

UNITED STATES INTERNATIONAL TRADE COMMISSION

**SYNTHETIC
ORGANIC CHEMICALS**

**United States Production
and Sales, 1974**

**U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1976**

USITC Publication 776

UNITED STATES INTERNATIONAL TRADE COMMISSION

COMMISSIONERS

WILL E. LEONARD, Jr.
Chairman

DANIEL MINCHEW
Vice Chairman

GEORGE M. MOORE

CATHERINE BEDELL

JOSEPH O. PARKER

ITALO H. ABLONDI

KENNETH R. MASON
Secretary to the Commission

Please address all communications to

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C. 20436

C O N T E N T S

	<u>Page</u>
Introduction-----	1
Summary-----	3
General-----	4
Tar-----	7
Tar crudes-----	7
Crude products from petroleum and natural gas for chemical conversion-----	13
Cyclic intermediates-----	20
Dyes-----	49
Organic pigments-----	84
Medicinal chemicals-----	93
Flavor and perfume materials-----	114
Plastics and resin materials-----	126
Rubber-processing chemicals-----	135
Elastomers-----	143
Plasticizers-----	147
Surface-active agents-----	155
Pesticides and related products-----	184
Miscellaneous chemicals-----	195

APPENDIX

Directory of manufacturers-----	239
U.S. imports of benzenoid chemicals and products-----	253
Cyclic intermediates: Glossary of synonymous names-----	255

INTRODUCTION

This is the fifty-eighth annual report of the U.S. International Trade Commission (formerly the U.S. Tariff Commission) on domestic production and sales of synthetic organic chemicals and the raw materials from which they are made. The report consists of fourteen sections, each covering a specified group (based principally on use) of organic chemicals as follows: Tar and tar crudes; crude products from petroleum and natural gas; intermediates; dyes; pigments; medicinal chemicals; flavor and perfume materials; plastics and resin materials; rubber-processing chemicals; elastomers; plasticizers; surface-active agents; pesticides and related products; and miscellaneous organic chemicals. Data have been supplied by approximately 800 producers.

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 exceeds 1,000 pounds or the value of sales exceeds \$1,000. They are usually given in terms of undiluted materials; however, products of 95 percent or more 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 which 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.

Information on the 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* (2d edition), published by the Society of Dyers and Colourists.

Table 2 of the Appendix summarizes and gives the competitive status of U.S. general imports in 1974 of benzenoid intermediates and finished benzenoid products, entered under schedule 4, parts 1B and 1C, of the Tariff Schedules of the United States.

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. 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 when it is isolated from the reaction system and/or when it is weighed, analyzed, or otherwise measured. This includes byproducts and coproducts that are not classifiable as waste materials;
Produced and transferred to other plants or establishments of the same firm;
Produced and sold to other firms, including production for another under a toll agreement (i.e., an agreement, under which one firm furnishes the raw materials and pays the processing costs and the other firm prepares the finished product and returns it to the first firm).
Produced and held in stock.

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

INTRODUCTION

PRODUCTION EXCLUDES:

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

Shipments of a commodity produced by others under toll agreements;

Shipments to subsidiary or affiliated companies.

SALES EXCLUDE:

All intra-company transfers within a corporate entity;

All sales of purchased commodities;

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

VALUE OF SALES is the net selling value f.o.b. plant or warehouse, or delivered value, whichever represents the normal industry practice.

SUMMARY

3

Combined production of all synthetic organic chemicals, tar, tar crudes, and crude products from petroleum and natural gas in 1974 was 293,578 million pounds--an increase of 2.6 percent over the output in 1973 (see table 1). Sales of these materials in 1974 which totaled 160,591 million pounds valued at \$30,284 million, were 2.3 percent smaller than in 1973 in terms of quantity and 57.2 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 1974 production of all synthetic organic chemicals, including cyclic intermediates and finished products totaled 183,869 million pounds, or 2.3 percent more than the output in 1973. Production of flavor and perfume materials (135 million pounds) was 15.7 percent larger in 1974 than in 1973; that of pesticides and related products (1,417 million pounds) was 10.0 percent larger; that of surface-active agents (4,696 million pounds) was 7.4 percent larger; that of cyclic intermediates (38,147 million pounds) was 6.4 percent larger; and that of medicinal chemicals (246 million pounds) was 5.5 percent larger. The output of most other groups of synthetic organic chemicals also increased in 1974 compared with 1973, with miscellaneous chemicals showing an increase of 1.6 percent and plasticizers showing an increase of 1.0 percent. Plastics and resin materials and organic pigments showed increases of less than one percent. Production of elastomers (synthetic rubbers) (5,654 million pounds) was 5.6 percent less in 1974 than in 1973; and that of dyes (275 million pounds) was 3.2 percent less.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS AND THEIR RAW MATERIALS;
U.S. PRODUCTION AND SALES, 1973 AND 1974

Chemical	Production			Sales					
				Quantity			Value		
	1973	1974	Increase or decrease (-), 1974 over 1973 ¹	1973	1974	Increase or decrease (-), 1974 over 1973 ¹	1973	1974	Incre- or decrease (-), 1974 over 1973 ¹
	Million pounds	Million pounds	Percent	Million pounds	Million pounds	Percent	Million dollars	Million dollars	Percent
Grand total ² -----	286,092	293,578	2.6	164,312	160,591	-2.3	19,260	30,284	57.2
Tar-----	7,325	6,774	-7.5	3,363	3,336	-0.8	42	104	149.0
Tar crudes ³ -----	7,802	8,582	10.0	5,151	4,768	-7.4	128	273	112.0
Crude products from petroleum and natural gas-----	91,250	94,353	3.4	49,625	50,222	1.2	1,451	4,062	180.0
Synthetic organic chemicals, total ² -----	179,717	183,869	2.3	106,173	102,265	-3.7	17,638	25,845	46.5
Cyclic intermediates-----	35,863	38,147	6.4	17,915	17,638	-1.6	1,899	3,514	85.1
Dyes-----	284	275	-3.2	266	263	-1.2	519	556	7.2
Organic pigments-----	69	70	0.6	61	58	-4.8	182	228	25.1
Medicinal chemicals-----	234	246	5.5	179	178	-0.9	582	815	39.9
Flavor and perfume materials-----	117	135	15.7	108	107	-0.8	108	167	53.7
Plastics and resin materials-----	30,251	30,348	0.3	27,018	26,128	-3.3	5,347	7,887	47.5
Rubber-processing chemicals--	401	384	-4.3	312	286	-8.2	199	236	18.4
Elastomers (synthetic rubbers)-----	5,990	5,654	-5.6	5,159	4,601	-10.8	1,297	1,529	17.8
Plasticizers-----	1,873	1,892	1.0	1,708	1,707	(⁴)	341	535	56.8
Surface-active agents-----	4,372	4,696	7.4	2,580	2,502	-3.0	532	746	40.3
Pesticides and related products-----	1,289	1,417	10.0	1,199	1,365	13.9	1,344	1,815	35.1
Miscellaneous chemicals-----	98,974	100,604	1.6	49,667	47,431	-4.5	5,287	7,815	47.8

¹ Percentages calculated from figures rounded to thousands.

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

³ Estimated in part to avoid disclosing individual company operations.

⁴ Less than 0.05 percent.

SYNTHETIC ORGANIC CHEMICALS, 1974

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 materials, elastomers, plasticizers, surface-active agents, pesticides and related products and miscellaneous chemicals (acyclic intermediates and acyclic and cyclic finished products). Most of these groups are further subdivided either by use or by chemical composition. As intermediate 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 1974 was 183,869 million pounds or 2.3 percent more than the output of 179,717 million pounds reported for 1973 and 75.6 percent more than the output of 104,711 million pounds reported for 1967 (see table 2). Sales of synthetic organic chemicals in 1974 amounted to 102,264 million pounds, valued at \$25,845 million, compared with 106,173 million pounds, valued at \$17,638 million in 1973 and 55,177 million pounds, valued at \$10,438 million in 1967. Production of all cyclic products (intermediates and finished products combined) in 1974 totaled 60,331 million pounds or 4.6 percent more than the 57,672 million pounds reported for 1973 and 80.2 percent more than the 33,479 million pounds reported for 1967. Production of all acyclic products in 1974 totaled 123,537 million pounds, or 1.2 percent more than the 122,045 million pounds reported for 1973 and 73.4 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, 1973, AND 1974

[Production and sales in thousands of pounds; sales value in thousands of dollars]

Chemical	1967 ¹	1973	1974	Increase, or decrease (-)	
				1974 over 1967	1974 over 1973
Organic chemicals, cyclic and acyclic, grand total:				Percent	Percent
Production-----	104,711,357	179,717,077	183,868,858	75.6	2.3
Sales-----	55,176,823	106,173,335	102,264,717	85.3	-3.7
Sales value-----	10,438,453	17,638,472	25,844,900	147.6	46.5
Cyclic, total:					
Production-----	33,479,469	² 57,671,745	60,331,380	80.2	4.6
Sales-----	19,328,628	² 35,560,162	34,339,420	77.7	-3.4
Sales value-----	4,610,293	² 8,113,736	12,014,301	160.6	48.1
Acyclic, total:					
Production-----	71,231,888	² 122,045,332	123,537,478	73.4	1.2
Sales-----	35,848,195	² 70,613,173	67,925,297	89.5	3.8
Sales value-----	5,828,160	² 9,524,736	13,830,599	137.3	45.2
1. Cyclic Intermediates					
Production-----	20,793,132	35,863,052	38,146,699	83.5	6.4
Sales-----	9,461,180	17,915,149	17,638,158	86.4	-1.6
Sales value-----	1,000,359	1,898,756	3,514,211	251.3	85.1
2. Dyes					
Production-----	206,240	284,226	275,036	33.4	-3.2
Sales-----	198,592	266,199	263,145	32.5	-1.2
Sales value-----	332,049	518,621	556,226	67.5	7.2
3. Organic Pigments					
Production-----	53,322	69,395	69,798	30.9	0.6
Sales-----	42,867	61,464	58,481	36.4	-4.8
Sales value-----	108,354	182,166	227,812	110.2	25.1
4. Medicinal Chemicals					
Cyclic:					
Production-----	110,129	134,065	143,646	30.4	7.2
Sales-----	70,120	87,129	93,588	33.5	7.4
Sales value-----	348,873	510,677	713,452	104.5	39.7
Acyclic:					
Production-----	69,941	99,518	102,807	47.0	3.3
Sales-----	56,804	92,049	83,927	47.8	-8.8
Sales value-----	36,402	71,675	101,315	178.3	41.4

See footnotes at end of table.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES
OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1973, AND 1974--CONTINUED

[Production and sales in thousands of pounds; sales value in thousands of dollars]

Chemical	1967 ¹	1973	1974	Increase, or decrease (-)	
				1974 over 1967	1974 over 1973
<i>5. Flavor and Perfume Materials</i>					
Cyclic:					
Production-----	57,978	52,928	55,729	-3.9	5.3
Sales-----	47,285	45,553	42,721	-9.6	-6.2
Sales value-----	52,866	66,150	100,922	90.9	52.6
Acyclic:					
Production-----	53,558	64,072	79,592	48.6	24.2
Sales-----	49,311	62,774	64,726	31.3	3.1
Sales value-----	40,495	42,339	65,804	62.5	55.4
<i>6. Plastics and Resin Materials</i>					
Cyclic:					
Production-----	5,033,497	9,903,150	9,767,809	94.1	-1.4
Sales-----	4,224,121	8,813,959	8,341,509	97.5	-5.4
Sales value-----	1,036,940	2,179,687	3,243,405	212.8	48.8
Acyclic:					
Production-----	8,759,452	20,347,467	20,580,321	135.0	1.1
Sales-----	7,753,242	18,204,270	17,786,597	129.4	-2.3
Sales value-----	1,635,690	3,167,741	4,643,953	183.9	46.6
<i>7. Rubber-Processing Chemicals</i>					
Cyclic:					
Production-----	220,139	338,368	324,643	47.5	-4.1
Sales-----	169,970	263,833	238,732	40.5	-9.5
Sales value-----	116,318	275,825	206,474	77.5	17.4
Acyclic:					
Production-----	43,994	62,557	59,215	34.6	-5.3
Sales-----	30,878	48,136	47,603	54.2	-1.1
Sales value-----	15,477	23,664	29,773	92.4	25.8
<i>8. Elastomers (Synthetic Rubbers)</i>					
Cyclic:					
Production-----	2,297,637	3,517,739	3,209,876	39.7	-8.8
Sales-----	1,940,099	3,018,006	2,558,478	31.9	-15.2
Sales value-----	439,580	571,902	641,507	45.9	12.2
Acyclic:					
Production-----	1,524,908	2,472,272	2,443,969	60.3	-1.1
Sales-----	1,321,945	2,141,245	2,042,076	54.5	-4.6
Sales value-----	434,657	725,535	887,481	104.2	22.3
<i>9. Plasticizers</i>					
Cyclic:					
Production-----	929,871	1,502,160	1,411,437	51.8	-6.0
Sales-----	865,084	1,389,714	1,305,983	51.0	-6.0
Sales value-----	167,827	233,556	338,356	101.6	44.9
Acyclic:					
Production-----	332,908	371,223	480,248	44.3	29.4
Sales-----	296,767	318,699	401,142	35.2	25.9
Sales value-----	93,142	107,829	196,891	111.4	82.6
<i>10. Surface-Active Agents</i>					
Cyclic: ³					
Production-----	1,418,444	1,872,378	2,333,967	64.5	24.6
Sales-----	852,238	1,368,796	1,468,753	72.3	7.3
Sales value-----	95,810	161,829	329,529	243.9	103.6
Acyclic:					
Production-----	2,060,851	2,500,038	2,362,533	14.6	-5.5
Sales-----	897,786	1,210,868	1,032,919	15.0	-14.7
Sales value-----	220,877	370,011	416,869	88.7	12.7

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1973, AND 1974--CONTINUED

[Production and sales in thousands of pounds; sales value in thousands of dollars]

Chemical	1967 ¹	1973	1974	Increase, or decrease (-)	
				1974 over 1967	1974 over 1973
11. Pesticides and Related Products					
Cyclic:				Percent	Percent
Production-----	823,158	² 909,901	1,025,547	24.6	12.7
Sales-----	681,532	² 851,568	971,078	42.5	14.0
Sales value-----	627,742	² 1,091,211	1,468,494	133.9	34.6
Acylic:					
Production-----	226,505	² 379,051	391,611	72.9	3.3
Sales-----	215,831	² 347,000	394,136	82.6	13.6
Sales value-----	159,301	² 252,370	346,939	117.8	37.5
12. Miscellaneous chemicals					
Cyclic:					
Production-----	1,535,922	3,224,383	3,567,193	132.2	10.6
Sales-----	775,540	1,478,792	1,358,796	75.2	-8.1
Sales value-----	283,575	523,356	673,913	137.6	28.8
Acylic:					
Production-----	58,159,771	95,749,134	97,037,182	66.8	1.4
Sales-----	25,225,631	48,188,132	46,072,171	82.6	-4.4
Sales value-----	3,192,119	4,763,572	7,141,574	123.7	49.9

¹ Standard reference base period for Federal Government general-purpose index numbers.² Revised.³ Includes ligninsulfonates.

The following tabulation shows, by chemical groups, the number of companies that reported production in 1974 of one or more of the chemicals included in the groups listed in table 2:

Chemical group	Number of companies	Chemical group	Number of companies
Cyclic intermediates-----	197	Rubber-processing chemicals-----	32
Dyes-----	42	Elastomers (synthetic rubbers)-----	44
Organic pigments-----	36	Plasticizers-----	59
Medicinal chemicals-----	98	Surface-active agents-----	185
Flavor and perfume materials-----	45	Pesticides and related products-----	80
Plastics and resin materials-----	248	Miscellaneous chemicals-----	325

TAR AND TAR CRUDES

7

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 tar produced in the United States in 1974 was almost entirely coal tar which amounted to 677 million gallons (see table 1). Production in 1974 was 8 percent less than the 732 million gallons of coal tar produced in 1973. Sales of coal tar in 1974 amounted to 334 million gallons, valued at \$104 million, compared with 336 million gallons, valued at \$42 million, in 1973. U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1973 or 1974; production of these tars in 1948 amounted to 21 million gallons, according to trade publications.

Consumption of tar in 1974 amounted to an estimated 687 million gallons, of which 73 percent was consumed in distillation. Tar used by the producers as fuel amounted to 181 million gallons; a lesser amount, 3.6 million gallons, was consumed by coke-oven operators in miscellaneous uses (see table 1A).

Tar Crudes

Tar crudes are obtained from coke-oven gas and by distilling coal tar, water-gas tar, and oil-gas tar. The most important tar crudes are benzene, toluene, xylene, creosote oil, and pitch of tar. Some of these products are identical with those obtained from petroleum. Data for materials obtained from petroleum are included, for the most part, with the statistics for like materials obtained from coke-oven gas and tars, and are shown in table 1 and 1B.

Domestic production of industrial and specification grades of benzene reported by coke-oven operators and petroleum refinery operators¹ in 1974 amounted to 1,488 million gallons--2.4 percent more than the 1,453 million

¹Statistics on production and sales of benzene, toluene, and xylene by tar distillers cannot be shown because publication would reveal the operations of individual companies.

SYNTHETIC ORGANIC CHEMICALS, 1974

gallons reported for 1973. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum refiners in 1974 amounted to 788 million gallons, valued at \$528 million, compared with 719 million gallons, valued at \$207 million, in 1973. In 1974 the output of toluene¹ (including material produced for use in blending in aviation fuel) amounted to 922 million gallons--3.8 percent less than the 958 million gallons reported for 1973. Sales of toluene in 1974 were 454 million gallons, valued at \$239 million, compared with 513 million gallons, valued at \$115 million, in 1973. The output of xylene¹ in 1974 (including that produced for blending in motor fuels) was 802 million gallons, compared with 785 million gallons in 1973. Over 99 percent of the 802 million gallons of xylene produced in 1974 was obtained from petroleum sources.

