TNA, TSA.
ORGANO-BORON COMPOUNDS:	
Boron fluoride-ethyl ether complex	ACS.
Trimethyl borate	MHI.
Organo-boron compounds, all other	ACS, ADC, PIC, TSA.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS--CONTINUED	
ORGANO-LITHIUM COMPOUNDS:	
n-Butyllithium	FTE.
sec-Butyllithium	FTE.
Organo-lithium compounds, all other	UCC.
ORGANO-MAGNESIUM COMPOUNDS:	
Methylmagnesium bromide	ARA.
Methylmagnesium chloride	ARA, X.
Organo-magnesium compounds, all other	TNA, TSA.
ORGANO-SILICON COMPOUNDS:	
α-Chloropropyltrichlorosilane	DCC.
Chloropropyltrimethoxysilane	DCC.
Chlorotrimethylsilane	DCC.
Dichlorodimethylsilane	DCC.
Dichloromethylsilane	DCC.
Dichloromethylvinylsilane	DCC, UCC.
α-glycidoxypolytrimethoxysilane	UCC.
Mercaptopropyltrimethoxysilane	UCC.
α-Methacryloyloxypropyltrimethoxysilane	UCC.
Methyltrimethoxysilane and polymethyltrisiloxane	DCC, UCC.
Polyoxyalkene silicones	UCC.
*Silicone fluids	DCC, SPD, SMS, UCC.
Trichloromethylsilane	DCC.
Trichloropropylsilane	DCC.
Trichlorovinylsilane	UCC.
Vinyltriethoxysilane	UCC.
Organo-silicone compounds, all other	RSA, SN, SPD, UCC.
ORGANO-TIN COMPOUNDS:	
Bis(tributyltin)oxide	X.
Dibutyltin bis(isooctylmercaptoacetate)	CCM, X, X.
Dibutyltin dichloride	CCM, X.
Dibutyltin methoxide (Dibutylmethoxytin)	CCA.
Dibutyltin oxide	X.
Tributyltin chloride	X.
Tributyltin fluoride	X.
Organo-tin compounds, all other	CCM, X.

TABLE 2.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS FOR WHICH U.S. PRODUCTION AND/OR SALES WERE EITHER REPORTED OR ESTIMATED, IDENTIFIED BY MANUFACTURER, 1979--CONTINUED

MISCELLANEOUS CHEMICALS	MANUFACTURERS' IDENTIFICATION CODES (ACCORDING TO LIST IN TABLE 3)
ACYCLIC--CONTINUED	
*OTHER MISCELLANEOUS ACYCLIC CHEMICALS---CONTINUED	
ORGANO-ZINC COMPOUNDS:	
Diethylzinc	MHI, TSA.
Perchloromethanethiol (Perchloromethyl mercaptan)	SFC.
*Phosgene (Carbonyl chloride)	ACS, DUP, MOB, OMC, PPG, RUC, UCC, UPJ.
*Pine oil, synthetic	ARZ, CBY, NCI, SCM.
Sodium ethoxide	FNP.
Sodium formaldehyde bisulfite	DAN, EK, WAY.
Sodium formaldehyde sulfoxylate	DA.
*Sodium methoxide (Sodium methylate)	DA, HSH, OMC.
Succinyl peroxide	MTL.
Miscellaneous acyclic chemicals, all other	AAC, ALD, ARA, CAD, CCL, CO, CPS, DA, DAN, DUP, DUP, EK, EKT, GAF, GLY, HK, HMY, ICI, JCC, KCH, MMC, NCI, OMC, PAS, PD, PFN, PVO(E), SFS, SHP, TNA, UCC, USR, MCC, WTL, X, X, X.
*MIXTURES NOT SPECIFICALLY ITEMIZED	
Mixtures of miscellaneous acyclic chemicals not specifically itemized	ALX, CCM, CEL, ICI, JCC, MON, MRT, NCI, PFN, PFZ, PG, PLC, PMP, PVO(E), RH, S, SYP, TNA, VND, WCC.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY
OF MANUFACTURERS, 1979

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 1979 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.	CIN	Stockhausen, Inc.
ABB	Abbott Laboratories	CLK	Clark Oil & Refining Corp.
ACS	Allied Chemical Corp., Chemicals Co. Div.	CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.
ACY	American Cyanamid Co.	CMP	Commerical Products Co., Inc.
ADC	Anderson Development Co.	CNP	Nipro Inc.
AGC	Alberta Gas Chemicals, Inc.	CO	Conoco, Inc.
AIP	Air Products & Chemicals, Inc.	CPS	CPS Chemical Co.
ALB	Ames Laboratories, Inc.	CPV	Cook Paint & Varnish Co.
ALD	Aldrich Chemical Co., Inc.	CRN	CPC International, Inc., Amerchol Corp.
ALF	Allied Chemical Corp., Fibers Div.	CRZ	Crown Zellerbach Corp., Chemical Products Div.
ALM	Allemania Chemical Co.	CWN	Upjohn Co., Fine Chemical Div.
ALX	Alox Corp.	CYR	CY/RO Industries, Inc.
AMB	American Bio-Synthetics Corp.		
AMO	Standard Oil Co. (Indiana)	DA	Diamond Shamrock Corp.
AMR	Pacific Resins & Chemicals, Inc.	DAN	Dan River, Inc., Chemical Products Dept.
ARA	Arapahoe Chemicals, Inc., Sub/Syntex U.S.A., Inc.	DBC	Badische Co.
ARC	Armak Co., Industrial Chemical Div.	DCC	Dow Corning Corp.
ARS	Arsynco, Inc.	DIX	Dixie Chemical Co., Inc.
ARZ	Arizona Chemical Co.	DKA	Denka Chemical Corp.
ASL	The Ansul Co.	DOM	Dominion Products
ATL	Atlantic Chemical Corp.	DOW	Dow Chemical Co.
ATR	Atlantic Richfield Co., Arco Chemical Co.	DUP	E. I. duPont de Nemours & Co., Inc.
AZT	Dart Industries, Inc., Aztec Chemicals Div.	DVC	Dover Chemical Corp., Sub. of ICC Industries, Inc.
BAL	Balchem Corp., ARC Chemical Corp. Div.	EFH	E. F. Houghton & Co.
BAS	BASF Wyandotte Corp.	EK	Eastman Kodak Co.:
BCC	Buffalo Color Corp.	EKT	Tennessee Eastman Co. Div.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Group	EKX	Texas Eastman Co. Div.
BKC	J. T. Baker Chemical Co.	EMR	Emery Industries, Inc.
BKL	Millmaster Onyx Group, Millmaster Chemical Co. Div.	ENJ	Exxon Chemical Co. U.S.A.
BOR	Borden Co., Borden Chemical Div.	EVN	W.R. Grace & Co., Organic Chemicals Div., Evans Chemetics
BRD	Lonza, Inc.		
BUK	Buckeye Cellulose Corp.	FER	Ferro Corp.: Grant Chemical Div. Keil Chemical Div.
			FMC Corp.:
CAD	Noury Chemical Corp.	FMB	Industrial Chemical Group
CAU	Calcasieu Chemical Corp.	FMB	Specialty Chemicals Group
CBD	Chembond Corp.	FMP	Industrial Chemical Group
CBY	Crosby Chemicals, Inc.	FMT	Fairmount Chemical Co., Inc.
CCA	Interstab Chemicals, Inc.	FOC	Handschy Industries, Inc., Farac Oil & Chemical Div.
CCH	Pearsall Chemical Corp.		
CCL	Catawba-Charlab, Inc.	FRO	Vulcan Materials Co., Chemicals Div.
CCW	Cincinnati Milacron Chemicals, Inc.	FTE	Foot Mineral Co.
CEL	Celanese Corp.: Celanese Chemical Co. Celanese Fibers Co.		
CGY	Ciba-Geigy Corp.	GAF	GAF Corp.
CHG	Mobay Chemical Corp., Agricultural Chemicals Div.	GAN	Gane's Chemicals, Inc.
CHL	Chemol, Inc.	GIV	Givaudan Corp.
CHP	C. H. Patrick & Co., Inc.	GLY	Glyco Chemicals, Inc.
CHT	Chattem, Inc.,	GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
		GP	Georgia-Pacific Corp.: Plaquemine Div. Resins Operations

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY
 OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
GRD	W. R. Grace & Co., Polymers & Chemical Div.	MON	Monsanto Co.
GRO	A. Gross & Co., Millmaster Onyx Group	MRK	Merck & Co., Inc.
	Kewanee Industries, Inc.	MRT	Morton-Norwich Products, Inc., Morton Chemical Co. Div.
GTL	Great Lakes Chemical Corp.	MTO	Montrose Chemical Corp. of California
GYR	Goodyear Tire & Rubber Co.		
HAL	C.P. Hall Co.	NCC	Niacet Corp.
HCF	Hercofina	NCI	Union Camp Corp., Terpenes & Aromatics Div.
HCP	Honig Chemical & Processing Corp.	NEO	Norda, Inc.
HDG	Hodag Chemical Corp.	NES	Ruetgers-Nease Chemical Co.
HDW	Hardwicke Chemical Co.	NEV	Neville Chemical Co.
HEX	Hexagon Laboratories, Inc.	NOC	Norac Co., Inc. and Mathe Div.
HFT	Syntex Agribusiness, Inc.	NPI	Stepan Chemical Co., Polychem Dept.
HK	Hooker Chemicals Corp.:	NSC	National Starch & Chemical Corp.
HKD	Hooker Chemicals & Plastics Corp., Durez Div.	NTB	National Biochemical Co.
HLI	Millmaster Onyx Group, Onyx Chemical Co. Div.	NTL	NL Industries, Inc.
HMP	W. R. Grace & Co., Organic Chemicals Div.	NWP	Northern Petrochemicals Co.
HMY	Humphrey Chemical Co.	OCC	Oxirane Chemical Co.
HN	Tenneco Chemicals, Inc.	OH	Airco, Inc., Ohio Medical Products Div.
HPC	Hercules, Inc.	OMC	Olin Corp.
HRT	Hart Products Corp.	ORO	Chevron Chemical Co.
HSH	Harshaw Chemical Co.	ORT	Roehr Chemicals, Inc., Div. of Aceto Industrial Chemical Corp.
HUM	Kraft, Inc., Humko Sheffield Chemical	OXC	Grace Petrochemicals, Inc.
HXL	Hexcel Corp., Hexcel Specialty Chemicals	OXI	Oxirane Chemical Co. (Channelview)
ICI	ICI Americas, Inc.: Chemical Specialties Group Plastics Div.	PAS	Pennwalt Corp.
IMC	International Minerals & Chemicals Corp, Nitroparaffin Div.	PCW	Pfister Chemical, Inc.
IOC	Ionac Chemical Co. Div. of Sybron Corp.	PD	Warner-Lambert Co.
JCC	Jefferson Chemical Co., Inc.	PEN	CPC International, Inc., Penick Corp.
KAI	Kaiser Aluminum & Chemical Corp., Kaiser Chemical Div.	PFN	Pfanstiehl Laboratories, Inc.
KCC	Kennecott Minerals Co., Chino Mines Div.	PFZ	Pfizer, Inc.
KCH	Joseph Ayers, Inc.	PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co.
KF	Kay-Fries Inc., Member Dynamit Nobel Group	PIC	Pierce Chemical, Inc.
KLM	Kalama Chemical, Inc.	PLC	Phillips Petroleum Co.
KPT	Koppers Co., Inc., Organic Materials Group	PLS	Plastics Engineering Co.
LAK	Bofors Lakeway, Inc.	PMP	Premier Malt Products, Inc.
LEM	Napp Chemicals, Inc.	PPG	PPG Industries, Inc.
LIL	Eli Lilly & Co.	PST	Perstorp, Inc.
MAL	Mallinckrodt, Inc.	PUB	Publicker Industries, Inc.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	PVO	PVO International, Inc.
MCI	Mooney Chemicals, Inc.	QKO	Quaker Oats Co.
MHI	Thlokol Corp., Ventron Div.	RBC	Fike Chemicals, Inc.
MIL	Milliken & Co., Milliken Chemical Co.	RCI	Reichhold Chemicals, Inc.
MLS	Miles Laboratories, Inc., Industrial Products Group	RCN	Racon, Inc.
MMM	Minnesota Mining & Manufacturing Co.	RDA	Rhone-Poulenc, Inc.
MNO	Monochem, Inc.	REH	Reheis Chemical Co. Div. of Armour Pharmaceutical Co.
MNR	Monroe Chemical, Inc.	REM	Remington Arms Co., Inc.
MOB	Mobay Chemical Corp.	RH	Rohm & Haas Co.
		RPC	Millmaster Onyx Group, Refined Onyx Co. Div.
		RSA	R.S.A. Corp.
		RUB	Hooker Chemicals Corp., Hooker Chemicals & Plastics Corp., Ruco Div.
		RUC	Rubicon Chemicals, Inc.

TABLE 3.--MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS: DIRECTORY
OF MANUFACTURERS, 1979--CONTINUED

Code	Name of company	Code	Name of company
S	Sandoz, Inc., Colors & Chemicals Div.	TKL	Thiokol Corp.
SAR	Sartomer Industries, Inc.	TLC	Twin Lake Chemical, Inc.
SBC	Scher Bros., Inc.	TNA	Ethyl Corp.
SCM	SCM Corp., Organic Chemicals Div.	TNI	The Gillette Co., Chemical Div.
SCP	Henkel Corp.	TRO	Troy Chemical Corp.
SDC	Martin-Marietta Corp., Sodeyco Div.	TSA	Texas Alkyls, Inc.
	Sterling Drug, Inc.:	TX	Texaco, 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.	UOP	UOP, Inc., Chemical Div.
SFI	Industrial Div.	UPJ	Upjohn Co.
SFP	Plastics Div.	USB	U.S. Borax & Chemical Corp.
SFS	Specialty Chemical Div.	USI	National Distillers & Chemicals Corp., U.S. Industrial Chemicals Co.
SHC	Shell Oil Co., Shell Chemical Co. Div.	USR	Uniroyal, Inc., Uniroyal Chemical Div.
SHP	Shepherd Chemical Co.	USS	USS Chemicals Div. of U.S. Steel Corp.
SHX	Sherex Chemical Co., Inc.		
SK	SmithKline Corp., SmithKline Chemicals Div.	VEL	Velsicol Chemical Corp.
SKO	Getty Refining & Marketing Co.	VGC	Virginia Chemicals, Inc.
SM	Mobil Oil Corp., Mobil 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 Chemical Div.
SOC	Standard Oil Co. of California, Chevron 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	Inolex Corp.
STC	American Hoechst Corp., Sou-Tex Works	WTC	Witco Chemical Corp.
STP	Stepan Chemical Co.	WTH	Union Camp Corp.
SW	Sherwin-Williams Co.	WTL	Pennwalt Corp., Lucidol Div.
SWS	Stauffer Chemical Co., SWS Silicones Div.	WVA	Westvaco Corp., Polychemicals Dept.
SYP	Dart Industries, Inc., Synthetic Products Co. Div.	WYC	Wycon Chemical Co.
		WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
TCC	Sybron Corp., Chemical Division/Tanatex		
TCH	Emery Industries Inc., Trylon Div.	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 271 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, 1979