Production (or sales) figures on crude naphthalene from coal-tar oils in 1974 could not be published without disclosing the operations of individual companies. Production of petroleum-derived naphthalene in 1974 amounted to 201 million pounds, compared with 240 million pounds in 1973. In 1974 the output of creosote oil for wood preservation was 141 million gallons (100 percent creosote basis), compared with 111 million gallons in 1973. Production figures on road tar for 1974 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. After duplication has been eliminated insofar as possible, the estimated net value of the output (from all sources) of these products and of tar burned as fuel was \$2,213 million in 1974, compared with \$962 million in 1973. The total value of sales of those products obtained from coke-oven gas and tars shown in table 1 (exclusive of coal tar itself), amounted to \$273 million in 1974, compared with \$128 million in 1973.

Data for 1973 tar crudes were supplied by 15 companies and company divisions.

See footnote 1 on page 1.

TAR AND TAR CRUDES

9

TABLE 1.--TAR AND TAR CRUDES: U.S. PRODUCTION AND SALES, 1974

[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]

Product	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value ¹
				<i>1,000 dollars</i>	
Tar: ² Coke-oven operators-----	1,000 gal--	677,447	333,623	103,830	\$0.311
Crude light oil: ³ Coke-oven operators-----	1,000 gal--	338,779	95,439	39,761	.417
Intermediate light oil: Coke-oven operators-----	1,000 gal--	5,070	1,811	384	.212
Light-oil distillates:					
Benzene, specification and industrial grades, total ^{3,4} -----	1,000 gal--	1,488,264	788,393	527,771	.669
Coke-oven operators-----	1,000 gal--	82,149	83,114	63,442	.763
Petroleum refiners-----	1,000 gal--	1,406,115	705,279	464,329	.658
Toluene, all grades, total ^{3,4} -----	1,000 gal--	921,959	454,376	238,765	.526
Coke-oven operators-----	1,000 gal--	13,567	13,105	6,981	.533
Petroleum refiners-----	1,000 gal--	908,392	441,271	231,784	.525
Xylene, all grades ^{3,4} -----	1,000 gal--	802,111	634,219	331,173	.522
Coke-oven operators-----	1,000 gal--	3,135	3,050	1,677	.550
Petroleum refiners-----	1,000 gal--	798,976	631,169	329,496	.522
Solvent naphtha: Coke-oven operators-----	1,000 gal--	2,736	2,643	700	.265
Crude tar-acid oils ³ : Coke-oven operators-----	1,000 gal--	6,059	6,050	1,738	.287
Creosote oil (Dead Oil) (tar distillers and coke-oven operators) (100% creosote basis), total-----	1,000 gal--	140,993	94,455	41,241	...
Distillate, as such (100% creosote basis)-----	1,000 gal--	114,574	70,370	28,136	.400
Creosote content of coal tar solution (100% creosote basis) ⁶ -----	1,000 gal--	26,419	24,085	⁶ 13,105	(⁶)
All other distillates, total-----	1,000 gal--	110,086	37,463	13,805	.368
Coke-oven operators, total-----	1,000 gal--	6,451	5,155	1,102	.214
From light oil-----	1,000 gal--	3,855	2,640	853	.323
Other ⁷ -----	1,000 gal--	2,596	2,515	249	.099
Tar distillers ⁸ -----	1,000 gal--	103,635	32,308	12,703	.393
Tar, refined, for uses other than road tar-----	1,000 gal--	15,902	11,292	6,225	.551
Pitch of tar (tar distillers and coke- oven operators), total-----	1,000 tons	1,240	882	83,623	94.811
Soft (water softening point less than 100° F.): Coke-oven operators-----	1,000 tons	464	171	14,047	82.146
Other ⁹ -----	1,000 tons	776	711	69,576	97.857

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

² Includes only data for coal tar reported to the Division of Fuels Data, U.S. Bureau of Mines. Data on U.S. production of water-gas tar and oil-gas tar are not collected by the U.S. International Trade Commission, but according to trade publications, production of these tars amounted to 21 million gallons in 1968.

³ Data reported by tar distillers are not included because publication would disclose the operations of individual companies. Production of benzene and toluene by tar distillers decreased in 1974, compared with 1973. Production of xylene by tar distillers increased slightly in 1974, compared with 1973. 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.

(Continued)

Footnotes for table 1--Continued

⁴ Includes data for material produced for use in blending motor fuels.

⁵ Statistics include data only for creosote oil sold for, or used in, wood preserving.

⁶ In 1974, production of coal-tar solution containing creosote (100% solution basis) amounted to 44,747 thousand gallons; sales were 32,050 thousand gallons, valued at 13,105 thousand dollars, with a unit value of \$0.409 per gallon.

⁷ Includes data for crude sodium phenolate.

⁸ Includes data for crude light oil, benzene, toluene, solvent naphtha, rubber-reclaiming oils, pyridine crude bases, crude tar-acid oils, crude cresylic acid, neutral oils, methylnaphthalene, crude tar for other uses, unspecified tar distillates, road tar, and a small amount of ethylbenzene. U.S. production and sales of two other distillates could not be published without disclosing the operations of individual companies; combined sales of crude naphthalene and soft pitch of tar in 1974 amounted to over \$7.5 million.

⁹ Includes hard pitch and pitch emulsion along with a small amount of medium pitch produced by coke-oven operators.

Note.--Statistics for materials produced in coke and gas-retort ovens are compiled by the Division of Fuels Data, U.S. Bureau of Mines, Department of the Interior. Statistics for materials produced in tar and petroleum refineries are compiled by the U.S. International Trade Commission.

TABLE 1A.--TAR: U.S. PRODUCTION AND CONSUMPTION, 1973 AND 1974

(In thousands of gallons)

Product	1973	1974
PRODUCTION		
Coal tar from coke-oven byproduct plants, total ¹ -----	732,455	677,447
CONSUMPTION		
Total-----	718,235	687,146
Tar consumed by distillation, total-----	553,574	502,683
Coal tar distilled or topped by coke-oven operators ¹ -----	225,801	185,476
Coal tar and water-gas tar distilled by tar distillers ² -----	327,773	317,207
Tar consumed by the producers chiefly as fuel ¹ -----	163,736	180,907
Coal tar consumed at coke-oven plants in miscellaneous uses ¹ ---	925	3,556

¹ Reported to the Division of Fuels Data, U.S. Bureau of Mines.

² Reported 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.

TAR AND TAR CRUDES

TABLE 1B.--TAR AND TAR CRUDES: SUMMARY OF U.S. PRODUCTION OF SPECIFIED PRODUCTS
1967, 1973, AND 1974

[Leaders (...) are used where the reported data are accepted in confidence and may not be published or where no data were reported]

Product	Unit of quantity	1967 ¹	1973	1974	Increase, or decrease (-)	
					1974 over 1967	1974 over 1973
Tar ²	1,000 gal--	780,334	732,455	677,447	-13.2	-7.5
Benzene: ³						
Coke-oven operators-----	1,000 gal--	90,642	85,876	82,149	-9.4	-4.3
Petroleum refiners-----	1,000 gal--	878,704	1,367,385	1,406,115	60.0	2.8
Total-----	1,000 gal--	969,346	1,453,261	1,488,264	53.5	2.4
Toluene: ³						
Coke-oven operators-----	1,000 gal--	19,357	14,496	13,567	-29.9	-6.4
Petroleum refiners-----	1,000 gal--	624,454	943,699	908,392	45.5	-3.7
Total-----	1,000 gal--	643,811	958,195	921,959	43.2	-3.8
Xylene: ³						
Coke-oven operators-----	1,000 gal--	5,488	3,104	3,135	-42.9	1.0
Petroleum refiners-----	1,000 gal--	449,349	782,028	798,976	77.8	2.2
Total-----	1,000 gal--	454,837	785,132	802,111	76.4	2.2
Naphthalene:						
Crude ⁵	1,000 lb---	520,991	(6)	(6)	...	...
Petroleum naphthalene, all grades-----	1,000 lb---	376,679	240,486	200,842	-46.7	-16.5
Total-----	1,000 lb---	897,670	...	...	...	...
Creosote oil (Dead oil): ⁷						
Distillate as such (100% creosote basis)-----	1,000 gal--	108,832	87,679	114,574	5.3	30.7
Creosote content of coal tar solution (100% creosote basis)-----	1,000 gal--	17,402	22,933	26,419	51.8	15.2
Total-----	1,000 gal--	126,234	110,612	140,993	11.7	27.5

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

² Includes only data for coal tar reported to the Division of Fuels Data, U.S. Bureau of Mines.

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

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

⁵ Naphthalene 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.

⁶ Statistics on crude naphthalene cannot be published; to do so would disclose the operations of individual companies. Production of crude naphthalene in 1974, however, did not equal the low of 360 million pounds in 1971.

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

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--TAR CRUDES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Tar crudes for which separate statistics are given in table 1 are marked with an asterisk (*); products 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. Table 3 identifies all U.S. producers of tar crudes (except producers that report to the Division of Fuels Data, U.S. Bureau of Mines)]

Product	Manufacturers' identification codes (according to list in table 3)
*Crude light oil ¹	CBT.
Light-oil distillates: ¹	
Benzene, specification grades-----	KPP.
Toluene, specification grades-----	KPP
*Solvent naphtha-----	HPC, NEV.
All other light-oil distillates-----	HPC, KPT.
Pyridine crude bases ¹	KPT
Naphthalene, crude, solidifying at: ¹	COP.
Less than 74° C-----	
74° C. to less than 79° C-----	KPT.
74° C. to less than 76° C-----	ASC, KPT.
76° C. to less than 79° C-----	KPT.
Methylnaphthalene-----	
*Crude tar-acid oils: ¹	KPT.
Tar-acid content 5% to less than 24%-----	ASC.
Tar-acid content 24% to 50%-----	KPT, PRD.
Cresylic acid, crude-----	
*Creosote oil (Dead oil): ¹	ASC, CBT, COP, HUS, KPT, RIL, WTC.
*Distillate as such-----	ASC, KPT, RIL, WTC.
*Creosote in coal tar solution-----	ASC, KPT, WTC.
*All other distillate products ¹	ASC, KPT, RIL.
Tar, road-----	
Tar for other uses:	
Crude-----	KPT.
*Refined ¹ -----	ASC, KPT.
*Pitch of tar: ¹	
*Soft (water softening point less than 110° F.)-----	ASC, KPT.
Medium (water softening point 110° F. to 160° F.)-----	ASC, CBT, COP, KPT.
Hard (water softening point above 160° F.)-----	ASC, HYS, KPT, WTC.
Pitch emulsion-----	JEN.

¹ Does not include manufacturers' identification codes for producers who report to the Division of Fuels Data, U.S. Bureau of Mines. Those producers are listed in the U.S. Bureau of Mines Mineral Industry Survey, November 6, 1975, entitled "Coke Producers in the U.S. in 1974."

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of tar and tar crudes to the U.S. International Trade Commission for 1974 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ASC	Allied Chemical Corp.	KPT	Koppers Co., Inc.: Organic Materials Div. Roads Materials Div.
CBT	Samuel Cabot, Inc.	NEV	Neville Chemical Co.
COP	Coopers Creek Chemical Corp.	PAI	Pennsylvania Industrial Chemical Corp.
HPC	Hercules, Inc., Picco Div.	PRD	Productol Chemical Co., Inc.
HUS	Husky Industries, Inc.	RIL	Reilly Tar & Chemical Corp.
JEN	Jennison-Wright Corp	WTC	Witco Chemical Co., Inc.
KPP	Arco/Polymer, Inc.		

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

CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION

13

CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION

Crude products that are derived from petroleum and natural gas¹ are related to the intermediates and finished products made from such crudes 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 crude 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 petroleum crudes because some of these crude chemicals are converted to other crude 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 crude products for which data are included in the statistics may be used either as fuel or as basic materials from which to derive other chemicals. 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 crude products derived from petroleum and natural gas as a group amounted to 94,353 million pounds in 1974, or 3.4 percent more than the 91,250 million pounds reported for 1973 (table 1). The larger output in 1974 is accounted for chiefly by increased production of ethylene, propylene, and benzene. Sales of crude chemicals from petroleum in 1974 amounted to 50,222 million pounds, valued at \$4,062 million, compared with 49,625 million pounds, valued at \$1,451 million, in 1973.

The output of aromatic and naphthenic products from petroleum amounted to 26,579 million pounds in 1974, compared with 24,774 million pounds in 1973. Sales amounted to \$1,165 million in 1974 and \$458 million in 1973. The output of 1° and 2° benzene from petroleum in 1974 (10,293 million pounds) was 2.8 percent more than the 10,009 million pounds produced in 1973.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 67,774 million pounds in 1974, compared with 66,475 million pounds in 1973. Sales of these products were valued at \$2,897 million in 1974 compared with \$993 million in 1973. Production of ethylene was 23,891 million pounds in 1974--7.0 percent more than the 22,329 million pounds produced in 1973. The output of 1,3-butadiene in 1974 (3,682 million pounds) was the largest on record.

Data for 1974 crude products from petroleum and natural gas for chemical conversion were supplied by 74 companies and company divisions.

¹ Statistics on aromatic chemicals from coal tar are given in the report on "Tar and Tar Crudes."



TABLE 1.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION:
U.S. PRODUCTION AND SALES, 1974

[Listed below are the crude 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 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]

Product	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	94,353,034	50,221,517	4,062,179	\$0.081
AROMATICS AND NAPHTHENES²				
Total-----	26,579,097	16,289,210	1,165,126	.072
Benzene (1° and 2°)-----	10,292,762	5,162,642	464,329	.090
Naphthalene, all grades-----	200,842	121,607	14,473	.119
Naphthenic acid-----	52,072	19,891	2,430	.122
Toluene, all grades, total-----	6,549,506	3,181,564	231,784	.073
Nitration grade, 1°-----	4,816,157	2,376,553	177,521	.075
Pure commercial grade, 2°-----	449,039	134,849	12,035	.089
Solvent grade, 90%-----	196,617	...	...	...
All other-----	1,087,693	670,162	42,228	.063
Xylenes, mixed, total-----	6,072,218	4,796,885	329,496	.069
3° grade-----	626,711	589,973	44,222	.075
5° grade-----	1,119,602	1,034,572	75,000	.072
All other ³ -----	4,325,905	3,172,340	210,274	.066
All other aromatics and naphthenes ⁴ -----	3,411,697	3,006,621	122,614	.041
ALIPHATIC HYDROCARBONS				
Total-----	67,773,937	33,932,307	2,897,053	.085
C ₂ hydrocarbons, total-----	30,598,802	...	...	...
Acetylene ⁵ -----	325,490	...	...	...
Ethane-----	6,381,853	5,357,121	109,451	.020
Ethylene-----	23,891,459	7,058,126	529,024	.075
C ₃ hydrocarbons, total-----	17,865,708	10,592,983	526,956	.050
Propane-----	7,390,760	6,260,145	226,481	.036
Propylene ⁶ -----	10,474,948	4,332,838	300,475	.069
C ₄ hydrocarbons, total-----	10,701,665	5,729,417	536,310	.094
1,3-Butadiene, grade for rubbers (elastomers)-----	3,682,119	2,500,826	363,932	.146
Butadiene and butylene fractions-----	757,666	362,100	21,337	.059
n-Butane-----	2,185,487	653,483	37,714	.058
1-Butene and 2-butene mixture ⁷ -----	1,086,976	550,534	41,099	.075
Isobutane-----	994,395	326,981	10,460	.032
Isobutylene-----	...	211,672	20,683	.098
All other -----	1,995,022	1,123,821	41,085	.037
C ₅ hydrocarbons, total-----	1,066,127	609,074	39,875	.065
Isoprene (2-Methyl-1,3-butadiene)-----	329,260	113,350	10,965	.097
All other -----	736,867	495,724	28,910	.058

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION:
U.S. PRODUCTION AND SALES, 1974--CONTINUED

Product	Production	Sales		
		Quantity	Value	Net value ¹
ALIPHATIC HYDROCARBONS--Continued				
All other aliphatic hydrocarbons, derivatives, and mixtures, total -----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Alpha olefins, total-----	7,541,635	4,585,586	1,155,437	\$0.252
Molecular weight ranges, C ₆ -C ₇ -----	441,131	406,955	51,733	.127
All other ¹⁰ -----	37,471	32,279	3,210	.099
Heptenes, mixed-----	403,660	374,676	48,523	.130
Hexanes and other C ₆ hydrocarbons-----	66,020	...	...	...
Nonene (Tripropylene)-----	358,341	329,542	20,985	.064
n-Paraffins, total-----	437,817	239,367	16,486	.069
Carbon chain length, C ₉ -C ₁₅ -----	1,257,329	721,438	41,721	
Other-----	351,042	...	...	...
Polybutene ¹¹ -----	906,287	721,438	41,721	.058
Tetrapropylene-----	183,978	...	...	...
Hydrocarbon derivatives ¹² -----	302,040	106,438	6,882	.065
All other ¹³ -----	64,233	53,655	10,270	.191
	4,430,746	2,728,191	1,007,360	.369

¹ Calculated from rounded figures.

² The chemical raw materials designated as aromatics are in some cases identical with those obtained from the distillation of coal tar; however, the statistics given in the table above relate only to such materials as are derived from petroleum and natural gas. Statistics on production or sales of benzene, toluene, and xylene from all sources are given in tables 1 and 1B of the report "Tar and Tar Crudes, 1974."