[Names of synthetic organic chemicals manufacturers that reported production and/or sales to the U.S. International Trade Commission for 1979 are listed below alphabetically, together with their identification codes as used in table 2 of the 15 individual sections of this report]

Identif- fication 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.
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.
AGC	Alberta Gas Chemicals, Inc-----	Two Sylvan Way East, Parsippany, NJ 07054
ALC	Alco 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.:	
ACN	Agricultural Div-----	P. O. Box 2120, Houston, TX 77001.
ACS	Chemicals Co. Div-----	P. O. Box 2251-R, Morristown, NJ 07960.
ALF	Fibers Div-----	1411 Broadway - 38th Fl., New York, NY 10018.
AFP	Fibers & Plastics Co-----	1411 Broadway, New York, NY 10018.
ACU	Union Texas Petroleum Div-----	P. O. Box 2120, Houston, TX 77001.
APA	Allied Products Corp., Acme Chemicals & Insulation Div.	166 Chapel St., New Haven, CT 06513.
ALX	Alox Corp-----	3943 Buffalo Ave., Niagara Falls, NY 14303.
APH	Alpha Chemical Corp-----	P. O. Drawer A, Collierville, TN 38017.
ALP	Alpha Laboratories, Inc-----	1685 S. Fairfax St., Denver, CO 80222.
HES	Amerada Hess Corp. (Hess Oil Virgin Islands Corp.)	1 Hess Plaza, Woodridge, NJ 07095.
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.
MAR	Lignin Chemicals Div-----	Greenwich Office Park, Greenwich, CT 06830.
AC	American Color & Chemical Corp-----	P. O. 32516, Charlotte, NC 28232.
ACY	American Cyanamid Co-----	Wayne, NJ 07470.
HST	American Hoechst Corp-----	Route 202-206 North, Somerville, NJ 08876.
	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-----	4500 Camp Ground Rd., Louisville, KY 40216.
ALB	Ames Laboratories, Inc-----	200 Rock Lane, Milford, CT 06460.
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.
ARD	Ardmore Chemical Co., Inc-----	840 Valley Brook Ave., Lyndhurst, NJ 07071.
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.
ACP	Armour-Dial, Inc-----	2000 Aucutt Rd., Montgomery, IL 60538.
ARP	Armour Pharmaceutical Co-----	P. O. Box 511, Kankakee, IL 60901.
ARK	Armstrong Cork Co-----	Charlotte & Liberty Sts., Lancaster, PA 17604.
ARL	Arol Chemical Products Co-----	649 Ferry St., Newark, NJ 07105.
ARS	Arsynco, Inc-----	P. O. Box 8, Carlstadt, NJ 07072.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1979--CONTINUED

Identification code	Name of company	Office address
ASH	Ashland Oil, Inc-----	1401 Winchester Ave., Ashland, KY 41101, and P. O. Box 2458, Columbus, OH 43216.
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.
APD	Atlas Powder Co., Sub. of Tyler Corp-----	P. O. Box 87, Joplin, MO 64801.
APR	Atlas Processing Co-----	P. O. Box 3099, 3333 Midway St., Shreveport, LA 71103.
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.
BLM	Balchem Corp., ARC Chemical Corp. Div-----	P. O. Box 180, Slate Hill, NY 10973.
BAX	Baxter Travenol Laboratories, Inc-----	6301 N. Lincoln Ave., Morton Grove, IL 60053.
BAO	Bayoil Co., Inc-----	2 Union St., Peabody, MA 01960.
BEE	Beecham, Inc., Beecham Laboratories Div-----	101 Possumtown Rd., Piscataway, NJ 08854.
BCM	Belding Chemical Industries-----	1430 Broadway, New York, NY 10018.
BME	Bendix Corp-----	Tibbetts Ave., Troy, NY 12180.
BEN	Bennett's-----	P. O. Box 1320, Salt Lake City, UT 84110.
BDO	Benzenoid Organics, Inc-----	P. O. Box 157, Route 140, Bellingham, MA 02019.
PDC	Berncolors-Poughkeepsie, Inc-----	75 N. Water St., Poughkeepsie, NY 12601.
BDS	Biddle Sawyer-----	2 Penn Plaza, New York, NY 10001.
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.
LAK	Bofors Lakeway, Inc-----	5025 Evanston Ave., Muskegon, MI 49443.
BHA	Boots Hercules Agrochemicals Co-----	P. O. Box 7489, Concord Plaza, 3509 Siheerside 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---	P. O. Box 1868, 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.
	CPC International, Inc.:	
ACR	Acme Resin Corp-----	1401 S. Circle Avenue, Forest Park, IL 60130.
CRN	Amerchol Corp-----	Talmadge Rd., Edison, NJ 08817.
PEN	Penick Corp-----	1050 Wall St. W., Lyndhurst, NJ 07071.
CPS	CPS Chemical Co-----	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.
CBM	Carborundum Co-----	P. O. Box 477, Niagara Falls, NY 14302.
GGL	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 151, Severn, NC 27877.
CHC	Carpenter Chemical Co-----	P. O. Box 27205, Richmond, VA 23261.
JWC	J.W. Carroll & Sons Div. of U.S. Industries, Inc.	22600 Bonita St., Carson, CA 90745.
DOL	Castle & Cooke, Inc., Castle & Cooke Foods, Hawaii Pineapple Div.	650 Iwilei Rd., Honolulu, HI 96801.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identification code	Name of company	Office address
CCL	Catawba-Charlab, Inc-----	5046 Old Pineville Rd., Charlotte, NC 28231.
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 Materials Co-----	26 Main St., Chatham, NJ 07928.
	Celanese Polymer Specialties Co-----	One Riverfront Plaza, Louisville, KY 40202.
CNT	Certaiteed Corp-----	P. O. Box 860, Valley Forge, PA 19482.
CPR	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	Chattem, Inc-----	1715 W. 38th St., Chattanooga, TN 37409.
CBD	Chembond Corp-----	P. O. Box 270, Springfield, OR 97477.
	Chemed Corp.:	
	Dubois Chemicals Div-----	Dubois Tower, Cincinnati, OH 45211.
GRC	Vestal Laboratories Div-----	5035 Manchester Ave., St. Louis, MO 63110.
GRL	Chem-Fleur, Inc-----	200 Pulaski St., Newark, NJ 07105.
CHF	Chemical Formulators-----	P. O. Box 26, Nitro, WV 25143.
CHL	Chemol, Inc-----	P. O. Box 20687, Greensboro, NC 27420.
CPX	Chemplex Co-----	3100 Golf Rd., Rolling Meadows, IL 60008.
ORO	Chevron 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.
	Pharmaceutical Div-----	556 Morris Ave., Summit, NJ 07901.
	Resins Dept-----	444 Saw Mill River Rd., Ardsley, NY 10502.
CCW	Cincinnati Milacron Chemicals, Inc-----	West St., Reading, OH 45215.
	Cities Service Co.:	
	Columbian Div-----	P. O. Box 300, Tulsa, OK 74102.
CBN	Copperhill Operations-----	Copperhill, TN 37317.
TEN	Petrochemicals Div-----	P. O. Box 1522, Lake Charles, LA 70602, and
CBN		250 North Belt East, Houston, TX 77060.
	Petroleum Products Group-----	P. O. Box 1562, Lake Charles, LA 70602.
CSO	Clark Oil & Refining Corp-----	131st St. & Kedzie Ave., Blue Island, IL 60406.
CLK	W. A. Cleary Corp-----	P. O. Box 10, Somerset, NJ 08873.
CLY	Clintwood Chemical Co-----	4342 S. Wolcott Ave., Chicago, IL 60609.
CLI	Coastal States Petrochemical Co-----	P. O. Drawer 521, Corpus Christi, TX 78403.
CSP	Colgate-Palmolive Co-----	300 Park Ave., New York, NY 10022.
CP	Colloids, Inc-----	394 Frelinghuysen Ave., Newark, NJ 07114.
CLD	Columbia Nitrogen Corp-----	P. O. Box 1483(13), Augusta, GA 30903.
CNC	Commercial Products Co., Inc-----	117 Ethel Ave., Hawthorne, NJ 07506.
CMP	Commonwealth Oil Refining Co., Inc-----	Petrochemical Complex, Ponce, PR 00731.
COR	Commonwealth Petrochemicals, Inc-----	Petrochemical Complex, Ponce, PR 00731.
CPI	Concord Chemical Co., Inc-----	17th & Federal Sts., Camden, NJ 08105.
CON	Conoco, Inc-----	P. O. Box 1267, 100 S. Pine, Ponca City, OK 74611.
CO	Consolidated Papers, Inc-----	231 1st Ave. N., Wisconsin Rapids, WI 54494.
CWP	Continental Chemical Co-----	270 Clifton Blvd., Clifton, NJ 07015.
CTL	Cook Paint & Varnish Co-----	919 E. 14th Ave., N. Kansas City, MO 64116.
CPV	Cooperative Farm Chemicals Association-----	P. O. Box 308, Lawrence, KS 66044.
CFA	Coopers Creek Chemical Corp-----	River Rd., W. Conshohocken, PA 19428.
COP	Copolymer Rubber & Chemical Corp-----	P. O. Box 2591, Baton Rouge, LA 70821.
CPY	Corco Cyclohexane, Inc-----	Petrochemical Complex, Ponce, PR 00731.
SWC	Cosden Oil & Chemical Co-----	8350 N. Central, Dallas, TX 75206.
CSD	Crest Chemical Corp-----	225-235 Emmet St., Newark, NJ 07114.
CRT	Crest Container, Sub. of The Continental	800 E. Northwest Hwy., Palatine, IL 60067.
CRC	Group, Inc.	
CRD	Croda, Inc-----	51 Madison Ave., New York, NY 10010.
ALT	Crompton & Knowles Corp., Dyes & Chemical	500 Pear St., Reading, PA 19603.
	Div.	
CBY	Crosby Chemicals, Inc-----	P. O. Box 460, Picayune, MS 39466.
CCP	Crown Central Petroleum Corp-----	1 N. Charles St., Baltimore, MD 21203.
CRZ	Crown Zellerbach Corp., Chemical Products	P. O. Box 4266, Vancouver, WA 98662.
	Div.	

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identi- fication code	Name of company	Office address
CTR	Custom Resins Div. of Bemis Co., Inc-----	P. O. Box 933, Henderson, KY 42420.
DAT	Daitom, Inc-----	5200 Speaker Rd., Kansas City, KS 66106.
DAN	Dan River, Inc., Chemical Products Dept----- Dart Industries, Inc.:	P. O. Box 261, Danville, VA 24541.
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.
DLI	Dawe's Laboratories, Ltd-----	450 State St., Chicago Heights, IL 60411.
DGO	Day-Glo Color Corp-----	4732 St. Clair Ave., Cleveland, OH 44103.
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.
DSO	DeSoto, Inc-----	1700 S. Mt. Prospect Ave., Des Plaines, IL 60018.
DEX	Dexter Chemical Corp-----	845 Edgewater Rd., Bronx, NY 10474.
MID	Midland Div-----	1-7 E. Water St., Waukegan, IL 60085.
DA	Diamond Shamrock Corp-----	1100 Superior Ave., Cleveland, OH 44114.
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.
DOM	Dominion Products-----	882 3d Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Corp., Sub. of ICC Industries, Inc.	W. 15th & Davis Sts., P. O. Box 40, Dover, OH 44622.
DOW	Dow Chemical Co-----	2020 Dow Center, Midland, MI 48640.
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, Inc., Coatings Group-----	2325 Hollins Ferry Rd., Baltimore, MD 21230.
DSC	Dye Specialties, Inc-----	100 Plaza Center, Box 1532, Secaucus, NJ 07094.
EPI	Eagle Pitcher Industries, Ohio Rubber Co. Div.	P. O. 1398, Denton, TX 76201.
ECC	Eastern Color & Chemical Co-----	35 Livingston St., Providence, RI 02818.
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-----	1221 E. Barney Ave., Muskegon, MI 49443.
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 29607.
EMK	Emkay Chemical Co-----	319 2d St., Elizabeth, NJ 07206.
EN	Endo Laboratories, Inc-----	1000 Stewart Ave., Garden City, NY 11530.
ENO	Enenco, Inc-----	P. O. Box 398, Memphis, TN 38101.
ESS	Essential Chemicals Group-----	28391 Essential Rd., Merton, WI 53056.
SWT	Estech Specialty Chemicals Corp-----	419 N. Ridge Rd., Munster, IN 46321.
TNA	Ethyl Corp-----	330 S. 4th St., Richmond, VA 23231.
	Polymer Div-----	Ethyl Tower, 451 Florida, Baton Rouge, LA 70801.
ENJ	Exxon Chemical Co. U.S.A-----	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.
FLC	Fallek-Lankro Corp-----	1 Warrior Rd., P. O. Box H, Tuscaloosa, AL 35414.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identi- fication code	Name of company	Office address
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.:	
	Ferro Chemical Div-----	7050 Krick Rd., Bedford, OH 44146.
	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.
	Firestone Tire & Rubber Co.:	
FIR	Firestone Plastics Co. Div-----	P. O. Box 699, Pottstown, PA 19464.
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.
FLM	Fleming Laboratories, Inc-----	P. O. Box 34384, 2205 Thrift Rd., Charlotte, NC 28231.
CIK	Flint Ink Corp., Cal/Ink Div-----	1404 4th St., Berkeley, CA 94710.
FLO	Florasynth, Inc-----	410 E. 62d St., New York, NY 10021.
FTE	Foote Mineral Co-----	Route #100, Exton, PA 19341.
FOM	Formica Corp., Sub. of American Cyanamid Co.	10155 Reading Rd., Cincinnati, OH 45241.
FLN	Franklin Chemical Industries-----	2020 Bruck St., Columbus, OH 43207.
FRE	Freeman Chemical Corp-----	222 E. Main St., 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	GAF Corp-----	2200 Polymer Dr., Chattanooga, TN 37421, and P. O. Box 12, Linden, NJ 07036.
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-----	1 Plastics Ave., Pittsfield, MA 01201, and 1350 S. Second St., Coshocton, OH 43812.
GEI	Laminated & Insulating Materials Business Dept.	1 Campbell Rd., Schenectady, NY 12306.
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 10504, 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.
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.
GCC	W. R. Grace & Co-----	P. O. Box 27147, Memphis, TN 38127.
HMP	Organic Chemicals Div-----	Poisson Ave., Nashua, NH 03060.
EVN	Evans Chemetics-----	90 Tokeneke Rd., Darien, CT 06820.
GRD	Polymers & Chemicals Div-----	55 Hayden Ave., Lexington, MA 02173.
OXC	W. R. Grace Petrochemicals, Inc-----	1114 Avenue of the Americas, New York, NY 10036.
GRA	Great American Chemical Corp-----	P. O. Box 2150, Fitchburg, MA 01420.
GTL	Great Lakes Chemical Corp-----	P. O. Box 2200, West Lafayette, IN 47906.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
 BY COMPANY, 1979--CONTINUED