³ Includes toluene and xylene used as solvents, as well as that which is blended in aviation and motor gasolines.

⁴ Includes data for crude cresylic acid, alkyl aromatics, distillates, solvents, and miscellaneous cyclic hydrocarbons.

⁵ Production figures on acetylene from calcium carbide for chemical synthesis are collected by the U.S. Bureau of the Census.

⁶ Includes data for propane-propylene mixture.

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

⁸ Includes data for mixed butanes, 1-butene, 2-butene, mixed butylene, mixed olefins and sales of isobutylene.

⁹ Includes data for isopentane, pentenes, and C₅ hydrocarbon mixtures.

¹⁰ Includes data for the following molecular weight ranges: C₆-C₁₀; C₈-C₁₀; C₁₀-C₁₆; C₁₁-C₁₅; C₁₂-C₁₄; C₁₄-C₁₆; C₁₅-C₂₀; C₁₆-C₁₈; and C₁₈-C₂₀.

¹¹ Includes compounds having a molecular weight of 3,000 or less.

¹² Includes data for butyl, ethyl, methyl, and miscellaneous mercaptans and other hydrocarbon derivatives. The decrease in output in 1974 compared to 1973 and 1972 is due to a decrease in production of most of the items grouped in these years. In addition, several items were produced in quantities too low to be reported by the companies for 1974.

¹³ Includes data for di-isobutylene, methane-ethane-ethylene mixture, heptanes, methane, octanes, mixtures of C₂ and C₃ hydrocarbons and of other hydrocarbons, and sales of acetylene, heptenes, C₉-C₁₅ hydrocarbons, and of polybutene.

TABLE 2.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974

[Crude products from petroleum and natural gas for chemical conversion for which separate statistics are given in table 1 are marked below with an asterisk (*); products 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]

Product	Manufacturers' identification codes (according to list in table 3)
AROMATICS AND NAPHTHENES	
*Benzene (except motor grade):	
*Benzene, 1°-----	
*Benzene, 2°-----	
Cresylic acid, crude-----	
*Naphthalene, all grades-----	
*Naphthenic acids:	
Acid number lower than 150-----	
Acid number 150-199-----	
Acid number 200-224-----	
Sodium carboilate and phenate, crude-----	
*Toluene:	
*Nitration grade, 1°-----	
*Pure commercial grade, 2°-----	
*Solvent grade, 90%-----	
All other-----	
*Xylenes, mixed:	
Aviation grade-----	
*3° grade-----	
*5° grade-----	
All other-----	
All other aromatics, naphthenes, distillates and solvents-----	
ALIPHATIC HYDROCARBONS	
C ₁ hydrocarbon: Methane-----	
*C ₂ hydrocarbons:	
*Acetylene-----	
*Ethane-----	
*Ethylene-----	
C ₂ and C ₃ hydrocarbons, mixed-----	
*C ₃ hydrocarbons:	
*Propane-----	
*Propylene-----	
*C ₄ hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)-----	
*Butadiene and butylene fractions-----	
*n-Butane-----	
1-Butene-----	
2-Butene-----	

TABLE 2.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Product	Manufacturers' identification codes (according to list in table 3)
ALIPHATIC HYDROCARBONS--Continued	
*C ₄ hydrocarbons--Continued	
*1-Butene and 2-butene mixture-----	AMO, ATR, BFG, CSO, DOW, ENJ, GOC, PLC, PTT, SOI, TX.
*Isobutane-----	ATR, BFG, CSP, ELP, ENJ, OMC, PLC, SHO, SUN, TX, USI.
*Isobutylene-----	ENJ, MON, OCC, PTT.
All other-----	APR, BFG, CBN, CSD, ENJ, JCC, MON, PUE, SM.
*C ₅ hydrocarbons:	
Isopentane (2-Methylbutane)-----	PAN, PLC.
*Isoprene (2-Methyl-1,3-butadiene)-----	BFG, ENJ, GYR, MON, SHC.
n-Pentane-----	APR, ATR, PLC.
Pentenes, mixed-----	GYR, MON, TX.
All other-----	BFG, CBN, MON, PLC, SHC, SOC, UCC.
*C ₆ hydrocarbons:	
*Hexane-----	APR, ENJ, PLC, SOG, UOC.
Neohexane (2,2-Dimethylbutane)-----	PLC.
All other-----	PLC, SWC.
C ₇ hydrocarbons:	
n-Heptane-----	EKK, PLC, SOG.
*Heptenes, mixed-----	ENJ, GOC, SOI, TID.
All other-----	ENJ, HCR, UOC.
C ₈ hydrocarbons:	
Diisobutylene (Diisobutene)-----	BFG, CSD, PTT, TX.
n-Octane-----	SOG.
All other-----	ENJ, PLC.
Hydrocarbons, C ₉ , and above:	
*Nonene (Tripropylene)-----	ATR, CSD, ENJ, SUN, UOC.
*Polybutene-----	ACC, CSD, SOC.
*Tetrapropylene-----	ATR, CO, ENJ, SOC, SUN, TX, UOC.
Triisobutylene-----	TX, x.
All other-----	ACC, ATR, CO, CPI, ENJ, KPP, PLC, PPR, PUE, SOC, TID, TNA, UOC, UCC.
*All other aliphatic hydrocarbons, derivatives and mixtures:	
Hydrocarbons:	
*Alpha olefins--Molecular weight ranges:	
*C ₆ -C ₇ -----	GOC, GYR, SOC.
C ₈ -C ₁₀ -----	GOC, SOC.
C ₁₁ -C ₁₅ -----	GOC, SOC.
All other-----	GOC, SOC, TNA.
*n-Paraffins--Carbon chain length:	
C ₆ -C ₉ -----	SOG, UCC.
*C ₉ -C ₁₅ -----	BFG, HCR, SOG, UCC.
C ₁₀ -C ₁₄ -----	ENJ, SOG.
C ₁₀ -C ₁₆ -----	CO.
All other-----	ATR, CO, ENJ, PUE, UCC.
*Hydrocarbon derivatives:	
tert-Butyl-mercaptan (2-Methyl-2-propanethiol)-----	PAS.
Cyclohexyl mercaptan-----	PAS.
Di-tert-butyl disulfide-----	PLC.
Ethyldi-tert-butyl disulfide-----	PAS.
Ethyldi-tert-butyl sulfide-----	PAS.
n-Hexadecyl mercaptan-----	PAS.
Methyl mercaptan (Methanethiol)-----	ACC, DOW, PAS.
tert-Nonyl mercaptan-----	PAS.
n-Octyl mercaptan-----	PLC.
n-Propyl mercaptan (1-Propanethiol)-----	PLC.
All other-----	ATR, EKK, PAS, PLC.
Mixtures, not elsewhere classified-----	GYR, MON.

TABLE 3.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION:
DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of crude products from petroleum and natural gas for chemical conversion to the U.S. International Trade Commission for 1974 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ACC	Amoco Chemicals Corp.	MNO	Monochem, Inc.
ACU	Allied Chemical Corp., Union Texas Petroleum Div.	MOC	Marathon Oil Co., Texas Refining Div.
AMO	American Oil Co. (Texas)	MON	Monsanto Co.
APF	American Petrofina Co. of Texas	NWP	Northern Petrochemical Co.
APR	Atlas Processing Co.	OCC	Oxirane Chemical Co.
ASH	Ashland Oil, Inc.	OMC	Olin Corp.
ATR	Atlantic Richfield Co.	PAN	Amoco Production Co.
BAS	BASF Wyandotte Corp.	PAS	Pennwalt Corp.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	PLC	Phillips Petroleum Co.
BRP	BP Oil, Inc.	PPR	Phillips Puerto Rico Corp., Inc.
CBN	Cities Service Co., Petrochemical Div.	PRD	Productol Chemical Co., Inc.
CCP	Crown Central Petroleum Corp.	PTT	Petro-Tex Chemical Corp.
CO	Continental Oil Co.	PUE	Puerto Rico Olefins
COL	Collier Carbon & Chemical Corp.	RH	Rohm & Haas Co.
COR	Commonwealth Oil & Refining Co., Inc.	SHC	Shell Oil Co., Shell Chemical Co. Div.
CPI	Commonwealth Petrochemicals, Inc.	SHO	Shell Oil Co.
CPX	Chempex Co.	SIO	Standard Oil Co. of Ohio
CPY	Copolymer Rubber & Chemical Corp.	SKO	Skelly Oil Co.
CSD	Cosden Oil & Chemical Corp.	SM	Mobil Chemical Co.
CSO	Cities Service Oil Co.	SM	Mobil Oil Corp.
CSP	Coastal States Petrochemical Co.	SNO	SunOlin Chemical Co.
DOW	Dow Chemical Co.	SNT	Suntide Refining Co.
DUP	E. I. duPont de Nemours & Co., Inc.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
EKK	Eastman Kodak Co., Texas Eastman Co. Div.	SOG	Charter International Oil Co.
ELP	El Paso Products Co.	SOI	Amoco Oil Co. (Maryland)
ENJ	Exxon Chemical Co. U.S.A.	STY	Styrochem Corp.
FG	Foster Grant Co., Inc.	SUN	Sun Oil Co.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.	SWC	Corco Cyclohexane, Inc.
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co. - United States	TID	Getty Oil Co. (Eastern Operators, Inc.)
GRS	Champlin Petroleum Co.	TNA	Ethyl Corp.
GYR	Goodyear Tire & Rubber Co.	TOC	Tenneco Oil Co.
HCR	Hercor Chemical Corp.	TUS	Texas-U.S. Chemical Co.
HES	Hess Oil Virgin Islands Corp.	TX	Texaco, Inc.
JCC	Jefferson Chemical Co., Inc.	UCC	Union Carbide Corp.
KPP	Arco/Polymers, Inc.	UOC	Union Oil Co. of California
		USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.

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

SYNTHETIC ORGANIC CHEMICALS, 1974

Cyclic Intermediates

Cyclic intermediates are synthetic organic chemicals derived principally from petroleum and natural gas and from coal-tar crudes produced by destructive distillation (pyrolysis) of coal. Most cyclic intermediates are used in the manufacture of more advanced synthetic organic chemicals and finished products, such as dyes, medicinal chemicals, elastomers (synthetic rubbers), 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 1974 about 46 percent of the total output of cyclic intermediates was sold; the rest was consumed chiefly by the producing plants in the manufacture of more advanced intermediates and finished products.

Total production of cyclic intermediates in 1974--38,147 million pounds--was the largest on record, and was 6.4 percent larger than the output of 35,863 million pounds reported for 1973. The larger output of cyclic intermediates in 1974 is accounted for principally by increases in production of cumene, p-xylene, ethylbenzene, cyclohexane, nitrobenzene, and aniline. Sales of cyclic intermediates in 1974 were 17,638 million pounds, valued at \$3,514 million, compared with 17,915 million pounds, valued at \$1,899 million, in 1973.

Production of ethylbenzene in 1974 was 6,048 million pounds, or 6.3 percent more than the 5,688 million pounds produced in 1973. Output of styrene was 5,956 million pounds, a slight decrease from the 5,975 million pounds produced in 1973. Other intermediates whose production exceeded 1 billion pounds in 1974 were dimethyl terephthalate (4,262 million pounds), cumene (2,906 million pounds), p-xylene (2,707 million pounds), cyclohexane (2,352 million pounds), phenol (2,329 million pounds), and o-xylene (1,056 million pounds). Other large-volume intermediates produced in 1974 were phthalic anhydride (977 million pounds), isocyanates (886 million pounds), cyclohexanone (651 million pounds), aniline (551 million pounds), straight-chain alkylbenzenes (533 million pounds), 2,4(and 2,6)-dinitrotoluenes (523 million pounds), nitrobenzene (507 million pounds), monochlorobenzene (379 million pounds), and Bisphenol A (370 million pounds). The above 17 chemicals accounted for 85 percent of the total output of intermediates in 1974. Production of 13 of the above chemicals increased in 1974 compared with 1973. The output of four, however, decreased in 1974 from that in 1973, as follows: phthalic anhydride (4.5 percent), monochlorobenzene (4.5 percent), o-xylene (1.1 percent), and styrene (0.3 percent).

CYCLIC INTERMEDIATES

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1974

[Listed below are all cyclic intermediates for which any reported data on production and/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 alphabetically all cyclic intermediates for which data on production and/or sales were reported and identifies the manufacturers of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	38,146,699	17,638,158	3,514,211	\$0.199
Acetanilide, tech-----	3,730	...	...	...
Acetophenone, tech-----	2,684	2,489	881	.354
N-Acetyl sulfanilyl chloride-----	5,628	...	...	...
Alkylbenzenes ² -----	532,829	484,881	100,464	.207
1-Aminoanthraquinone and salt-----	702	...	...	...
1-Amino-4-benzamidoanthraquinone-----	43	...	...	...
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid-----	12	...	...	...
1-Amino-2-bromo-4-hydroxyanthraquinone-----	533	...	...	...
1-Amino-2,4-dibromoanthraquinone-----	857	...	...	...
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	186	...	...	...
p-[(p-Aminophenyl)azo]benzenesulfonic acid-----	434	...	...	...
Aniline (Aniline oil)-----	551,178	246,528	47,098	.191
Anilinomethanesulfonic acid and salt-----	466	...	...	...
o-Anisidinomethanesulfonic acid-----	816	...	...	...
7H-Benz[de]anthracen-7-one (Benzanthrone)-----	838	...	...	...
Benzoic acid, tech-----	78,466	30,252	6,299	.208
2-Benzothiazolethiol, sodium salt-----	13,189	7,204	2,677	.372
[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione-----	263	...	...	...
Biphenyl-----	84,622	27,885	3,531	.127
4,4'-Bis(dimethylamino)benzophenone (Michler's ketone)-----	112	...	...	...
3-Bromo-7H-benz[de]anthracen-7-one (3-Bromobenzanthrone)-----	128	...	...	...
2-Bromo-4,6-dinitroaniline-----	2,055	...	...	...
Chlorobenzene, mono-----	379,181	71,683	15,312	.214
4-Chloro-3-nitrobenzenesulfonamide-----	808	...	...	...
Cresols, total ³ -----	114,015	113,666	44,618	.393
o-Cresol-----	23,354	23,432	7,640	.326
All other ⁴ -----	90,661	90,234	36,978	.410
Cresylic acid, refined ³ -----	77,271	48,053	13,750	.286
Cumene-----	2,905,629	1,416,014	144,410	.102
Cyclohexane-----	2,351,508	1,961,936	243,304	.124
Cyclohexanone-----	650,619	33,279	9,083	.273
1,4-Diaminoanthraquinone-----	70	...	...	...
1,4-Diamino-2,3-dihydroanthraquinone-----	834	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	8,843	...	...	...
Dicyclopentadiene (includes cyclopentadiene)-----	95,875	59,466	4,491	.076
N,N-Diethylaniline-----	3,295	1,731	1,290	.745
9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt)-----	1,142	...	...	...
1,4-Dihydroxyanthraquinone (Quinizarin)-----	2,311	287	498	1.735
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	249	...	...	...
p-(Dimethylamino)benzaldehyde-----	15	...	...	...
N,N-Dimethylaniline-----	19,407	8,539	3,566	.418
N,N-Dimethylbenzylamine-----	204	146	233	1.596
2,4-Dinitroaniline-----	577	...	...	...
4,4'-Dinitrostilbene-2,2'-disulfonic acid-----	5,489	...	...	...
2,4(and 2,6)-Dinitrotoluene-----	522,842	...	...	...
Diphenylamine-----	39,890	20,604	8,472	.411
N-Ethylaniline, refined-----	2,399	2,792	1,293	.463
2-(N-Ethylanilino)ethanol-----	360	...	...	...
Ethylbenzene ⁵ -----	6,048,342	438,651	75,730	.173

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
N-Ethyl-N-phenylbenzylamine-----	482	...	...	...
3-(N-Ethyl-m-toluidino)propionitrile-----	...	73	79	\$1,082
Hydroquinone, tech-----	22,101	17,373	24,222	1.394
3-Hydroxy-2-methylcinchoninic acid-----	429	...	...	...
Isocyanic acid derivatives, total-----	885,921	719,073	283,358	.394
Polyethylene polyphenylisocyanate-----	298,390	229,452	86,371	.376
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)-----	514,619	438,213	160,169	.366
Other isocyanic acid derivatives-----	72,912	51,408	36,818	.716
4,4'-Isopropylidenediphenol (Bisphenol A)-----	370,388	...	...	...
Leuco quinizarin (1,4,9,10-Anthratetrol)-----	177	...	...	...
Melamine-----	130,721	95,512	28,633	.300
Metanilic acid (m-Aminobenzenesulfonic acid)-----	1,304	...	...	...
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	1,862	...	...	...
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	...	17	45	.647
α-Methylstyrene-----	57,240	45,315	5,194	.115
Nitrobenzene-----	506,646	12,616	1,753	.139
5-Nitro-o-toluenesulfonic acid [SO ₃ H=1]-----	7,564	...	...	...
Nonylphenol-----	110,439	37,975	11,327	.298
1[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]anthra-quinone-----	329	...	...	...
Phenol, total ³ -----	2,328,723	1,434,403	314,555	.219
Natural, from coal tar and petroleum-----	30,514	19,536	4,614	.236
Synthetic, total-----	2,298,209	1,414,867	309,941	.219
From cumene-----	2,087,765	1,350,389	287,876	.213
Other synthetic-----	210,444	64,478	22,065	.342
p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydrochloride-----	326	...	...	...
Phthalic anhydride-----	977,149	528,142	103,161	.195
Propiophenone-----	786	...	...	...
Salicylaldehyde-----	5,251	3,990	8,437	2.115
Salicylic acid, tech-----	43,722	12,666	8,326	.657
Styrene, all grades-----	5,955,647	2,835,049	488,788	.172
Terephthalic acid, dimethyl ester ⁶ -----	4,261,589	...	...	...
Toluene-2,4-diamine (4-m-Tolylendiamine)-----	200,674	...	...	...
4-(o-Tolazo)-o-toluidine (C.I. Solvent Yellow 3)-----	264	...	...	...
Violanthrone (Dibenzanthrone)-----	288	...	...	...
o-Xylene-----	1,055,874	836,963	95,405	.114
p-Xylene-----	2,707,206	1,880,955	276,906	.147
All other cyclic intermediates-----	4,002,651	4,201,950	1,137,022	.271

¹ Calculated from rounded figures.² Includes straight-chain dodecylbenzene, tridecylbenzene and other straight-chain alkylbenzenes. Branched-chain alkylbenzenes are included in "all other cyclic intermediates".³ Includes data for coke ovens and gas-retort ovens, reported to the Division of Fuels Data, U.S. Bureau of Mines and for tar and petroleum refineries and other producers, reported to the U.S. International Trade Commission.⁴ Figures include (o,m,p)-cresol from coal tar and some m-cresol and p-cresol.⁵ Does not include ethylbenzene produced and consumed in continuous-process styrene manufacture.⁶ The figures for terephthalic acid, dimethyl ester (DMT) include both the acid itself and the dimethyl ester without double counting. The acid production and sales quantity figures were multiplied by the factor 1.16 to convert them to equivalent DMT.

CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Cyclic intermediates for which separate statistics are given in table 1 are marked with an asterisk (*); cyclic intermediates 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]

Chemical	Manufacturers' identification codes (according to list in table 3)
3-[(2-Acetamido-4-aminophenyl)azo]-1,5-naphthalene-disulfonic acid.	TRC.
2-Acetamido-3-chloroanthraquinone-----	AC.
2,2'-(3-Acetamido-6-ethoxyphenyl)imino]diethanol-----	HST.
2,2'-(5-Acetamido-2-ethoxyphenyl)imino] diethanol-----	TCH.
4-Acetamido-2-hydroxybenzoic acid-----	SDW.
2,2'-(3-Acetamido-6-methoxyphenyl)imino]diethanol-----	HST.
*Acetanilide, tech-----	ARA, MRK, SAL.
Acetanilide, N.F.-----	SAL.
Acetic acid, phenyl ester-----	UCC.
Acetoacetanilide-----	FMP, HST.
o-Acetoacetanilide-----	FMP, HST.
o-Acetoacetotoluclidine-----	FMP, HST.
2',4'-Acetoacetoxylidide-----	HST.
1'-Acetonaphthone-----	GIV.
Acetone phenylhydrazone-----	DUP.
*Acetophenone, tech-----	CLK, SKO, UCC.
p-Acetotoluclidine-----	EK.
α -Acetyl amide-p-toluenesulfonamide-----	SDW.
N-Acetyl lanthanilic acid-----	SW.
p-Acetylbenzenesulfonamide-----	LIL.
p-Acetylbenzenesulfonic acid, sodium salt-----	LIL.
p-Acetylbenzenesulfonylurethane-----	LIL.
*N-Acetyl sulfanilyl chloride-----	ACY, ARA, MRK.
Acylolin-----	ARA.
*Alkylbenzenes:	
Dodecylbenzene (including tridecylbenzene):	
*Straight chain-----	CO, MON, UCC, WTC.
Other-----	CO, SOC.
Alkylpyridines, mixed-----	UCC.
α -d1-5-Allyl-6-imino-1-methyl-5-(1-methyl-2-pentynyl) barbituric acid.	LIL.
α -d1-5-Allyl-5-(1-methyl-2-pentynyl)-1-methylbarbituric acid.	LIL.
3'-Aminoacetanilide-----	AC, DUP, TRC.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	GAF, TRC.
2'-Aminoacetophenone-----	EK.
3'-Aminoacetophenone-----	ARA.
5'-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	TRC.
1-Amino-4-(3-amino-4-sulfoanilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid.	TRC.
1-Amino-4-(4-amino-3-sulfoanilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid.	ACS.
1-Amino-4-anilino-2-methoxyanthraquinone-----	TRC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	PCW.
3-Amino-p-anisanilide-----	AC, ACY, MAY, SDC, TRC.
*1-Aminoanthraquinone and salt-----	ACY.
2-Aminoanthraquinone and salt-----	TRC.
5 (and 8)-Amino-1-anthraquinonesulfonic acid-----	GAF.
N-(4-Amino-1-anthraquinonyl)anthranilic acid-----	DUP.
N-(5-Amino-1-anthraquinonyl)anthranilic acid-----	EK, SDW.
4-Aminoantipyrine and hydrochloride-----	ACY, TRC.
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9).	SAL, SDH.
p-Aminobenzamide-----	ACY, MAY, TRC.
*1-Amino-4-benzamidoanthraquinone-----	TRC.
1-Amino-5-benzamidoanthraquinone-----	TRC.
7-(m-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid.	TRC.
*7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid.	GAF, TRC, VPC.
3'-Aminobenzanilide-----	X.
2-Amino-p-benzenedisulfonic acid [SO ₃ H=1]-----	DUP, GAF.
o-Aminobenzenethiol-----	ASH, FMT.
p-Aminobenzoic acid, tech-----	DUP.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Aminobenzophenone-----	DUP.
2-Amino-6-benzothiazolecarboxylic acid-----	DUP.
2-(m-Aminobenzoyl)-o-acetanisidine-----	GAF.
N-(4-Amino-3-bromo-1-anthraquinonyl)-p-toluidine sulfonic acid.	TRC.
5(and 8)-Amino-8(and 5)-bromo-9,10-dihydro-9,10-dioxo-1,6(and 1,7)-anthracenedisulfonic acid.	TRC.
1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2-anthracene-sulfonic acid and sodium salt.	AC, TRC.
*1-Amino-2-bromo-4-hydroxyanthraquinone-----	AC, DUP, VPC.
2-Amino-5-bromo-5-nitrobenzonitrile-----	TRC.
1-Amino-2-bromo-4-p-toluidinoanthraquinone-----	ACS, TRC.
7-Aminocephalosporanic acid-----	LIL.
1-Amino-5-chloroanthraquinone-----	TRC.
2-Amino-1-chloroanthraquinone-----	DUP.
4-Amino-6-chloro-m-benzenedisulfonamide-----	ABB.
4-Amino-6-chloro-m-benzenedisulfonamide hydrochloride-----	ABB.
2-Amino-6-chlorobenzothiazole hydrochloride-----	DUP.
o-(3-Amino-4-chlorobenzoyl)benzoic acid-----	AC.
2-Amino-5-chloro-4-ethylbenzenesulfonic acid-----	ACY.
1-Amino-2-chloro-4-hydroxyanthraquinone-----	TRC.
3-Amino-5-chloro-2-hydroxybenzenesulfonic acid-----	TRC.
2-Amino-4-chlorophenol-----	SW.
2-Amino-6-chloropyrazine-----	ACY.
3-Amino-6-chloropyridazine-----	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1]-----	ACY, HSC.
6-Amino-4-chloro-m-toluenesulfonic acid [SO ₃ H=1]-----	DUP, HSC.
2-Amino-p-cresol-----	TRC.
*1-Amino-2,4-dibromoanthraquinone-----	AC, DUP, TRC, VPC.
1-Amino-2,4-dichloroanthraquinone-----	TRC.
5-Amino-1,4-dichloroanthraquinone-----	DUP.
2-Amino-5,6-dichlorobenzothiazole-----	SAL.
2-Amino-4,6-dichloro-5-cresol-----	EK.
4'-Amino-2',5'-diethoxybenzylide-----	ALL.
1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-anthracenesulfonic acid, sodium salt.	AC, x.
5-Amino-4,5'-dihydroxy-3,4'-[(2-methoxy-5-methyl-p-phenylene)bis(azo)]-di-2,7-naphthalenedisulfonic acid, 5'-benzenesulfonate.	TRC.
3-Amino-9-ethylcarbazole-----	SDC.
3-Amino-o-ethylhydrocinnamic acid-----	SDW.
4-Amino-N-ethyl-N-(β-methylsulfonamidoethyl)-m-toluidine phosphate.	WAY.
p-Amino-N-ethyl-N-1-naphthylbenzamide-----	GAF.
N-Aminooethylpiperazine-----	UCC.
N-Aminohexamethyleneimine-----	FMP.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid (H acid), monosodium salt.	ACS.
4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1,2,4-acid).	ACY, TRC, VPC.
6-Amino-4-hydroxy-2-naphthalenesulfonic acid (Gamma acid), sodium salt.	TRC.
7-Amino-4-hydroxy-2-naphthalenesulfonic acid (J acid), sodium salt.	AC, TRC.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid.	TRC.
3-Amino-2-mercaptopbenzoic acid-----	x.
4-Amino-3-(β-methanesulfonamidoethyl)-N,N-diethylaniline hydrochloride.	EKT.
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide.	AC, DUP.
5-Amino-6-methoxy-2-naphthalenesulfonic acid-----	TRC.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid-----	AC, DUP, TRC.

CYCLIC INTERMEDIATES

25

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4-[(4-Amino-5-methoxy-o-tolyl)azo]-4-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-naphthalenedisulfonic acid.	TRC.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
4'- (4''-Amino-2''-methylphenylazo)-7-phenylazonaphthalene-1,3-disulfonic acid, disodium salt.	ACS.
2-Amino-4-methylpyrimidine (2-Amino-4-methyl-1,3-diazine).	ACY.
2-Amino-4-(methylsulfonyl)phenol-----	TRC.
2-Amino-5-methyl-1,3,4-thiadiazole-----	ACY.
7-Amino-3-[1-(5-methyl-1,3,4-thiadiazol-2-yl)thio-7]-3-cephem-4-carboxylic acid hydrochloride.	LIL.
2-Amino-1,5-naphthalenedisulfonic acid-----	ACY, SDH.
3-Amino-1,5-naphthalenedisulfonic acid (C acid)-----	TRC.
4-Amino-1,6-naphthalenedisulfonic acid-----	DUP.
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	AC, TRC.
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	AC, DUP, TRC.
1-Amino-2-naphthalenesulfonic acid (o-Naphthionic acid)-----	DUP.
2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	ACY, SW.
4-Amino-1-naphthalenesulfonic acid, sodium salt-----	DUP.
5-Amino-1-naphthalenesulfonic acid (Laurent's acid)-----	DUP.
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	TRC.
7-Amino-1,3,6-naphthalenetrisulfonic acid-----	AC, DUP.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)-----	ACS, DUP.
8-Amino-2-naphthol-----	TRC.
2-Amino-4-nitroacetanilide-----	SDC.
2-Amino-5-nitrobenzenesulfonic acid [SO ₃ H=1]-----	TRC.
2-Amino-6-nitrobenzothiazole-----	SAL.
*4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	AC, ACS, GAF, TRC.
2-Amino-5-nitrothiazole-----	PCW.
3-Amino-2-oxazolidinone-----	NOR.
6-Aminopenicillanic acid-----	TRD.
o-Aminophenol-----	SDC, TRC.
p-Aminophenol-----	MAL, SDC.
2-(p-Aminophenoxy)ethanol hydrochloride-----	GAF.
m-[(p-Aminophenyl)azo]benzenesulfonic acid-----	TRC.
*p-[(p-Aminophenyl)azo]benzenesulfonic acid-----	ACY, DUP, TRC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid-----	TRC.
8-Amino-5-(phenylazo)-2-naphthol-----	ALL.
5-[(p-Aminophenyl)azo]salicylic acid-----	TRC.
2,2'-(m-Aminophenylimino)diethanol, diacetate ester-----	DUP.
2-(p-Aminophenyl)-6-methylbenzothiazole-----	DUP.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt.	DUP, TRC.
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid-----	TRC, VPC.
3-(Aminopropyl)cyclohexylamine-----	ABB.
4'-Aminopropionphenone-----	EK.
2-Aminopyridine-----	NEP.
2-Aminopyrimidine-----	ACY.
5-Aminosalicylic acid-----	TRC.
2-Aminothiazole-----	MRK.
3-Amino-p-toluamide-----	SDH.
α-Amino-p-toluenesulfonamide-----	SDW.
4-Amino-m-toluenesulfonic acid [SO ₃ H=1]-----	ACY, DUP.
6-Amino-m-toluenesulfonic acid [SO ₃ H=1]-----	DUP, HSC.
5-Amino-o-toluenesulfonic acid [SO ₃ H=1]-----	TRC.
m-(4-Amino-3-tolylazo)benzenesulfonic acid-----	TRC.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid-----	TRC.
5-Amino-2,4-xlenesulfonic acid-----	DUP.
*Aniline (Aniline oil)-----	ACY, DUP, FST, MAL, MOB, RUC, USR.
Aniline hydrochloride-----	ACY, EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2'-Anilino-6-diethylamino-3-methylfluoran-----	x.
2-(N-Anilino)diethanol-----	MIL.
2-Anilinoethanol-----	MIL, TCH, USR.
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid).-----	DUP, TRC.
*Anilinomethanesulfonic acid and salt-----	AC, ACS, ACY, DUP, TRC, VPC.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)-----	DUP, SDC.
m-Anilinophenol-----	GAF.
p-Anilinophenol-----	SDC.
3-Anilinopropionitrile-----	TCH.
o-Anisaldehyde-----	ASL.
o-Anisidine-----	AC, DUP.
p-Anisidine-----	DUP.
1-p-Anisidino-4-hydroxyanthraquinone-----	AC.
*o-Anisidinomethanesulfonic acid-----	AC, DUP, GAF, TRC, VPC.
m-Anisil-----	DUP.
Anisole, tech-----	DUP, GIV.
3-(o-Anisylazo)benzenesulfonic acid, sodium salt-----	ACS.
Anthracene-----	EK.
Anthranilic acid (o-Aminobenzoic acid) ¹ -----	DUP, SW.
Anthranilic acid, methyl ester-----	x.
Anthra[1,9-cd]pyrazol-6(2H)-one (Pyrazoleanthrone)-----	TRC.
Anthraquinone, 100%-----	DUP, TRC.
N,N'-(1,5-Anthaquinonylene)dianthranilic acid-----	TRC.
N,N'-(1,5-Anthaquinonylene)dioxamic acid-----	SW.
4',4'''-Azobis[4-biphenylcarboxylic acid]-----	DUP.
Benzaldehyde, tech-----	HN, MNR, UOP.
Benzamide hydrochloride (p-Nitro-n-2-diethylaminoethyl)-----	PD.
1-Benzamido-4-bromoanthraquinone-----	AC.
1-Benzamido-5-chloroanthraquinone-----	TRC.
4-Benzamido-5-hydroxy-2,7-naphthalenedisulfonic acid-----	TRC.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid-----	TRC.
Benzanilide-----	DUP.
*7H-Benz[de]anthracen-7-one (Benzanthrone)-----	AC, ACY, DUP, MAY, TRC.
Benzenesulfonamide-----	EK, NES.
Benzenesulfonic acid-----	NES.
Benzenesulfonyl chloride-----	NES, 'USR.
1,2,4,5-Benzenetetracarboxylic-1,2,:4,5-dianhydride-----	DUP.
1,2,4-Benzenetricarboxylic acid, 1,2-anhydride (Trimellitic anhydride).-----	ACC.
Benzhydrol (Diphenylmethanol)-----	UOP.
Benzidine base-----	ACS.
Benzidine hydrochloride and sulfate-----	LAK.
Benzilic acid, methyl ester-----	LEM.
2-Benzimidazolethiol-----	EK.
*Benzoinic acid, tech ¹ -----	HN, KLM, PFZ, VEL.
Benzoinic acid, 3-[N-(2-hydroxyethyl)anilino]propionitrile ester.-----	x.
Benzoin-----	BPC.
Benzonitrile-----	VEL.
p-Benzoylbenzonedi oxide-----	SDC.
2-Benzothiazolethiol-----	USR.
*2-Benzothiazolethiol sodium salt-----	ACY, GYR, USR, x.
1H-Benzotriazole-----	SW.
2H-3,1-Benzoxazine-2,4(1H)-dione (Isatoic anhydride)-----	x.
o-Benzoylbenzoic acid-----	ACY, DUP, GAF.
Benzoyl chloride-----	HK, VEL.
2-Benzoyl-N-1-naphthylacetamide-----	DUP.
N-Benzylacetamide-----	SDW.
Benzylamine-----	ARS, x.
1-Benzyl-4,5-dimethyl-6-(p-methoxybenzyl)-1,2,3,6-tetrahydropyridine oxalate.	SDW.
Benzyl disulfide-----	CCW.
Benzyl ether (Dibenzyl ether)-----	UOP.
N-Benzyl-N-ethyl-m-toluidine-----	ACS, DUP.