Identifi- cation code	Name of company	Office address
GNW	Greenwood Chemical Co-----	P. O. Box 26 - State Highway #690, Greenwood, VA 22943.
GRO	A. Gross & Co., Millmaster Onyx Group, Kewanee Industries, Inc.	625 Doremus Ave., Newark, NJ 07105.
GRV	Guardman 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.
FOC	Handschy Industries, Inc., Farac Oil and Chemical Div.	13601 S. Ashland Ave., Riverdale, IL 60627.
HAN	Hanna Chemical Coatings Corp-----	1313 Windsor Ave., P. O. Box 147, Columbus, OH 43216.
HDM	Hardman, Inc-----	600 Cortlandt St., Belleville, NJ 07109.
HDW	Hardwicke Chemical Co-----	Route 2, Box 50A, Elgin, SC 29045.
HRC	Harmon Colors Corp-----	P. O. Box 419, Hawthorne, NJ 07502.
HSB	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.
HVG	Haveg Industries, Inc., Sub. of Hercules, Inc.	900 Greenback Rd., Wilmington, DE 19808.
HKY	Hawkeye Chemical Co-----	P. O. Box 899, Clinton, IA 52733.
SCP	Henkel, Corp-----	4620 W. 77th St., Minneapolis, MN 55435.
HCF	Hercofina-----	310 N. Front St., P. O. Box 1694, Wilmington, NC 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.
HET	Heterochemical Corp-----	111 E. Hawthorne Ave., Valley Stream, NY 11580.
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 Specialty Chemicals---	205 Main St., Lodi, NJ 07644.
HDC	Hodag Chemical Corp-----	7247 N. Central Park Ave., Skokie, IL 60076.
HOF	Hoffmann-LaRoche, Inc-----	324-424 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.:	
	Durez Div-----	Walck Rd., N. Tonawanda, NY 14121.
RUB	Ruco Div-----	P. O. Box 456, Revin Rd., Burlington, NJ 08016.
EFH	E. F. Houghton & Co-----	Madison & Van Buren Avenues, Valley Forge, PA 19482.
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-----	P. O. Box 710, Huntington, IN 46750.
HUS	Husky Industries, Inc-----	62 Perimeter Center East, Atlanta, GA 30346.
HYN	Hynson, Westcott & Dunning, Inc-----	Charles and Chase Sts., Baltimore, MD 21201.
ICI	ICI Americas, Inc.:	
	Agricultural Chemicals Div-----	Wilmington, DE 19897.
	Chemical Specialties Co-----	Wilmington, DE 19897.
	Pharmaceutical Div-----	Wilmington, DE 19897.
	Plastics Div-----	Wilmington, DE 19897.
RAY	ITT Rayonier, Inc-----	1177 Summer St., Stamford, CT 06904.
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.
WM	Inolex Corp-----	Jackson & Swanson Sts., Philadelphia, PA 19148.
SPC	Insilco Corp., Sinclair Paint Co. Div-----	3960 E. Washington Blvd., Los Angeles, CA 90023.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS; ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identifi- cation code	Name of company	Office address
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.
IPC	Interplastic Corp-----	2015 N.E. Broadway St., Minneapolis, MN 55413.
CCA	Interstab Chemicals, Inc-----	500 Jersey Ave., New Brunswick, NJ 08903.
IOC	Ionac Chemical Co. Div. of Sybron Corp-----	Birmingham, NJ 08011.
IRI	Ironsides Co-----	270 W. Mound St., Columbus, OH 43215.
JCC	Jefferson Chemical Co., Inc-----	1111 Rush, 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.
JSC	Jersey State Chemical Co-----	59 Lee Ave., Haldron, NJ 07508.
JTO	Jetco Chemicals, Inc-----	P.O. Box 1898, Corsicana, TX 75110.
UPF	Jim Walter Resources, Inc-----	3300 1st Ave. N., Birmingham, AL 35222.
JNS	S. C. Johnson & Son, Inc-----	1525 Howe St., Racine, WI 53403.
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 Div-----	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-----	987 Commercial St., San Carlos, CA 94070.
	Kennecott Minerals Co.:	
KCC	Chino Mines Div-----	Hurley, NM 88043.
KCU	Utah Copper Div-----	P. O. Box 6500, Salt Lake City, UT 84106.
KPT	Kenrich Petrochemicals, Inc-----	P. O. Box 64, Bayonne, NJ 07002.
AMP	Kerr-McGee Chemical Corp-----	1406 McGee Tower, Oklahoma City, OK 73102.
KYS	Keycor 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.
	Roads Materials Group-----	Koppers Bldg., Pittsburgh, PA 15219.
HUM	Kraft, Inc., Humko Sheffield Chemical-----	P. O. Box 398, Memphis, TN 38101.
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., Petersburg, VA 23803.
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., Canajoharie, NY 13317.
LIL	Eli Lilly & Co-----	307 E. McCarty St., Indianapolis, IN 46285, and G.P.O. Box 4388, San Juan, PR 00936.
BRD	Lonza, Inc-----	22-10 Route 208, Fair Lawn, NJ 07410.
MAK	MAK Chemical Corp-----	1200 Rochester Ave., Muncie, IN 47302.
MMC	MCB Manufacturing Chemists, Inc-----	2909 Highland Ave., Norwood, OH 45212.
SOR	M.W. Manufacturers, 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 Brown Rd., St. Louis, MO 63134.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1979--CONTINUED

Identification code	Name of company	Office address
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.
MRB	Marblette Co-----	37-31 30th St., Long Island City, NY 11101.
MRD	Marden-Wild Corp-----	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.
MAY	Otto B. May Co. Div. of Cone Mills Corp-----	52 Amsterdam St., Newark, NJ 07105.
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.
MCK	McLaughlin Gormley King Co-----	8810 10th Ave., N., Minneapolis, MN 55427.
MDJ	Mead Johnson & Co-----	2404 Penna. St., Evansville, IN 47721.
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., Industrial Products 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. Div-----	14010 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-----	Torio 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-----	1024 South Ave., Plainfield, NJ 07062.
	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 E, 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 Chemical 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.
NIL	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.
NTB	National Biochemical Co-----	3127 W. Lake St., Chicago, IL 60612.
NTC	National Casein Co-----	601 W. 80th St., Chicago, IL 60620.
USI	National Distillers & Chemicals Corp.:	
	U.S. Industrial Chemicals Co-----	99 Park Ave., New York, NY 10016.
	National Petro Chemical Corp-----	99 Park Ave., New York, NY 10016.
NMC	National Milling & Chemical Co-----	4601 Flat Rock Rd., Philadelphia, PA 19127.

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

Identi- fication code	Name of company	Office address
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.	1413 Clover Rd., 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	Nostrup Chemical Works, Inc-----	P. O. Box 160, Pedricktown, NJ 08067.
CAD	Noury Chemical Corp-----	2153 Lockport-Olcott Rd., Burt, NY 14028.
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.
OPC	Orbis Products Corp-----	140 Route 10, E. Hanover, NJ 07936.
ORG	Organics, Inc-----	7125 N. Clark St., Chicago, IL 60628.
BSW	Original Bradford Soap Works, Inc-----	200 Providence St., W. Warwick, RI 02893.
OCF	Owens-Corning Fiberglas Corp-----	Fiberglas Tower, Toledo, OH 43659.
OCC	Oxirane Chemical Co-----	10801 Choate Rd., Pasadena, TX 77507.
OXI	Oxirane Chemical Co. (Channelview)-----	P. O. Box 580, Channelview, TX 77530.
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, and P. O. Box 66251-AMF-O'Hare, Chicago, IL 60666.
PVO	PVO International, Inc., Chemical Specialties Div.	416 Division St., Boonton, NJ 07005.
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. Box 437, Houston, TX 77001.
PEK	Peck's Products Co-----	610 E. Clarence Ave., St. Louis, MO 63147.
PCH	Peerless Chemical Co-----	12416 Cloverdale St., Detroit, MI 48204.
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. Boradway, 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.
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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identifi- cation code	Name of company	Office address
PLC	Phillips Petroleum Co-----	15 Phillips Bldg., Bartlesville, OK 74004.
PPR	Phillips Puerto Rico Core, Inc-----	G.P.O. Box 4129, San Juan, PR 00936.
PIC	Pierce Chemical Co-----	3747 N. Meridian Rd., P. O. Box 117, Rockford, IL 61103.
PIL	Pilot Chemical Co-----	11756 Burke St., Santa Fe Springs, CA 90670.
PPL	Pioneer Plastics Div. of LOF Plastics, Inc.	Pionite Rd., Auburn, ME 04210.
PIT	Pitt-Consol Chemical Co-----	P. O. Box 1267, Ponca City, OK 74601.
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.
PYZ	Polyrez Co., Inc-----	P. O. Box 320, Woodbury, NJ 08096.
PLR	Polysar, Inc.:	
	Polysar Latex Div-----	3805 Amnicola Hwy., Chattanooga, TN 37406.
	Resins Div-----	29 Fuller St., Leominster, MA 01453.
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.
PTO	Puerto Rico Chemical Co., Inc-----	P. O. Box 496, Arecibo, PR 00612.
PRX	Purex Corp-----	5101 Clark Ave., Lakewood, CA 90712.
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.
QH	Quintana-Howell Joint Venture-----	P. O. Box 4656, Corpus Christi, TX 79408.
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.
RAB	Raybestos Friction Materials Co-----	75 E. Main St., Stratford, CT 06497.
RED	Red Spot Paint & Varnish Co., Inc-----	110 Main St., Evansville, IN 47703.
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 21-423, Louisville, KY 40221.
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 & Chemical-----	75 Front St., Ridgway, PA 15853.
RIK	Riker Laboratories, Inc., Sub. of 3M Co-----	19901 Nordhoff St., Northridge, CA 91324.
RSN	Rilsan Corp-----	139 Harristown Rd., Glen Roc, NJ 07452.
RT	Ritter International-----	4001 Goodwin Ave., 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.
RWC	Robinson Wagner Co., Inc-----	628 Waverly Ave., Mamaroneck, NY 10543.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identifi- cation code	Name of company	Office address
MFG	Rockwell International Corp-----	4501 Benefit Ave., Ashtabula, OH 44004.
ORT	Roehr Chemicals, Inc. Div. of Aceto Industrial Chemical Corp.	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.
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.:	
	Coatings & Resins Div-----	900 Union Commerce Bldg., Cleveland, OH 44115.
	Organic Chemicals Div-----	299 Park Ave., New York, NY 10017.
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-----	Estate Hope, 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-----	3rd St. & Fair Lawn Ave., Fair Lawn, NJ 07410.
	Colors & Chemicals Div-----	Route #10, E. Hanover, NJ 07936.
	Crop Protection-----	480 Camino Del Rio South, San Diego, CA 92108.
SAR	Sartomer Industries, Inc-----	Gov. Printz Blvd. & Wanamaker Ave., Essington, PA 19029.
SCN	Schenectady Chemicals, Inc-----	P. O. Box 1046, Schenectady, NY 12301.
SBC	Scher Bros., Inc-----	Industrial West, Clifton, NJ 07012.
SCH	Schering Corp., U.S. Pharmaceutical Products Div.	1011 Morris Ave., Union, NJ 07083.
SCO	Scholler Bros., 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-----	1370 Ontario St. P. O. Box 6520, Cleveland, OH 44113.
SHT	Shintech, Inc-----	3800 Buffalo Speedway-Suite 210, Houston, TX 77098.
SID	George F. Siddall Co., Inc-----	P. O. Box 925, Spartanburg, SC 29304.
SMP	J. R. Simplot Co., Minerals Chemical Div----	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, Columbus, 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 Adhesives 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-----	310 Wheeler St., Tonawanda, NY 14150.
OMS	E. R. Squibb & Sons, Inc-----	40 W. 57th St., New York, NY 10019.
TRD	Squibb Manufacturing, Inc., Manufacturing Enterprises, Inc., Trade Enterprises, Inc., Ersana, Inc.	P. O. Box 609, Humacao, PR 00661.
STA	A. E. Staley Mfg. Co-----	2200 E. Eldorado St., Decatur, IL 62525.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	1251 Beaver Channel Parkway, Clinton, IA 52733.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identifi- cation code	Name of company	Office address
SCC	Standard Chlorine of Delaware, Inc-----	: 1035 Belleville Turnpike, Kearny, NJ 07032.
SIO	Standard Oil Co.-----	: 397 Midland Bldg., Cleveland, OH 44115.
AMO	Standard Oil Company (Indiana)-----	: P. O. Box 5910-A, Mail Code 3503, 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.
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	Stepan 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.
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-----	: P. O. Box 7888, Van Nuys, CA 91409.
SNO	SunOlin Chemical Co-----	: P. O. Box F, Claymont, DE 19703.
TCC	Sybron Corp., Chemical Division/Tanatex-----	: P. O. Box 125, Wellford, SC 29385.
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.
PCD	Synres Chemical Corp-----	: 1036 Commerce Ave., Union, NJ 07038.
HFT	Syntex Agribusiness, Inc-----	: P. O. Box 1246 S.S.S., Springfield, MO 65805.
CST	Charles S. Tanner Co-----	: 1310 Barcelona Dr., Greenville, SC 29605.
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 A204 NFDC, Div. of Chemical Operations	: 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.
TUS	Texas-U.S. Chemical Co-----	: P. O. Box 667, Port Neches, TX 77651.
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-----	: 152 Andovin St., Danvers, MA 01923.
TMH	Thompson Hayward Chemical Co-----	: 2 E. Madison St., Waukegan, IL 60085, and 5200 Speaker Rd., Kansas City, MO 66110.
TRC	Toms River Chemical Corp-----	: P. O. Box 71, Toms River, NJ 08753.
TNO	Trancoa Chemical Corp-----	: 312 Ash St., Reading, MA 01867.
TRI	Triad Chemical-----	: P. O. Box 310, Donaldsonville, LA 70346.
TRO	Troy Chemical Co-----	: One Avenue L, Newark, NJ 07105.
TLC	Twin Lake Chemical, Inc-----	: P. O. Box 411, Lochport, NY 14094.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS; ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identi- fication code	Name of company	Office address
UPM	UOP, Inc-----	10 UOP Plaza, Des Plaines, IL 60016.
UOP	Chemical Div-----	State Highway 17, E. Rutherford, NJ 07073.
USM	USM Corp.:	
	Bostik Div., Southern Region-----	P. O. Box 5695, Greenville, SC 29606.
	Bostik U.S. Div-----	Boston St., Middleton, VA 01949.
ARM	USS Agri-Chemicals Div. of U.S. Steel Corp--	P. O. Box 1685, Atlanta, GA 30301.
USS	USS Chemicals Div. of U.S. Steel Corp-----	600 Grant St., Rm. 2880, Pittsburgh, PA 15230.
NVT	USS Novamont, Inc-----	600 Grant St., Pittsburgh, PA 15219, and P.O. Box 189, Kenova, WV 25530.
UHL	Paul Uhlich & Co., Inc-----	1 Railroad Ave., Hastings-on-Hudson, NY 10706.
UNG	Ungerer & Co-----	4 Bridgewater Lane, P. O. Box U, Lincoln Park, NJ 07035.
WTH	Union Camp Corp-----	P. O. Box 220, Dover, OH 44622.
NCI	Chemical Products Div-----	1600 Valley Rd., Wayne, NJ 07470.
NCI	Terpene & Aromatics Div-----	P. O. Box 60369, Jacksonville, FL 32205.
UCC	Union Carbide Corp-----	P. O. Box 8004, S. Charleston, WV 25303.
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-----	Endicott St., Norwood, MA 02062.
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, Dexter Rd., 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	Valentine Sugars, Inc., Valite Div-----	726 Whitney Bldg., New Orleans, LA 70130.
VLN	Valley Nitrogen Producers, Inc-----	1221 Van Ness Ave., Fresno, CA 93721.
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.
VND	Van Dyk & Co., Inc-----	Main & Williams Sts., Belleville, NJ 07109.
VEL	Velsicol Chemical Corp-----	341 E. Ohio St., Chicago, IL 60611.
VTC	Vertac, Inc., Vicksburg Plant-----	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-----	314 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.
FRO	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 66222.
WCA	West Coast Adhesives Co-----	11104 N.W. Front Ave., Portland, OR 97231.
EW	Westinghouse Electric Corp., Industrial Materials Div.	Manor, PA 15665.
WVA	Westvaco Corp., Polychemicals Dept-----	P. O. Box 70848, Charleston Heights, SC 29405.
WRD	Weyerhaeuser Co-----	P. O. Box 130, Marshfield, WI 54449.
WBG	White & Bagley Co-----	P. O. Box 706, Worcester, MA 01613.
WHI	White & Hodges, Inc-----	576 Lawrence St., Lowell, MA 01853.
WCC	White Chemical Corp-----	Foot of East 22nd St., Bayonne, NJ 07002.
WHL	Whitmoyer Laboratories, Inc-----	19 N. Railroad St., Myerstown, PA 17067.
APT	Whittaker Corp., Whittaker Coatings & Chemicals, Mol Rez Resins.	3134 California St., NE., Minneapolis, MN 55418.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS; ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1979--CONTINUED