TABLE 1.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
3-Benzyl-1,2,3',4,5,6-hexahydro-8-hydroxy-cis-6,11-dimethyl-2,6-methano-6-benzazocine hydrobromide.	SDW.
6-Benzylidineaminopenicillanic acid-----	TRD.
4,4'-Benzylidenedi-o-toluidine-----	ACY.
Benzylidene phthalide-----	LIL.
p-(Benzyl oxy)phenol-----	EK.
1-Benzyl-4-phenylisonipeptic acid-----	SDW.
N-Benzyl-4-phenylisonipectonitrile-----	SDW.
Benzyltrimethylammonium chloride-----	x.
Benzyltrimethylammonium hydroxide-----	x.
Benzyltrimethylammonium methoxide-----	x.
[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione (Pyrazoleanthrone yellow).	DUP, TRC.
[3,3'-Bi-7H-benz[de]anthracene]-7,7'-dione-----	DUP.
*[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione-----	ACY, DUP, MAY.
*Biphenyl-----	CHL, DOW, GOC, MON, SNT.
(1,1-Biphenyl)-4,4-diamine dihydrochloride-----	x.
3'-[Bis(2-acetoxyethyl)amino]-p-acetoanisidide-----	TCH.
Bis-p-aminocyclohexylmethane-----	DUP.
Bis(2-aminophenyl)disulfide-----	SDC.
1,4-Bis[1-anthaquinonylamino]anthraquinone-----	ACY, DUP, TRC.
1,4-Bis[1-anthaquinonylamino]anthraquinone and 1,4-Bis[5-chloro-1-anthaquinonylamino]anthraquinone (mixed).	TRC.
1,5-Bis[1-anthaquinonylamino]anthraquinone-----	DUP.
2,6-Bis(p-azidobenzylidene)-4-methylcyclohexanone-----	x.
α^2, α^6 -Bis[5-tert-butyl-6-hydroxy-m-tolyl]mesitol-----	ACY.
4,4'-Bis[diethylamino]benzhydrol salt, 2,7-naphthalene-disulfonic acid, mixture.	TRC.
4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)---	DSC, SDH.
4-Bis[(p-diethylaminophenyl)methyl]-2,7-naphthalene-disulfonic acid, leuco form.	TRC.
4,4'-Bis(dimethylamino)benzhydrol (Michler's hydrol)-----	x.
*4,4'-Bis(dimethylamino)benzophenone (Michler's ketone)-----	DSC, DUP, x.
3,3'-Bis[3',3'-(1'-ethyl-1'-methyl)indolyl]phthalide-----	x.
3'-(Bis(2-hydroxyethyl)amino)acetanilide-----	GAF.
5-[Bis(2-hydroxyethyl)amino]-2,2'-chloro-4-nitro-phenylazobenzanilide.	DUP.
3'-(Bis(2-hydroxyethyl)amino)methanesulfoanilide, diacetate ester.	DUP.
4,4'-Bis[(p-hydroxyphenyl)azo]-2,2'-stilbenedisulfonic acid (C.I. Direct Yellow 4).	TRC.
4,4'-Bis[4-methoxy-3-methylbenzamido]-2,2'-stilbenedisulfonic acid.	DUP.
1,4-Bis[2-(4-methyl-5-phenyloxazolyl)]benzene (Dimethyl POPOP).	ARA.
Bis-(o-nitrophenyl)sulfide-----	x.
1,4-Bis[2-(5-phenyloxazolyl)]benzene (POPOP)-----	ARA.
2,4-Bis(xylazo)resorcinol-----	DUP.
3'-Bromoacetophenone-----	LIL.
p-Bromoaniline-----	EK.
p-Bromoanisole-----	OPC.
*3-Bromo-7H-benz[de]anthracen-7-one (3-Bromobenzanthrone)-----	ACY, DUP, MAY TRC.
Bromobenzene, mono-----	DOW.
p-Bromobenzhydrol-----	PD.
o-Bromobenzoic acid-----	PD, RSA.
4-Bromobenzophenone-----	PD.
Bromochlorobenzene-----	DOW.
6-Bromo-5-chlorobenzoxazolone-----	SW.
2-Bromo-6-chloro-4-nitroaniline-----	AC, DUP.
*2-Bromo-4,6-dinitroaniline-----	AC, HST, SDC, TRC.
1-Bromo-4-(methylamino)anthraquinone-----	BDO.
1-Bromonaphthalene-----	EK.
2-Bromo-4'-nitroacetophenone-----	GAF.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
α -Bromo- <i>p</i> -nitrotoluene-----	BPC.
<i>p</i> -Bromophenol-----	EK.
(<i>p</i> -Bromophenyl)acetonitrile-----	BPC.
4-Bromo-1-phthalimidopentane-----	PD.
4-Bromoresorcylic acid-----	PCW.
<i>p</i> -Bromotoluene-----	BPC, EK.
1-Bromo-2,4,6-triethylbenzene-----	DUP.
<i>p</i> -Butoxyphenol-----	ARB.
N-Butylaniline-----	DUP.
<i>p</i> -Butylaniline-----	DUP.
2-(<i>N</i> -Butylanilino)propionitrile-----	MIL.
3-(<i>N</i> -Butylanilino)propionitrile-----	TCH.
2- <i>tert</i> -Butylanthraquinone-----	DUP.
<i>p</i> - <i>tert</i> -Butylbenzaldehyde-----	GIV.
<i>n</i> -Butylbenzene-----	EK, PLC.
<i>sec</i> -Butylbenzene-----	PLC.
tert-Butylbenzene-----	EK, PLC, UOP.
<i>p</i> - <i>tert</i> -Butylbenzoic acid-----	SHC.
<i>o</i> -(<i>p</i> - <i>tert</i> -Butylbenzoyl)benzoic acid-----	DUP.
2- <i>tert</i> -Butyl- <i>p</i> -cresol-----	ACY.
6- <i>tert</i> -Butyl- <i>m</i> -cresol-----	KPT, PRD.
<i>p</i> -(<i>n</i> -Butylcyclopentadienyl)cyclopentadienyliron-----	ARA.
2'- <i>tert</i> -Butyl-4',6'-dimethylacetophenone-----	GIV.
Butyl dimethylcresol-----	RH.
2- <i>tert</i> -Butyl-4-ethylphenol-----	ACY.
tert-Butylhydroquinone-----	X.
4,4'-Butyldienebis[6- <i>tert</i> -butyl- <i>m</i> -cresol]-----	DUP.
<i>N</i> -Butyl-4-methoxymetanilamide-----	ALL.
2- <i>tert</i> -Butyl-5-methylanisole-----	GIV.
<i>o</i> - <i>sec</i> -Butylphenol-----	TNA.
<i>o</i> - <i>tert</i> -Butylphenol-----	TNA.
<i>p</i> - <i>tert</i> -Butylphenol-----	DOW, PRD, SCN, UCC.
Butylphenols, mixed-----	DOW, SCN.
<i>p</i> - <i>tert</i> -Butyltoluene-----	GIV, SHC.
5- <i>tert</i> -Butyl-1,2,3-trimethylbenzene-----	GIV.
5- <i>tert</i> -Butyl- <i>m</i> -xylene-----	GIV.
6- <i>tert</i> -Butyl-2,4-xylene-----	PIT.
d-10-Camphorsulfonic acid-----	OTC.
Camphosulfonic acid-----	KF, LIL.
Carbazole, refined-----	SDC.
4,4'-Carbonylbis[phthalic anhydride]-----	PCR.
6-Carboxyfluorescein-----	EK.
3-Carboxy-4-hydroxy-4'-aminoazobenzene, sodium salt-----	ACS.
2-(<i>p</i> -Carboxyphenoxy)-2-pivaloyl-2,(4)-dichloroacet-anilide.	EK.
Cedrene-----	GIV.
2'-Chloroacetoacetanilide-----	HST.
2'-Chloroacetophenone-----	EK.
3'-Chloroacetophenone-----	EK.
4'-Chloroacetophenone-----	LIL.
4'-(Chloroacetyl)acetanilide-----	DUP.
9-Chloroacridine-----	EK.
<i>m</i> -Chloroaniline-----	DUP, GAF.
<i>o</i> -Chloroaniline-----	DUP, MON.
<i>p</i> -Chloroaniline-----	DUP, MON.
2-(<i>m</i> -Chloroanilino)diethanol-----	MIL.
3-(<i>o</i> -Chloroanilino)propionitrile-----	DUP, TCH.
5-Chloro- <i>o</i> -anisidine hydrochloride-----	ALL, GAF.
1-Chloroanthraquinone-----	DUP, TRC.
2-Chloroanthraquinone-----	ACY.
<i>o</i> -Chlorobenzaldehyde-----	HN.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Chlorobenzaldehyde-----	HN.
o-Chlorobenzamide-----	PD.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)-----	ACY, TRC.
*Chlorobenzene, mono-----	ACS, DOW, MON, MTO, PPG.
p-Chlorobenzenesulfonic acid-----	TRC.
p-Chlorobenzenesulfonamide-----	ACY, NES.
p-Chlorobenzenesulfonic acid and sodium salt-----	EK, MTR, NES.
o-Chlorobenzoic acid-----	HN.
o-Chlorobenzonitrile-----	PD.
2-Chlorobenzoxazole-----	EK.
o-(p-Chlorobenzoyl)benzoic acid-----	ACY.
o-Chlorobenzoyl chloride-----	PD.
p-Chlorobenzoyl chloride-----	HN.
4,4'-(o-Chlorobenzylidene)di-2,5-xylidine-----	GAF.
α-(p-Chlorobenzyl)-α-phenyl-1-pyrrolidine propanol hydrochloride.	LIL.
Chloro(p-chlorophenyl)phenylmethane-----	OPC, UOP.
Chlorocyclohexane-----	ACY.
Chlorocyclopentane-----	PD.
4-Chloro-2-cyclopentylphenol-----	DOW.
1-Chloro-2,5-diethoxy-4-nitrobenzene-----	GAF.
2-Chloro-N,N-diethyl-4-nitroaniline-----	DUP.
2-Chloro-3',4'-dihydroxyacetophenone-----	SDW.
2-Chloro-1,4-dihydroxyanthraquinone-----	HSH.
4'-Chloro-2',5'-dimethoxyacetanilide-----	PCW.
4-Chloro-2,5-dimethoxyaniline-----	PCW.
5-Chloro-2,4-dimethoxyaniline-----	PCW.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	AC, SDC.
3-Chloro-4,6-dinitrobenzenesulfonic acid-----	TRC.
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt.	x.
4-Chloro-3,5-dinitrobenzoic acid-----	GAF.
3-Chlorodiphenylamine-----	SK.
5-Chloro-2,4-disulfamylaniline-----	NES.
3-Chloro-4-hydroxyquinoline-3,4-carbonic acid-----	SDH.
7-Chloro-4-hydroxyquinoline hydrochloride-----	PD.
4-Chloro-N-isopropyl-3-nitrobenzenesulfonamide-----	TRC.
4-Chlorometanilic acid-----	ACS, DUP.
6-Chlorometanilic acid-----	AC.
p-(Chloromethyl)anisole-----	SDW.
1-Chloro-2-methylanthraquinone-----	ACY, DUP, TRC.
6-Chloro-4-methylbenzo[b]thiophene-2-ol-----	ACY.
α-Chloromethylnaphthalene, crude-----	BPC.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide-----	TRC.
Chloromethylphenyl ether-----	BPC.
5-Chloro-2-(N-methylsulfamoyl)-4-sulfamyl-N-benzyl-aniline.	ABB.
2-Chloro-5-(N-methylsulfamoyl)sulfanilamide-----	ABB.
Choronaphthalenes-----	KPT.
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	DUP.
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	DUP.
1-Chloro-5-nitroanthraquinone-----	TRC.
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)-----	DUP, MON.
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)-----	DUP.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)-----	DUP, MON.
2-Chloro-5-nitrobenzenesulfonic acid-----	TRC.
*4-Chloro-3-nitrobenzenesulfonic acid-----	AC, DUP, GAF, ICC, TRC.
4-Chloro-3-nitrobenzenesulfonanilide-----	TRC.
2-Chloro-5-nitrobenzenesulfonic acid-----	ACS, TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2-Chloro-5-nitrobenzenesulfonic acid, sodium salt-----	DUP.
4-Chloro-3-nitrobenzenesulfonic acid-----	ACS, TRC.
4-Chloro-3-nitrobenzenesulfonyl chloride-----	AC, SDC.
2-Chloro-4-nitrobenzoic acid-----	SAL.
2-Chloro-4-nitrobenzoic acid, potassium salt-----	SAL.
2-Chloro-5-nitrobenzoic acid-----	TRC.
2-Chloro-5-nitrophenyl methyl sulfone-----	TRC.
4-Chloro-3-nitrophenyl methyl sulfone-----	DUP.
2-Chloro-4-nitrotoluene-----	DUP.
2-Chloro-6-nitrotoluene-----	DUP.
4-Chloro-2-nitrotoluene-----	DUP.
4-Chloro-3-nitrotoluene-----	DUP.
o-Chlorophenol-----	DOW.
p-Chlorophenol-----	DOW, MON.
2-Chlorophenothiazine-----	SK.
(p-Chlorophenyl)acetonitrile-----	OPC, UOP.
4-Chloro- α -phenyl-o-cresol-----	MON.
4-Chloro-o-phenylenediamine-----	FMT.
2,2'-[$(m$ -Chlorophenyl)imino]diethanol-----	TCH.
2,2'-[$(m$ -Chlorophenyl)imino]diethanol, diacetate ester-----	SDC.
3-(o-Chlorophenyl)-5-methyl-4-isoxazole carbonyl chloride.	ARS.
1-(m -Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
1-(o-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	HST.
1-(p-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	HST, TRC.
p-Chlorophenyl methyl sulfone-----	TRC.
2-Chloro-4-phenylphenol-----	DOW.
4-Chlorophthalic acid-----	SW.
4-Chlorophthalic acid, monosodium salt-----	HSC.
3-Chloropropenylbenzene (Cinnamyl chloride)-----	SDW.
1-(3-Chloropropyl)-4-methylpiperazine-----	SK.
7-Chloro-4-quinolinol-----	SDW.
4-Chlororesorcinol-----	AC, EK, GAF.
5-Chlorosalicylaldehyde-----	EK.
2-Chloro-5-sulfamoylbenzoic acid-----	TRC.
p-Chlorothiophenol-----	SFA.
m-Chlorotoluene-----	HK, HN.
p-Chlorotoluene-----	HN.
α -Chlorotoluene (Benzyl chloride)-----	BPC, MON, VEL.
3-Chloro-o-toluidine [$NH_2=1$]-----	DUP.
3-Chloro-p-toluidine [$NH_2=1$]-----	DUP.
5-Chloro-o-toluidine [$NH_2=1$] (4-Chloro-o-toluidine [$CH_3=1$]).	DUP.
N-[$(5$ -Chloro-o-tolyl)azo]sarcosine-----	ALL.
1-(Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one-----	HST.
p-Chloro- α , α , α -trifluorotoluene-----	HK.
Chlorotriphenylmethane-----	EK.
α -Chloro-o-xylene-----	BPC.
2-Chloro-p-xylene-----	DUP.
4-Chloro-3,5-xylenol-----	FER.
Cholesteryl nonanoate-----	EK.
Cholestyrime resin-----	MRK.
Cholic acid-----	WIL.
Cinnamic acid-----	BPC.
Cinnamoyl chloride-----	EK, UOP.
*Cresols: ²	KPT.
m-Cresol-----	EKT, PRD, SW.
*o-Cresol:	MER, PRD.
From coal tar-----	SW.
From petroleum-----	
p-Cresol-----	

CYCLIC INTERMEDIATES

31

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Cresols ² --Continued	
Cresols, mixed: ²	
*(m,p)-Cresol:	
From coal tar-----	KPT, PRD.
From petroleum-----	MER, PRD.
(o,m,p)-Cresol:	
From coal tar-----	KPT.
Other-----	PIT.
*Cresylic acid, refined: ³	
From coal tar-----	KPT, PRD.
From petroleum-----	MER, NPC, PRD, SHO.
*Cumene-----	ASH, CLK, CSP, DOW, GOC, MOC, MON, SKO, SNT, SOC, TX, UCC.
Cumene hydroperoxide-----	USS.
2-[p-(Cyanoacetamido)phenyl]-6-methyl-7-benzothiazole-sulfonic acid.	DUP.
Cyanoacetic acid, 2-ethylhexyl ester-----	GAF.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde-----	DUP, GAF.
p-[(2-Cyanoethyl)methylamino]benzaldehyde-----	DUP, GAF.
*Cyclohexane-----	CSD, ENJ, GOC, GRS, PLC, PPR, SWC, TX, UOC.
1,2-Cyclohexanedicarboxylic anhydride-----	ACS.
1,3-Cyclohexanedione-----	PD.
Cyclohexanol-----	ALF, CNP, DUP, MON.
*Cyclohexanone-----	ALF, CEL, CNP, DBC, DUP, MON, UCC.
Cyclohexanone oxime-----	CNP.
Cyclohexene-----	EK, PLC, USR.
4-Cyclohexene-1,2-dicarboximide-----	SFC.
4-Cyclohexene-1,2-dicarboxylic anhydride-----	PTT.
Cyclohexene oxide-----	USR.
B-(1-Cyclohexenyl)ethylamine-----	X.
Cyclohexylamine-----	ABB, MON, RBC, VGC.
p-(Cyclohexyloxy)benzoic acid-----	LIL.
Cyclohexyl-2-propanone-----	GIV.
N-Cyclohexyltaurine, sodium salt-----	GAF.
Cyclopentadienyiron-----	ARA.
Cyclopentamine base-----	LIL.
Cyclopentene-----	ARA.
(2-Cyclopenten-1-yl)-2-propanone-----	LIL.
p-Cymene-----	HPC.
Decachlorodicyclopentadiene-----	X.
Deoxycholic acid-----	WIL.
Diacenaphtho[1,2-j:1',2'-l]fluoranthene (Decacyclene)-----	SDC.
1,5(and 1,8)-Diacetamidoanthraquinone-----	AC.
3,5-Diacetamido-2,4,6-triodobenzoic acid-----	SDW.
3-[Di-(2-acetoxyethyl)amine]-p-acetophenetidide-----	TRC.
N ² ,N ² -Diallylmelamine-----	ACY.
Diallylchlorendate-----	SAR.
*1,4-Diaminoanthraquinone-----	DUP, SDC, TRC.
1,5-Diaminoanthraquinone-----	ACY.
1,5(and 1,8)-Diaminoanthraquinone-----	AC.
2,6-Diaminoanthraquinone-----	AC, TRC.
2,4-Diaminobenzenesulfonic acid [SO ₃ H=1]-----	DUP, TRC.
2,5-Diaminobenzenesulfonic acid [SO ₃ H=1]-----	TRC.
4,4'-Diamino-2,2'-biphenyldisulfonic acid-----	ACY.
1,4-Diamino-2,3-dichloroanthraquinone-----	DUP.
*1,4-Diamino-2,3-dihydroanthraquinone-----	AC, ACY, DUP, HSH, MAY, TRC.
4,8-Diamino-9,10-dihydro-1,5-dihydroxy-9,10-dioxo-2,6-anthracedisulfonic acid.	TRC.
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracedi-carboximide.	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone-----	VPC.
2,4-Diamino-6-phenyl-s-triazine-----	RH, VEL.
2,6-Diaminopyridine-----	NEP, RIL.
*4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	ACY, CGY, DUP, GAF, SDH, TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
3,5-Diamino-2,4,6-triodobenzoic acid-----	SDW.
1,4:3,6-Dianhydroglucitol-----	ICI.
2,5-Dianilinoterephthalic acid-----	x.
1,5-Dibenzamidoanthraquinone-----	TRC.
4,5'-Dibenzamido-1,1'-iminodianthraquinone-----	ACY, TRC.
Dibenzothiophene-----	EK.
1,5-Dibenzoylnaphthalene-----	TRC.
2-(N,N-Dibenzy1)amino-4-acetamidoanisole-----	SDC.
Dibenzylazodicarboxylate-----	WTL.
N,N'-Dibenzylethylenediamine-----	WYT.
N,N'-Dibenzylethylenediamine diacetate-----	WYT.
N,N'-Dibenzylidenetoluene- α,α -diamine-----	SDH.
3,4-Dibenzylxybutyrophenone-----	SDW.
3,9-Dibromo-7H-benz[de]anthracen-7-one-----	DUP, MAY, TRC.
p-Dibromobenzene-----	DOW.
1,3-Dibromo-5,5-dimethylhydantoin-----	ARA.
ar-Dibromoethylbenzene-----	DOW.
2,6-Dibromo-4-nitroaniline-----	HST, SDC.
2,6-Dibromo-4-nitrophenol-----	SW.
α,α -Dibromo-p-nitrotoluene-----	DUP.
3,5-Dibromo-3'-trifluoromethylsalicylanilide (Fluorophene).-----	PCW.
p-Dibutoxybenzene (DBB)-----	ALL.
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate-----	ALL.
1,1'-Di-n-butylidicyclopadienyliiron-----	ARA.
2,6-Di-tert-butyl-4-nonylphenol-----	GAF.
2,4-Di-tert-butylphenol-----	DUP, PIT.
2,4-Dichloroaniline-----	EK.
3,4-Dichloroaniline-----	DUP, MON.
2,5-Dichloroaniline and hydrochloride [NH ₂ =1]-----	DUP.
3-(2,4-Dichloroanilino)-1-(2,4,6-trichlorophenyl)-2-pyrazolin-5-one.-----	EK.
1,5-Dichloroanthraquinone-----	TRC.
1,5(and 1,8)-Dichloroanthraquinone-----	AC.
2,6-Dichlorobenzal chloride-----	DUP.
Dichlorobenzanthrone-----	ACY.
α -Dichlorobenzene-----	ACS, DOW, MON, PPG.
α (and p)-Dichlorobenzene-----	MTO.
p-Dichlorobenzene-----	ACS, DOW, DVC, MON, PPG.
4,6-Dichloro-m-benzenedisulfonamide-----	ABB.
4,6-Dichloro-m-benzenedisulfonyl chloride-----	ABB.
3,3'-Dichlorobenzidine base and salts-----	CWN, LAK, UPJ.
2,2'-Dichlorobenzil-----	MTO.
2,4-Dichlorobenzoic acid-----	HN.
2,4-Dichlorobenzoyl chloride-----	HN.
Dichlorobenzyl chloride-----	BPC.
2,3-Dichloro-5,6-dicyanobenzoquinone-----	ARA.
2,4-Dichloro-3,5-dinitro- α,α -trifluorotoluene-----	GAF.
Dichlorodiphenylsilane-----	DCC, UCC.
2,5-Dichloro-4-hydrazinobenzenesulfonic acid-----	CMG.
2-(5,8-Dichloro-1-hydroxy-2-naphthylazo)-1-hydroxybenzene-4-sulfonamide.-----	TRC.
5,14-Dichloroisoviolanthrone-----	CMG.
Di(chloromethyl)diphenyl oxide-----	BPC.
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.-----	ACY, HST, TRC.
Dichloromethylphenylsilane-----	DCC.
2,6-Dichloro-4-nitroaniline-----	CWN, SW.
1,2-Dichloro-4-nitrobenzene-----	DUP, EGR, MON.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)-----	DUP.
2,4-Dichlorophenol-----	DOW, MON.
3-(2',6'-Dichlorophenyl)-5-methyl-isoxazole-4-carbonyl chloride.-----	OTC.

CYCLIC INTERMEDIATES

33

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2,6-Dichloropyrazine-----	ACY.
3,6-Dichloropyridazine-----	ACY.
4,7-Dichloroquinoline-----	PD, SDW.
2,5-Dichlorosulfanilic acid [SO ₃ H=1]-----	CMG, DUP.
2,5-Dichloro-4-sulfobenzenediazonium sulfate-----	TRC.
p, α -Dichlorotoluene-----	HN.
α , α -Dichlorotoluene (Benzal chloride)-----	BPC.
2,6-Dichlorotoluene-----	DUP.
Dicyclohexylamine-----	ABB, MON, VGC.
N,N'-3-Dicyclohexyl-2-thiourea-----	ABB.
*Dicyclopentadiene (includes cyclopentadiene)-----	ENJ, GOC, MON, UCC, VEL.
Dicyclopentadiene dioxide-----	VEL.
Didodecylbenzene-----	CO.
p-Diethoxybenzene-----	ALL.
3-Diethylaminoacetanilide-----	DUP.
p-(Diethylamino)benzaldehyde-----	DUP, EK, TRC.
p-(Diethylamino)benzenediazonium chloride, zinc chloride salt.	HST.
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide-----	PD.
α -[(2-Diethylamino)ethyl]- α -phenylcyclohexanemethanol, hydrochloride.	ACY.
α -(Diethylamino)-4'-hydroxy-m-acetotoluidide-----	AC.
7'-Diethylamino-4-methylcoumarin-----	EK, GAF.
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)-----	ACY, DUP.
3-[(4'-N,N-Diethylamino)phenylazo]-1H-1,2,4-triazole-----	TRC.
3-(Diethylamino)propiophenone-----	ACY.
4-(Diethylamino)-o-tolualdehyde-----	DUP.
*N,N-Diethylaniline-----	ACS, ACY, DSC, DUP.
N,N-Diethyl-m-anisidine-----	DUP.
Diethylbenzene-----	DOW, DUP, KPP.
p-Diethylbenzene-----	DOW.
N,N-Diethylcyclohexylamine-----	DUP.
1,1-Diethyl-3-(m-hydroxyphenyl)urea-----	CWN.
N ¹ ,N ¹ -Diethyl-4-methoxymetanilamide-----	PCW.
N,N-Diethyl-p-nitrosoaniline-----	GAF.
N,N-Diethyl-4-nitroso-m-anisidine hydrochloride-----	DUP.
N,N-Diethyl-4-nitroso-m-phenetidine-----	GAF.
N,N-Diethyl-m-phenetidine-----	GAF.
N,N-Diethyl-m-toluidine-----	DUP.
N,N-Diethyl-p-toluidine-----	RSA.
Difurfurylidinepentaaerythritol-----	SDC.
10,11-Dihydro-5H-dibenzo[a,d]cyclohepten-5-one-----	LIL.
2,3-Dihydro-1,4-dihydroxyanthraquinone-----	DUP.
9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracene-sulfonic acid (2-Quinizarinsulfonic acid).	AC, HSH, MRT.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid-----	ACY, TRC.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, disodium salt.	TRC.
9,10-Dihydro-9,10-dioxo-1,5-and 1,8)-anthracene-disulfonic acid and salt.	TRC.
9,10-Dihydro-9,10-dioxo-1,8-anthracenedisulfonic acid, potassium salt.	AC, TRC.
9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt.	TRC.
9,10-Dihydro-9,10-dioxo-2,7-anthracenedisulfonic acid and salt.	AC, ACY, TRC.
*9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt).	GAF.
9,10-Dihydro-N-(3-hydroxy-2-anthaquinonly)-1-nitro-9,10-dioxo-2-anthramide.	TRC.
9,10-Dihydro-5-nitro-9,10-dioxo-1-anthracenesulfonic acid.	TRC.
9,10-Dihydro-5(and 8)-nitro-9,10-dioxo-1-anthracene-sulfonic acid.	TRC.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*1,4-Dihydroxyanthraquinone (Quinizarin)-----	AC, ACY, DUP, HSH, ICC, MAY, TRC.
1,5-Dihydroxyanthraquinone (Anthrarufin)-----	ACY, TRC.
1,5(and 1,8)-Dihydroxyanthraquinone-----	ACY, TRC.
1,8-Dihydroxyanthraquinone (Chrysazin)-----	GAF, TRC.
2,6-Dihydroxyanthraquinone (Anthraflavic acid)-----	GAF, TRC.
2,4-Dihydroxybenzaldehyde-----	EK.
2,5-Dihydroxybenzenesulfonic acid-----	EK.
2,4-Dihydroxybenzophenone-----	DUP, GAF.
3,4-Dihydroxybutyrophenone-----	SDW.
1,5-Dihydroxy-4,8-dinitroanthraquinone-----	TRC, VPC.
1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitro-chrysazin).-----	DUP.
2,5-Dihydroxybenzenesulfonic acid, potassium salt-----	EK, NES.
2,3-Dihydroxynaphthalene-----	WAY.
6,7-Dihydroxy-2-naphthalenesulfonic acid-----	WAY.
3,3'-Dihydroxy-2-naphthanilide-----	WAY.
4,5-Dihydroxy-3-(p-sulfonylazo)-2,7-naphthalenedisulfonic acid, trisodium salt.-----	EK.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	ACY, DUP, MAY.
m-Diodobenzene-----	EK.
Diisopropylbenzene-----	DOW, GYR.
2',5'-Dimethoxyacetooctanilide-----	HST.
2,4-Dimethoxyaniline-----	DUP.
2,5-Dimethoxyaniline-----	EKT, PCW.
1,5(and 1,8)-Dimethoxyanthraquinone-----	TRC.
2,5-Dimethoxybenzaldehyde-----	CWN, UPJ.
m-Dimethoxybenzene-----	ACY, ARS.
3,3'-Dimethoxybenzidine (o-Dianisidine)-----	SDH, UOP.
3,3'-Dimethoxybenzidine hydrochloride-----	CWN.
2,6-Dimethoxybenzoic acid-----	ARS.
N,N'-[(3,3'-Dimethoxy-4,4'-biphenyl)bis(azo)]bis[N-methyltaurine].-----	GAF.
Dimethoxyhydrazobenzene-----	LAK.
2,5-Dimethoxy- α -methylphenethylamine-----	x.
N-(3,4-Dimethoxy- α -methylphenethyl)-2-(3-methyl-4-ethoxyphenyl)acetamide.-----	LIL.
2,5-Dimethoxy-4'-nitrostilbene-----	x.
3,4-Dimethoxyphenethylamine (Homoveratrylamine)-----	LIL.
1-(3',4'-Dimethoxyphenyl)-2-nitropropene-----	LIL.
2,5-Dimethoxytetrahydrofuran-----	HEX.
2,5-Dimethoxytoluene-----	EK.
16,17-Dimethoxyviolanthrone-----	MAY.
*p-(Dimethylamino)benzaldehyde-----	ACS, DUP, GAF, TRC.
m-(Dimethylamino)benzoic acid-----	SDH, SDW.
5-(p-Dimethylaminobenzylidene)rhodanine-----	EK.
6-Dimethylamino-2-[2-(2,5-dimethyl-1-phenyl-3-pyrryl)-vinyl]-1-methyl-1-quinolinium methyl sulfate.-----	x.
6-Dimethylamino-1-methylquinolinium methyl sulfate-----	EK.
2-[[2-(Dimethylamino)ethyl]-2-thenylamino]-pyridine-----	ABB.
m-(Dimethylamino)phenol-----	ACY.
11-[3-(Dimethylamino)propyl]-11-hydroxy-dibenz(b,e)oxepin.-----	SK.
6-Dimethylaminoquinaldine-----	EK.
2-(4'-Dimethylaminostyryl)-3- β -hydroxyethyl-5-methyl-thiadiazolium chloride.-----	WAY.
*N,N-Dimethylaniline-----	ACS, ACY, DSC, DUP.
7,12-Dimethylbenz[a]anthracene-----	EK.
3,3'-Dimethoxybenzidine hydrochloride-----	EK.
*N,N-Dimethylbenzylamine-----	ARS, RH, x, x.
α,α -Dimethylbenzyl hydroperoxide-----	CLK.
4-(α,α -Dimethylbenzyl)-2-phenol azophenol-----	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2,2'-Dimethyl-1,1'-bianthraquinone-----	ACY, DUP, TRC.
N,N-Dimethylcyclohexylamine-----	ABB, DUP, JCC.
N,N-Dimethyl-dibenz(b,c)oxepin-Δ"(6H)-α-propylamine-----	SK.
5,5-Dimethylhydantoin-----	GLY.
2,3-Dimethylindole-----	DUP.
D,L-cis, trans-2,2-Dimethyl-3-isobutenylcyclopropane-1-carboxylic acid, ethyl ester.	BPC.
2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride	WAY.
N,N-Dimethyl-1-naphthylamine-----	EK.
N,N-Dimethyl-p-nitrosoaniline-----	ACY.
N,N-Dimethyl-p-phenylenediamine-----	EK, EKT.
N,N-Dimethyl-p-phenylenediamine monohydrochloride-----	EK.
N,N-Dimethyl-p-phenylenediamine sulfate-----	EK.
2,5-Dimethyl-1-phenylpyrrole-----	EK.
2,5-Dimethyl-1-phenyl-3-pyrrolecarboxaldehyde-----	EK.
1,4-Dimethylpiperazine-----	JCC.
N,N-Dimethylsulfanilic acid-----	AC.
N,N-Dimethyl-o-toluidine-----	RSA.
N,N-Dimethyl-p-toluidine-----	EK, RSA, SAR.
2,4-Dinitroacetanilide-----	SDC.
*2,4-Dinitroaniline-----	AC, HST, SDC.
p-(2,4-Dinitroanilino)phenol-----	GAF, SDC.
1,5(and 1,8)-Dinitroanthraquinone-----	AC, TRC.
N,N'-(2,4-Dinitro-1,5-anthraquinonylene)dioxamic acid-----	AC, TRC.
m-Dinitrobenzene-----	DUP.
2,4-Dinitrobenzenesulfonic acid-----	EK, TRC.
2,4-Dinitrobenzenesulfonic acid, sodium salt-----	EK, NES.
3,5-Dinitrobenzoic acid-----	SAL.
3,5-Dinitrobenzoyl chloride-----	EK.
10,10'-Dinitro[3,3'-bi-7H-benz[de]anthracene]-7,7'-dione.	DUP, MAY.
Dinitrocetylphenol-----	RH.
2,4-Dinitrocumene-----	DUP.
3,5-Dinitro-N*,N*-diisopropylsulfanilamide-----	X.
1-(3,5-Dinitro-2-hydroxyphenylazo)-2-hydroxynaphthalene-----	TRC.
2,6-Dinitro-4-isopropylphenol-----	X.
2,4-Dinitrophenol, tech-----	SDC, VPC.
3,5-Dinitrosalicylic acid-----	EK, SAL.
*4,4'-Dinitrostilbene-2,2'-disulfonic acid-----	AC, ACY, DUP, GAF, SDH, TRC.
Dinitrostilbenedisulfonic acid-----	CGY.
2,4-Dinitrotoluene-----	ACS, DUP, RUC.
*2,4(and 2,6)-Dinitrotoluene-----	AIP, DUP, MOB, UCC.
Dinonylphenol-----	GAF, JCC.
Di-tert-pentylphenol-----	PAS.
Di-tert-pentylphenoxyacetyl chloride-----	EK.
1,5-Diphenoxyanthraquinone-----	VPC.
1,5(and 1,8)-Diphenoxyanthraquinone-----	AC.
Diphenylacetonitrile, tech-----	ASH.
*Diphenylamine-----	ACY, DUP, ORO, RUC, USR.
2,5-Diphenyl-p-benzoquinone-----	EK.
2,2'-Diphenyl-4-dimethylamine-----	LIL.
N,N'-Diphenylethylenediamine-----	RPC.
2,5-Diphenylhydroquinone-----	EK.
Diphenylmethane-----	PD.
2,5-Diphenyloxazole-----	ARA, EK.
4,7-Diphenyl-1,10-phenanthroline-----	EK.
1,3-Diphenyl-1,3-propanedione-----	EK.
2,2'-Dithiodibenzooic acid-----	LIL, SW.
1,4-Di-p-toluidinoanthraquinone-----	TRC.
p-Ditolymercapto-2,5-diethoxybenzenediazonium chloride, zinc chloride salt.	HST.
Divinylbenzene-----	DOW, FG.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Dodecylbenzene: (See Alkylbenzenes.)	
Dodecylbenzyl chloride-----	BPC.
Dodecylmethylbenzyl chloride-----	RH.
Dodecylnitrobenzene-----	RH.
p-Dodecylphenol-----	GAF, MON, x.
1,2-Epoxy-3-phenoxypropane-----	DUP.
o-Ethoxybenzoic acid-----	ACY.
N-(p-Ethoxybenzylidene)-p-butylaniline-----	EK.
4-Ethoxy-3-methoxybenzaldehyde-----	LIL.
4-Ethoxy-3-methoxybenzyl alcohol-----	LIL.
(4-Ethoxy-3-methoxyphenyl)acetic acid-----	LIL.
2-Ethoxy-1-naphthoyl chloride-----	WYT.
N ¹ -(6-Ethoxy-3-pyridazinyl)sulfanilamide-----	ACY.
3-(Ethylamino)-p-cresol-----	DUP.
N-Ethyl-N-(β-aminoethyl)-m-toluidine-----	x.
3-(Ethylamino)-p-toluenesulfonic acid [SO ₃ H=1]-----	DUP.
*N-Ethylaniline, refined-----	ACS, ACY, 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-----	GAF, SDH.
α-(N-Ethylanilino)-p-toluenesulfonic acid-----	ACS, TRC.
*Ethylbenzene-----	ATR, CSD, DOW, ELP, FG, KPP, MCB, MON, PLC, SKC, SNT, SOG, STY, TOC, UCC.
Ethylbenzyl chloride-----	BPC.
N-Ethyl-N-(2-chloroethyl)aniline-----	DUP.
2-(N-Ethyl-N-β-cyanoethyl)-4-acetaminoanisole-----	SDC.
N-Ethylcyclohexylamine-----	ABB.
3,3'-Ethylenedioxydiphenol-----	WAY.
3-Ethyl-2-[5-(3-ethyl-2-benzothiazolinylidene)-1,3-pentadienyl]-benzothiazolium iodide.	EK.
N-Ethyl-N-glycerol-m-toluidine-----	EK.
2-[N-Ethyl-p-[(6-methoxy-2-benzothiazolyl)azo]anilino]-ethanol.	TRC.
N-Ethyl-N-(β-methylsulfonamidoethyl)-m-toluidine-----	x.
N-Ethylmorpholine-----	UCC.
N-Ethyl-1-naphthylamine-----	DUP.
α-Ethyl-3-nitrocinnamic acid-----	SDW.
p-Ethylphenol-----	ACY.
Ethylphenylmalonic acid, diethyl ester-----	MAL.
*N-Ethyl-N-phenylbenzylamine-----	ACS, DUP, SDH.
5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine) (MEP)-----	UCC.
6-Ethyl-1,2,3,4-tetrahydro-1,1,4,4-tetramethyl-naphthalene.	GIV.
N-Ethyl-p-toluenesulfonamide-----	NES.
N-Ethyl-m-toluidine-----	DUP.
N-Ethyl-o-toluidine-----	DUP.
2-(N-Ethyl-m-toluidino)ethanol-----	TCH.
*3-(N-Ethyl-m-toluidino)propionitrile-----	DUP, MIL, TCH.
α-(N-Ethyl-m-toluidino)-m-toluenesulfonic acid-----	ACS, GAF.
1-Fluoro-2,4-dinitrobenzene-----	EK.
d-2-Formamido-1-phenyl-1,3-propanediol-----	PD.
4-Formyl-m-benzenedisulfonic acid-----	GAF.
o-Formylbenzenesulfonic acid (o-Sulfonylbenzaldehyde)-----	SDH.
Furan-----	PLC, QKO.
Furfuryl alcohol-----	QKO.
Furfurylamine-----	x.
N-Glycolylarsanilic acid, sodium salt-----	SDW.
Glyoxanilide-2-oxime-----	DUP.
Hexabromobenzene-----	MCH, NES.
Hexabromobiphenyl-----	MCH.
Hexachlorobenzene-----	DVC.
Hexachlorocyclopentadiene-----	HK, VEL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic acid.	HK.
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic anhydride.	VEL.
Hexafluorobenzene-----	WHC.
1,2,3,4,5,6-Hexahydro-8-hydroxy-cis-6,11-dimethyl-2,6-methano-2-benzazocine.	SDW.
Hexahydro-1-methyl-4-phenyl-1H-azepine-4-carbonitrile-----	WYT.
Hexamethylenimine-----	CEL, DUP.
Hippuric acid-----	BPC.
p-Hydrazinobenzenesulfonic acid-----	GAF, STG, WJ.
p-Hydrazinobenzoic acid-----	EK.
Hydrazobenzene-----	LAK.
*Hydroquinone, tech-----	CRS, EKT, GYR.
3'-Hydroxyacetophenone-----	ARA, SDH, SDW.
p-Hydroxybenzaldehyde-----	DOW.
p-Hydroxybenzenesulfonic acid-----	PRD, UPF.
p-Hydroxybenzoic acid-----	HN.
3'-Hydroxy-2-(N-benzyl-N-methylamino)acetophenone hydrochloride.	SDW.
4-Hydroxycoumarin-----	ABB.
2-Hydroxy-3,5-diiodobenzoic acid-----	EK.
4-(2-Hydroxyethoxy)acetanilide-----	GAF.
m-(β-Hydroxyethoxy)phenol-----	BJL.
3-[N-(2-Hydroxyethyl)anilino]propionitrile-----	TCH.
3-[N-(2-Hydroxyethyl)anilino]propionitrile, acetate-----	TCH.
3-[N-(2-Hydroxyethyl)anilino]propionitrile, benzoate-----	DUP.
N-(β-Hydroxyethyl)-2,4-dihydroxybenzamide-----	WAY.
N-(β-Hydroxyethyl)-3,5-dihydroxybenzamide-----	WAY.
N-β-Hydroxyethyl-3-hydroxy-2-naphthamide-----	WAY.
N-(2-Hydroxyethyl)piperazine-----	JCC.
N-[7-Hydroxy-8-[(2-hydroxy-5-nitrophenyl)azo]-1-naphthyl]acetamide.	TRC.
4-Hydroxy-4-isopropylmetanilamide-----	TRC.
4-Hydroxymetanilamide-----	DUP, TRC.
4-Hydroxymetanilanilide-----	TRC.
4-Hydroxymetanilic acid-----	TRC.
3'-Hydroxy-2-(methylamino)acetophenone-----	CTN.
*3-Hydroxy-2-methylcinchoninic acid-----	DUP, GAF, TRC.
4-Hydroxy-N ¹ -methylmetanilamide-----	TRC.
N-(Hydroxymethyl)phthalimide-----	ACY.
3-Hydroxy-N-(3-N-morpholinopropyl)-2-naphthamide-----	WAY.
3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt-----	ACY, TRC.
7-Hydroxy-1,3-naphthalenedisulfonic acid-----	DUP, TRC.
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt-----	ACY.
8-Hydroxy-1-naphthalenesulfonic acid-----	VPC.
8-Hydroxy-1-naphthalenesulfonic acid, γ-sultone-----	TRC.
6-Hydroxy-2-naphthalenesulfonic acid, and sodium salt-----	ACY, TMS, TRC, WJ.
3-Hydroxy-2-naphthoic acid (B.O.N.)-----	BUC, PCW.
3-Hydroxy-2-naphthoic acid, methyl ester-----	PCW.
N-(7-Hydroxy-1-naphthyl)acetamide-----	GAF, TRC.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-hydroxynaphthalene-4-sulfonic acid.	TRC.
4-Hydroxy-7-(p-nitrobenzamido)-2-naphthalenesulfonic acid.	GAF.
2-Hydroxy-5-nitrometanilic acid-----	TRC.
1-(2-Hydroxy-4-nitrophenylazo)-2-hydroxynaphthalene-----	TRC.
2-Hydroxy-4-n-octoxybenzophenone-----	ACY, CCW.
o-[(p-Hydroxyphenyl)azo]benzoic acid-----	EK.
3-[(4-(4-Hydroxyphenylazo)2,5-dimethoxyphenylazo)]-benzenesulfamic acid.	TRC.
Hydroxypyridines-----	OMC.
N-Hydroxysuccinimide-----	EK.
2-Hydroxy-4-sulfo-1-naphthalenediazonium hydroxide, inner salt.	ACY.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2-Imidazolidinone-----	VAL.
2-Imidazolidinone modifications-----	RH.
1,1'-Iminobis[4-aminoanthraquinone]-----	ACY, TRC.
1,1'-Iminobis[4-benzamidoanthraquinone]-----	ACY.
1,1'-Iminobis[5-benzamidoanthraquinone]-----	TRC.
7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]-----	GAF, TRC.
1,1'-Iminobis[4-nitroanthraquinone]-----	TRC.
1,1'-Iminodianthraquinone (1,1'-Dianthrimide)-----	TRC.
Indole-2,3-dione-----	DUP, TRC.
Isobutylbenzene-----	PLC.
*Isocyanic acid derivatives:	
Bitolylene diisocyanate (TODI)-----	CWN, UPJ.
p-Chlorophenyl isocyanate-----	MOB.
Dianisidine diisocyanate (DADI)-----	UPJ.
Diphenylmethane-4,4'-diisocyanate (MDI)-----	MOB, UPJ.
Phenylisocyanate-----	MOB.
Polyisocyanates (complex)-----	JCC, MOB, RUC, UPJ.
*Polymethylene polyphenylisocyanate-----	DUP, MOB.
Toluene 2,4-diisocyanate-----	DUP, MOB.
Toluene 2,4- and 2,6-diisocyanate (65/35 mixture)-----	ACS, BAS, DUP, GNT, MOB, OMC, RUC, UCC.
*Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)-----	CWN, UPJ.
p-Toluenesulfonyl isocyanate-----	DUP, MOB, UCC.
Other-----	TRC.
2-Isonitrosoacetanilide-----	ACC.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)-----	FMP.
Isophthalic acid, diallyl ester-----	MTR.
Isophthalic acid, dimethyl ester-----	BJL.
Isophthalic acid, diphenyl ester-----	SW.
Isophthalonitrile-----	DUP.
Isophthaloyl chloride-----	DOW.
4,4'-Isopropylidenebis[2,6-dibromophenol] (Tetrabromo- bisphenol A).-----	ARK.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene,α,α'-diol)-----	DOW, GE, SHC, UCC.
*4,4'-Isopropylidenediphenol (Bisphenol A)-----	ICI.
4,4'-Isopropylidenediphenol, ethoxylated-----	ICI.
4,4'-Isopropylidenediphenol, propoxylated-----	TNA.
o-Isopropylphenol-----	FMP.
Isopropylphenols, mixed-----	DUP.
4-Isopropyl-m-phenylenediamine-----	TRC.
Isoviolanthrone (Isodibenzanthrone)-----	AC, EKT, HSH, ICC, TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)-----	KPT.
2,4-Lutidine-----	UCC.
3,4-Lutidine-----	PCW.
Malonanilide-----	KF.
Mandelonitrile-----	ACS, ACY, MLC.
*Melamine-----	GIV.
p-Mentha-1,4(8)-diene-----	ARZ, HPC, NCI.
d1-p-Mentha-1,8-diene (Limonene)-----	GIV.
p-Menth-1-ene-----	ACY, DUP, TRC.
*Metanilic acid (m-Aminobenzenesulfonic acid)-----	EK.
N-(p-Methoxybenzylidene)-p-butylaniline-----	GAF.
6-Methoxymetanilic acid-----	ARA.
4'-Methoxy-2-(p-methoxyphenyl)acetophenone-----	BPC.
Methoxymethyldiphenyl oxide-----	TRC.
N-(2-Methoxy-1-naphthyl)acetamide-----	PD.
6-Methoxy-8-nitroquinoline-----	EK.
m-Methoxyphenol-----	EK.
1-Methoxy-3-phenoxybenzene-----	UOP.
(p-Methoxyphenyl)acetic acid-----	DUP.
6-Methoxyquinoline-----	AC, ACY.
1-(Methylamino)anthraquinone-----	BDO.
1-(Methylamino)-4-p-toluidinoanthraquinone-----	