Identi- fication code	Name of company	Office address
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.
WAW	W. A. Wood Co-----	108 Spring St., Everett, MA 02149.
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 6,641 million pounds with a foreign invoice value of \$1,108.7 million in 1979, compared with 487.6 million pounds with a foreign invoice value of \$663.0 million in 1978.

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 status of benzenoid imports in 1979 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, 32.0 percent of all the benzenoid imports under part 1B in 1979 came from West Germany; 24.7 percent, from Japan; 8.1 percent, from the United Kingdom; and 7.0 percent, from Switzerland.

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 30.1 percent of all finished benzenoid imports under part 1C in 1979 came from West Germany; 14.8 percent, from the United Kingdom; and 12.5 percent, from Japan.

¹*Imports of Benzenoid Chemicals and Products, 1979*, USITC Publication 1083, July 1980.

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, 1979

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
<u>SCHEDULE 4, PART 1B</u>		pounds		dollars		
Total-----	987	406,718	100.0	452,847	100.0	\$1.11
Competitive:						
Duty based on ASP ¹ -----	245	183,220	45.1	139,249	30.8	.76
Other ² -----	178	147,172	36.2	145,410	32.1	.99
Noncompetitive:						
Duty based on U.S. value-----	236	16,012	3.9	27,615	6.1	1.73
Duty based on export value-----	215	14,125	3.5	41,347	9.1	2.93
Other ³ -----	89	33,141	8.2	64,526	14.3	1.95
Competitive status not available-----	24	13,048	3.1	34,700	7.6	2.66
<u>SCHEDULE 4, PART 1C</u>						
Total-----	2,264	257,385	100.0	655,816	100.0	2.55
Competitive:						
Duty based on ASP ¹ -----	354	34,670	13.5	61,066	9.3	1.76
Other ² -----	293	88,322	34.3	184,883	28.2	2.09
Noncompetitive:						
Duty based on U.S. value-----	1,029	12,172	4.7	61,289	9.4	5.04
Duty based on export value-----	307	33,615	13.1	97,855	14.9	2.91
Other ³ -----	185	20,472	8.0	111,432	17.0	5.44
Competitive status not available-----	96	68,134	26.5	139,292	21.2	2.04
<u>SUMMARY (SCHEDULE 4, PART 1B AND 1C)</u>						
Total-----	3,251	664,103	100.0	1,108,663	100.0	1.67
Competitive:						
Duty based on ASP ¹ -----	599	217,890	32.8	200,315	18.1	.92
Other ² -----	471	235,494	35.5	330,293	29.8	1.40
Noncompetitive:						
Duty based on U.S. value-----	1,265	28,184	4.2	88,904	8.0	3.15
Duty based on export value-----	522	47,740	7.2	139,202	12.6	2.92
Other ³ -----	274	53,613	8.1	175,958	15.9	3.28
Competitive status not available-----	120	81,182	12.2	173,992	15.7	2.14

¹All import entries in this group were "competitive" as defined in secs. 402 and 402a of the Tariff Act of 1930, as amended.

²Imports 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.

³Assessment 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 either 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 differences in coverage and in the methods used in compiling the data. In general, the statistics coverage in 1979 varies from a low of 70 percent for flavor and perfume materials, to about 84 percent coverage for medicinals and pharmaceuticals, 85 percent for organic pigments, 86 percent for dyes, and 90 percent for intermediates.