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
N-Methylaniline-----	ACY.
2-(N-Methylanilino)ethanol-----	MIL, TCH.
3-(N-Methylanilino)propionitrile-----	DUP, MIL, TCH.
5-Methyl-o-anisidine [NH ₂ =1]-----	SW.
5-Methyl-o-anisidinesulfonic acid-----	ACS.
m-Methylanisole-----	GIV.
N-Methylantranilic acid-----	GIV.
2-Methylantrquinone-----	ACY.
2-Methylbenzothiazole-----	EK, FMT.
N-Methylbenzylamine-----	SDW, x.
Methylbiphenyl-----	DOW.
N-Methyl-N-carboxyantranilic anhydride-----	x.
3-Methylcholanthrene-----	EK.
Methylcyclohexane-----	PLC.
4-Methylcyclohexanone-----	EK.
N-Methylcyclohexylamine-----	ABB.
Methylcyclopentadiene-----	ENJ.
N-Methyldicyclohexylamine-----	ABB.
N-Methyleneaniline-----	PCW.
5,5'-Methylenebis[anthranilic acid, dimethyl ester]-----	x.
4,4'-Methylenebis[2-chloroaniline]-----	DUP.
4,4'-Methylenebis[N,N-diethylaniline]-----	ACY, TRC.
*4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	ACY, DUP, SDH.
4,4'-Methylenebis(3-hydroxy-2-naphthoic acid) disodium salt.	EK, PD.
2,2'-Methylenebis(4-methyl-6-nonylphenol)-----	ACY.
4,4'-Methylenediamine salt complex-----	DUP.
4,4'-Methylenedianiline-----	ACS, DOW, MOB, RUC.
1,2-Methylenedioxybenzene-----	PD.
1,2-Methylenedioxo-4-nitrobenzene-----	PD.
5,5'-Methylenedisalicylic acid-----	HN.
Methylhydroquinone-----	EKT.
2-Methylindole-----	TRC.
2-Methylindole-3-carboxaldehyde-----	GAF.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazolesulfonic acid.	DUP.
N-Methyl-p-nitroaniline-----	ACY, EK.
5-Methyl-4-nitro-o-anisidine-----	PCW.
4-Methyl-2-nitroanisole-----	SW.
2-Methyl-5-nitroimidazole-----	RDA.
N-Methyl-N-nitroso-p-toluenesulfonamide-----	EK.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride-----	VEL.
5-Methyl-5-norbornene-2,3-dicarboxylic anhydride-----	ACS.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide-----	TRC, VPC.
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	ACY, GAF, TRC.
3-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,5-naphthalenedisulfonic acid.	TRC.
6-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,3-naphthalenedisulfonic acid.	TRC.
2-Methyl-1-5-phenylbenzoxazole-----	EK.
1-Methyl-1-phenylhydrazine-----	EK.
1-Methyl-4-phenylisonipecotic acid-----	SDW.
4-Methyl-1-phenyl-3-pyrazolidinone-----	EK.
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	ACY, DUP, SDH, VPC.
1-Methylpiperazine-----	JCC, UCC.
3-Methyl-2-pyrazolin-5-one-----	DUP.
1-Methylpyrrole-----	DUP.
* α -Methylstyrene-----	ACS, CLK, DOW, GP, SKO, UCC, USS.
ar-Methylstyrene (Vinyltoluene)-----	DOW, FG.
2-(Methylsulfonyl)-4-nitroaniline-----	TRC.
3-Methylthiophene-----	SDW.
p-Methylthiophenol-----	CRZ.
3-Methyl-1-p-tolyl-2-pyrazolin-5-one-----	HST.
Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude).	KPT.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2,7-Naphthalenedisulfonic acid-----	TRC.
1-Naphthalenesulfonic acid-----	TRC.
2-Naphthalenesulfonic acid-----	ACY, EK.
1-Naphthalenesulfonic acid, sodium salt-----	TRC.
2-Naphthalene sulfonic acid formaldehyde condensate-----	AC.
2-Naphthalenesulfonic acid, sodium salt-----	ACY.
2-Naphthalenesulfonyl chloride-----	AC.
1,4,5,8-Naphthalenetetracarboxylic acid-----	TRC.
Naphthalimide-----	ACS.
1-Naphthol (α -Naphthol)-----	DUP, UCC.
2-Naphthol, tech. (β -Naphthol) ¹ -----	ACY, DUP.
p-Naphtholbenzene-----	EK.
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid-----	TRC, VPC.
2-(2H-Naphth[1,2-d]triazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol.	x.
1-Naphthylamine (α -Naphthylamine)-----	DUP.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine).	SDC.
(2-Naphthylthio)acetic acid-----	ACY.
Nicotinonitrile (3-Cyanopyridine)-----	NEP.
3'-Nitroacetanilide-----	AC, DUP, TRC.
4'-Nitroacetanilide-----	GAF, TRC.
2'-Nitro-p-acetanisidine-----	DUP.
4'-Nitro-o-acetanisidine-----	DUP.
3'-Nitroacetophenone-----	ARA, SDH.
4'-Nitro-4-amino-3-methoxyazobenzene-----	SDC.
m-Nitroaniline-----	x.
o-Nitroaniline-----	MON.
p-Nitroaniline-----	AC, DUP, MON.
2-Nitro-p-anisidine [NH ₂ =1]-----	DUP.
4-Nitro-o-anisidine [NH ₂ =1]-----	DUP.
o-Nitroanisole-----	DUP, MON.
p-Nitroanisole-----	DUP.
5-Nitroanthranilic acid-----	TRC.
1-Nitroanthraquinone-----	ACY, TRC.
2-(4-Nitro-2-anthraquinonyl)anthra[2,3-d]-oxazole-5,10-dione.	GAF.
m-Nitrobenzaldehyde-----	SDH.
*Nitrobenzene-----	ACY, DUP, FST, MOB, MON, RUC.
3'-Nitrobenzenesulfonanilide-----	AC.
m-Nitrobenzenesulfonic acid-----	ACY, DUP, EK.
m-Nitrobenzenesulfonic acid, sodium salt-----	MON, MRA.
p-Nitrobenzenesulfonyl chloride-----	EK.
m-Nitrobenzoic acid-----	SAL.
o-Nitrobenzoic acid-----	SAL.
p-Nitrobenzoic acid-----	DUP.
m-Nitrobenzoic acid, sodium salt-----	SAL.
2-(m-Nitrobenzoyl)-o-acetanisidine-----	GAF.
p-Nitrobenzoyl azide-----	EK.
m-Nitrobenzoyl chloride-----	ARS.
m-Nitrobenzyl alcohol-----	DUP.
4-(p-Nitrobenzyl)pyridine-----	EK.
4'-Nitro-4-biphenylcarboxylic acid-----	DUP.
2-Nitro-p-cresol-----	SW.
2-Nitro-p-cymene-----	EK.
Nitrodiphenylamine-----	ACY, MON.
5-Nitro-2-furanmethanediol, diacetate-----	NOR.
1-Nitronaphthalene-----	DUP.
3-Nitro-1,5-naphthalenedisulfonic acid-----	TRC.
7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid.	ACS, GAF, TRC, VPC.
p-Nitrophenethyl alcohol-----	PCW.
o-Nitrophenol-----	DUP, MON.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Nitrophenol-----	DUP, MON.
p-Nitrophenol, sodium salt-----	DUP.
4-(p-Nitrophenyl)acetophenone-----	ASH, DUP.
4-Nitro-o-phenylenediamine-----	FMT.
2-(o-Nitrophenylazo)-p-cresol (OH=1)-----	TRC.
2-(o-Nitrophenylazo)-4,6-di-tert-amylphenol (OH=1)-----	TRC.
(p-Nitrophenyl)hydrazine-----	EK, RSA.
2,2'-[(m-Nitrophenyl)imino]diethanol-----	DUP.
p-Nitrophenyl isocyanate-----	EK.
1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.-----	DUP, VPC.
3-Nitrophthalic acid-----	EK.
3-Nitrophthalic anhydride-----	EK.
4-Nitrophthalimide-----	SDC.
5-Nitrosalicylaldehyde-----	EK.
4-Nitroso-2,6-di-tert-butylphenol-----	TRC.
4-Nitroso-N-ethyl-N-(β -methylsulfonamidoethyl)-m-toluidine.-----	x.
1-Nitroso-2-naphthol-----	EK.
p-Nitrosophenol-----	ACY, SDC.
β -Nitrostyrene-----	CWN.
4-Nitro-4'-(5-sulfo-2H-naphtho[1,2-d]triazol-2-yl)-2,2'-stilbenedisulfonic acid.-----	TRC.
3-Nitro-p-toluanide-----	x.
m-Nitrotoluene-----	DUP, FST.
o-Nitrotoluene-----	DUP, FST.
p-Nitrotoluene-----	DUP, FST.
Nitrotoluene mixtures-----	AC, DUP, FST.
p-Nitrotoluenesulfonic acid-----	CGY.
*5-Nitro-o-toluenesulfonic acid [SO ₃ H=1]-----	ACY, DUP, GAF, SDH.
3-Nitro-p-toluenesulfonic acid-----	TRC.
2-Nitro-m-toluid acid-----	SAL.
3-Nitro-p-toluid acid, methyl ester-----	SDH.
2-Nitro-p-toluidine [NH ₂ =1]-----	SW.
5-Nitro-o-toluidine [NH ₂ =1]-----	PCW, SDH.
4-Nitro-m-xylene-----	DUP.
*Nonylphenol-----	GAF, JCC, MCB, MON, PRD, RH, USR.
Oxalacetic acid, diethylester, (p-sulfophenyl)-hydrazone.-----	TRC.
Oxanilide-----	EK.
*1-[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]anthraquinone.-----	ACY, DUP, MAY, TRC.
1,1'-(7-Oxo-7H-benz[de]anthracen-3,9-ylene)diimino-dianthraquinone.-----	MAY, TRC.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester.-----	STG.
5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T).-----	STG, VPC.
4,4'-Oxydianiline-----	DUP.
Pentabromochlorocyclohexane-----	DOW.
Pentachloropyridine-----	DOW.
Pentamethylbenzene-----	SNT.
1,1,3,3,5-Pentamethylindan-----	GIV.
tert-Pentylbenzene-----	DUP.
o-,p-tert-Pentylbenzoylbenzoic acid-----	DUP.
p-Pentyloxybenzoyl chloride-----	EK.
o-Pentylphenol (o-Amylphenol)-----	PAS.
p-Pentylphenol-----	EK.
p-tert-Pentylphenol-----	PAS.
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-diimide-----	ACS.
Phenethylamine-----	x.
α -Phenethylamine-----	x.
Phenethylamine sulfate-----	x.
o-Phenethylbenzoic acid-----	LIL.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Phenetidine-----	MON.
*Phenol:	
*Natural:	
*From coal tar: ²	KPT, PRD.
39°C., m.p.-----	KPT.
All other-----	MER, PRD, SW.
*From petroleum-----	
*Synthetic:	RCI.
By caustic fusion: U.S.P-----	DOW.
From chlorobenzene by liquid-phase hydrolysis:	ACS, CLK, DOW, GP, MON, SHC, SKO, SOC, UCC, USS.
U.S.P-----	KLM.
*From cumene by oxidation: U.S.P-----	EK.
Other-----	SAL.
Phenolsulfonaphthalein, sodium salt-----	SAL.
Phenolsulfonic acid, lithium salt-----	BPC, LIL.
Phenolsulfonic acid, sodium salt-----	LIL.
Phenoxyacetic acid, sodium salt-----	SK.
3'-Phenoxyacetophenone-----	LIL.
2-(Phenoxyethyl)benzoic acid-----	BPC, GIV.
1-(3-Phenoxyphenyl)ethanol-----	BPC.
Phenylacetic acid (α -Toluic acid)-----	BPC.
Phenylacetic acid, ethyl ester, tech-----	BPC, OPC.
Phenylacetic acid, methyl ester-----	OPC.
Phenylacetic acid, potassium salt-----	BPC, UOP.
Phenylacetic acid, sodium salt-----	DUP, NES.
Phenylacetonitrile (α -Tolunitrile)-----	BJL.
4'-Phenylacetophenone-----	SDW.
Phenylacetyl chloride-----	EK.
N-Phenylanthranilic acid-----	ACS, ACY, DUP.
Phenylarsine oxide-----	EK.
*p-Phenyldiazonium (C. I. Solvent Yellow 1) and hydrochloride.	EK.
4-(Phenylazo)diphenylamine-----	EK.
4-(Phenylazo)-1-naphthylamine-----	SAL.
2-Phenylbenzimidazole-----	EK.
Phenyl-p-benzoquinone-----	SDW.
4-Phenyl-3-buten-2-one-----	EK.
Phenyl chloroformate-----	RBC.
α -Phenyl-o-cresol-----	DUP.
m-Phenylenediamine-----	DUP, EK, SW, TRC.
o-Phenylenediamine-----	DUP, SDC.
p-Phenylenediamine-----	EK.
p-Phenylenediamine dihydrochloride-----	SDW.
d-Phenylephrine-----	SDW.
d1-Phenylephrine-----	UCC.
1-Phenylethanol-----	DOW.
Phenyl ether (Diphenyl oxide)-----	KF, OTC, UPJ.
d(-)-2-Phenylglycine-----	KF, OTC.
d1-2-Phenylglycine-----	EK.
N-Phenylglycine-----	ACS.
N-Phenylglycine, sodium and potassium salts-----	UCC.
Phenylglycol ethers-----	KF, OTC, UPJ.
d(-)-2-Phenylglycylchloride hydrochloride-----	ABB.
5-Phenylhydantoin-----	EK.
Phenylhydrazine hydrochloride-----	TCH.
2,2'-(Phenyl)imino]diethanol (N-Phenyl diethanolamine)-----	SDC.
2,2'-(Phenyl)imino]diethanol, diacetate ester-----	DUP.
3,3'-(Phenyl)imino]dipropionitrile-----	BPC.
Phenylmalonic acid, diethyl ester-----	ACS.
1-Phenyl-3-methyl-4-(2-carboxyphenylazo)-5-pyrazolone-----	ARS.
3-Phenyl-5-methylisoxazole-4-carbonyl chloride-----	DUP.
N-Phenyl-2-naphthylamine-----	DOW, RCI.
o-Phenylphenol-----	