Note 2.--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.
1,2,4-Acid-----	4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1-Amino-2-naphthol-4-sulfonic acid).
Acid yellow 9-----	6-Amino-3,4'-azodibenzenesulfonic acid.
p-Aminobenzenesulfonic acid-----	Sulfanilic acid and salt.
m-Aminobenzoyl J acid-----	4-Hydroxy-7-(m-aminobenzamido)-2-naphthalenesulfonic acid.
Aminoepislon acid-----	8-Amino-1,6-naphthalenedisulfonic acid.
Amino G acid-----	7-Amino-1,3-naphthalenedisulfonic acid.
Amino J acid-----	6-Amino-1,3-naphthalenedisulfonic acid.
Amino R salt-----	3-Amino-2,7-naphthalenedisulfonic acid.
Aniline oil-----	Aniline.
Anthraflavic acid-----	2,6-Dihydroxyanthraquinone.
Anthrarufin-----	1,5-Dihydroxyanthraquinone.
Armstrong & Wynne's acid-----	4-Hydroxy-2-naphthalenesulfonic acid.
B Acid-----	5-Amino-4-hydroxy-1,7-naphthalenedisulfonic acid.
2B Acid-----	6-Amino-4-chloro-m-toluenesulfonic acid.
4B Acid-----	6-Amino-m-toluenesulfonic acid.
Benzal chloride-----	α,α -Dichlorotoluene.
Benzanthrone-----	7H-Benz[de]anthracen-7-one.
Benzotrithloride-----	α,α,α -Trichlorotoluene.
Bisphenol A-----	4,4'-Isopropylidenediphenol.
B.O.N-----	3-Hydroxy-2-naphthoic acid.
Broenner's acid-----	6-Amino-2-naphthalenesulfonic acid.
Bromamine acid-----	1-Amino-4-bromo-2-anthraquinonesulfonic acid.
Bromobenzanthrone-----	3-Bromo-7H-benz[de]anthracene-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.
DBB-----	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 [NH ₂ =1].
Fast Scarlet R base-----	5-Nitro-o-anisidine [NH ₂ =1].
Fischer's aldehyde-----	1,3,3-Trimethyl- Δ^2,α -indolineacetaldehyde.
Fischer's base-----	1,3,3-Trimethyl-2-methyleneindoline.
Freund's acid-----	4-Amino-2,7-naphthalenedisulfonic acid.

TABLE 3.--CYCLIC INTERMEDIATES: GLOSSARY OF SYNONYMOUS NAMES--CONTINUED

Common name	Standard (Chemical Abstracts) name
G salt----- Gamma acid-----	7-Hydroxy-1,3-naphthalenedisulfonic 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----- Hellimellitene-----	4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid. (8-Amino-1-naphthol-3,6-disulfonic acid). 1,2,3-Trimethylbenzene.
IndoxyI-----	3(2H)-Indolone.
J Acid----- J Acid Urea-----	7-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt. 7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid].
K Acid----- Koch's Acid-----	4-Amino-5-hydroxy-1,7-naphthalenedisulfonic acid. 8-Amino-1,3,6-naphthalenetrisulfonic acid.
L Acid----- Lake Red C amine----- Laurent's acid-----	5-Hydroxy-1-naphthalenesulfonic acid. 2-Amino-5-chloro-p-toluenesulfonic acid. 5-Amino-1-naphthalenesulfonic acid.
M Acid----- MEP----- Mesitylene----- Methane base----- Michler's hydrol----- Michler's ketone-----	8-Amino-4-hydroxy-2-naphthalenesulfonic acid. 5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine). 1,3,5-Trimethylbenzene. 4,4'-Methylenebis[N,N-dimethylaniline]. 4,4'-Bis[dimethylamino]benzhydrol. 4,4'-Bis[dimethylamino]benzophenone.
Naphthionic acid----- o-Naphthionic acid----- β-Naphthol----- Naphthol AS----- α-Naphthylamine----- Neville & Winther's acid----- m-Nitrobenzoyl J acid-----	4-Amino-1-naphthalenesulfonic acid. 1-Amino-2-naphthalenesulfonic acid. 2-Naphthol, tech. 3-Hydroxy-2-naphthanilide. 1-Naphthylamine. 4-Hydroxy-1-naphthalenesulfonic acid. 4-Hydroxy-7-(m-nitrobenzamido)-2-naphthalenesulfonic acid.
Oxy Koch's acid-----	1-Naphthol-3,6,8-trisulfonic acid.
Pentaanthrimide----- Peri Acid----- Phenylbiphenyl----- N-Phenyldiethanolamine----- Phenyl Gamma acid----- Phenyl J acid----- Phenyl peri acid----- POPOP----- Pseudocumene----- Pyrazoleanthrone----- Pyrazoleanthrone yellow----- Pyrazolone T-----	1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone. 8-Amino-1-naphthalenesulfonic acid. Terphenyl. 2,2'-[(Phenyl)imino]diethanol. 6-Anilino-4-hydroxy-2-naphthalenesulfonic acid. 7-Anilino-4-hydroxy-2-naphthalenesulfonic acid. 8-Anilino-1-naphthalenesulfonic acid. 1,4-Bis[2-(5-phenyloxazolyl)]benzene. 1,2,4-Trimethylbenzene. Anthra[1,9-cd]pyrazol-6(2H)-one. [3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione. 5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
Quinizarin----- 2-Quinizarinsulfonic acid-----	1,4-Dihydroxyanthraquinone. 9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic acid.
Quinoline yellow base-----	Quinophthalone.
R salt----- RG Acid (Violet acid)----- Rhoduline acid (J Acid Imide)----- RR acid-----	3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt. 4-Hydroxy-2,7-naphthalenedisulfonic acid. 7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]. 3-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid.
S Acid----- Schaffer's acid----- Silver salt-----	4-Amino-5-hydroxy-1-naphthalenesulfonic acid. 6-Hydroxy-2-naphthalenesulfonic acid. 9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt.

TABLE 3.--CYCLIC INTERMEDIATES: GLOSSARY OF SYNONYMOUS NAMES--CONTINUED

Common name	Standard (Chemical Abstracts) name
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.
o-Sulfobenzaldehyde-----	o-Formylbenzenesulfonic acid.
Thioindoxyl-----	3(2H)-Thianaphthenone.
Thiosalicylic acid-----	o-Mercaptobenzoic acid.
Tobias Acid-----	2-Amino-1-naphthalenesulfonic acid.
TODI-----	Bitolyene diisocyanate.
o-Tolidine-----	3,3'-Dimethylbenzidine.
α-Toluic acid-----	Phenylacetic acid.
α-Tolunitrile-----	Phenylacetoneitrile.
4-m-Tolylenediamine-----	Toluene-2,4-diamine.
Trimellitic anhydride-----	1,2,4-Benzenetricarboxylic acid, 1,2-anhydride.
Trimethyl base-----	1,3,3-Trimethyl-2-methyleneindoline.
Trinitrophenol-----	Picric acid.
Urea J Acid (J Acid Urea)-----	7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid].
Vinyltoluene-----	ar-Methylstyrene.
Violet acid (RG Acid)-----	4-Hydroxy-2,7-naphthalenedisulfonic acid.