CYCLIC INTERMEDIATES

43

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Phenylphenol-----	DOW.
o-Phenylphenol, chlorinated-----	DOW.
o-Phenylphenol, sodium salt-----	DOW.
N-Phenyl-p-phenylenediamine-----	USR.
Phenylphosphinic acid-----	SFS.
Phenylphosphonothioic dichloride-----	SFA.
Phenylphosphorous dichloride-----	SFA.
1-Phenylpiperazine-----	RSA.
1-Phenyl-1,2-propanedione, 2-oxime-----	EK, ORT, PD.
Phenyl-2-propanone-----	ORT.
1-Phenyl-3-pyrazolidinone-----	EK.
d1-Phenylsuccinic acid-----	PD.
1-Phenyl-2-thiourea-----	EK.
Phenylundecanoic acid-----	EK.
Phloroglucinol-----	MRT.
Phthalaldehyde-----	EK.
1(2H)-Phthalazinone-----	x.
Phthalic acid-----	EK, SW.
Phthalic acid, diallyl ester-----	FMP.
*Phthalic anhydride-----	ACS, BAS, ENJ, KPT, MON, PTO, RCI, SOC, STP, UCC, USS.
Phthalide-----	FMT.
Phthalimide-----	DUP, SW.
Phthalimide, potassium salt-----	EK.
[Phthalocyaninato(2-)]copper-----	DUP, GAF.
[Phthalocyaninato(2-)]iron-----	DUP.
Phthalocyaninetetrasulfonyl chloride-copper derivative-----	DUP.
Phthaloyl chloride (Phthalyl chloride)-----	MON.
Picolines: ²	
2-Picoline (α -Picoline)-----	KPT, NEP, UCC.
3-Picoline (β -Picoline)-----	NEP.
4-Picoline (γ -Picoline)-----	UCC.
Picoline (3,4-mixture)-----	KPT, NEP.
Picolinic acid, ethyl ester-----	NEP.
Picolinonitrile (2-Cyanopyridine)-----	NEP.
Picric acid (Trinitrophenol)-----	SDC.
2-Pipecoline-----	LIL.
Piperidine-----	ABB, DUP.
3-Piperidinopropiophenone hydrochloride-----	ACY, SDW.
Polychlorobenzene-----	DOW.
Polychlorobiphenyl-----	MON.
Polyethylbenzene-----	UCC.
Potassium cyclohexanecarboxylate-----	EK.
Potassium phthalamide-----	PD.
Primuline base-----	DUP.
*Propiophenone-----	ORT, PD, UCC, UOP.
N-Propylaniline-----	EK.
8,16-Pyranthrenedione-----	TRC.
Pyridine, refined: ²	
2° Pyridine-----	KPT, NEP.
Other grades-----	KPT, NEP.
Pyridine hydrochloride-----	EK.
Pyridinium bromide perbromide-----	ARA.
α -Pyridyl- α -thienylamine-----	ABB.
2-Pyrimidinol-----	CGY.
Pyrrolidine-----	DUP.
2-Pyrrolidinone-----	GAF.
3-(1-Pyrrolidinyl)propiophenone hydrochloride-----	LIL.
Quinaldine-----	ACS, ACY.
Quinhydrone-----	EK.
Quinoline:	
1° and 2° Quinoline-----	KPT.
Quinoline (synthetic)-----	EK.
Other grades-----	KPT.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2,4-Quinolinediol-----	PCW.
Resorcinol, tech ¹ -----	KPT.
Resorcinol, monoacetate (non-medicinal grade) ¹ -----	EK.
β-Resorcyclic acid-----	KPT.
*Salicylaldehyde-----	DOW, DUP, MTR, RDA.
Salicylaldehyde oxime-----	EK.
*Salicylic acid, tech-----	DOW, HN, MON, SDH.
Salicylic acid, ammonium chromium complex-----	TRC.
Salicylic acid, phenyl ester-----	DOW.
Salicylic acid, sodium chromium complex-----	TRC.
Salicylideneaminoguanidine oleate-----	DUP.
*Styrene, all grades-----	ACC, CSD, DOW, ELP, GOC, KPP, MCB, MON, NWP, SHC, SKC, SNT, UCC.
Styrene oxide-----	UCC.
5-Sulfamylanthranilic acid-----	TRC.
Sulfanilamide, tech-----	SAL.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt-----	ACS, ACY, DUP, SAL.
o-Sulfobenzoic acid, cyclic anhydride-----	EK.
Sulfodiphenols, mixed-----	UPF.
5-Sulfoisophthalic acid, 1,3-dimethyl ester-----	x.
5-Sulfoisophthalic acid, lithium salt-----	PCW.
5-Sulfoisophthalic acid, sodium salt-----	PCW.
4,4'-Sulfonyldianiline-----	RSA.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)-----	UPF.
4-Sulphophthalic acid-----	CWN, HSC.
Terephthalic acid-----	ACC, DUP, HPC, SDH.
*Terephthalic acid, dimethyl ester-----	ACC, DUP, EKT, HPC.
Terephthaloyl chloride-----	DUP.
Terephthaloyldiacetic acid, diethyl ester-----	PCW.
Terphenyl (Phenylbiphenyl)-----	MON.
3,3',4,4'-Tetraaminobenzophenone-----	BJL.
3',3'',5'5''-Tetrabromophenolphthalein, ethyl ester-----	EK.
Tetrabromophthalic anhydride-----	MCH.
1,4,5,8-Tetrachloroanthraquinone-----	AC, DUP.
1,2,4,5-Tetrachlorobenzene-----	DOW.
1,2,4,5-Tetrachloro-3-nitrobenzene-----	SDH.
Tetrahydrofuran-----	DUP, QKO.
Tetrahydrofurfuryl dimethacrylate-----	SAR.
Tetrahydro-2-pyrimidone-----	VAL.
1,2,3,4-Tetrahydroquinoxaline-----	DUP.
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative-----	AC, ICC, TRC.
1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone (Pantantrimide).-----	GAF.
1,2,3,4-Tetramethylbenzene (Prehnitine)-----	SNT.
1,2,3,5-Tetramethylbenzene (Isodurene)-----	SNT.
1,2,4,5-Tetramethylbenzene (Durene)-----	SNT.
p-(1,1,3,3-Tetramethylbutyl)phenol-----	GAF, PRD, RH, SCN.
N,N,N',N'-Tetramethyl-p-phenylenediamine dihydro- chloride.-----	EK.
[4,4',4'',4'''-Tetranitrophthalocyaninato(2-)]copper-----	SDC.
1(H)-Tetrazole-1-acetic acid-----	LIL.
3,3'-Thiobis[7H-benz[de]anthracen-7-one]-----	MAY, TRC.
4,4'-Thiodianiline-----	ACY.
2-Thiopheneacetic acid-----	BPC.
Thiophene-2-acetyl chloride-----	LIL.
2-Thiophenecarboxaldehyde-----	ABB.
Thiophenol-----	SFA.
Thiosalicylic acid-----	AMR.
sym-Thymol-----	Giv, KPT.
*Toluene-2,4-diamine (4-m-Tolylendiamine)-----	ACS, ACY, DUP, OMC, RUC, UCC.
Toluene-2,4-disulfonic acid-----	GAF, SDH.
p-Toluenesulfinic acid, sodium salt-----	EK, NES.

CYCLIC INTERMEDIATES

45

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
o-Toluenesulfonamide-----	MON.
p-Toluenesulfonamide-----	MON.
o(and p)-Toluenesulfonic acid-----	MON, NES, UPF.
p-Toluenesulfonic acid-----	TEN, UPF.
p-Toluenesulfonic acid, monohydrate-----	NES.
o-Toluenesulfonyl chloride-----	MON.
p-Toluenesulfonyl chloride-----	MON.
α -Toluenesulfonyl fluoride-----	EK.
α -Toluenethiol-----	EK.
m-Toluic acid-----	BPC.
o-Toluic acid-----	BPC.
p-Toluic acid-----	BPC, EK.
m-Toluidine-----	DUP.
o-Toluidine-----	DUP, PST.
p-Toluidine-----	DUP.
o-Toluidine hydrochloride-----	AC.
p-Toluidine hydrochloride-----	EK.
Toluidines, mixed-----	DUP.
2-o-Toluidinoethanol-----	TCH.
m-Toluidinomethanesulfonic acid-----	TRC, VPC.
o-Toluidinomethanesulfonic acid-----	TRC.
o-(p-Toluoyl)benzoic acid-----	ACY.
N-(p-Tolylazo)sarcosine-----	BUC, GAF.
*4-(o-Tolylazo)-o-toluidine (C. I. Solvent Yellow 3)-----	ACY, ALL, DUP, GAF, SDH.
4-(o-Tolylazo)-o-toluidine hydrochloride-----	GAF.
1-p-Tolylidodecane-----	x.
2,2'-(m-Tolylimino)diethanol-----	MIL, TCH.
2,2'-(o-Tolylimino)diethanol-----	TCH.
2,2'-(m-Tolylimino)diethanol, diacetate ester-----	SDC.
Tolytriazole-----	x.
N,N,N-Tribenzyllamine-----	x.
3,4',5-Tribromosalicylanilide-----	PCW.
1,2,3(and 1,2,4)-Trichlorobenzene-----	PPG.
1,2,4-Trichlorobenzene-----	DOW, HK.
N,2,6-Trichloro-p-benzoquinoneimine-----	EK.
1,1,1-Trichloro-2,2-diphenylethane-----	CWN.
Trichloromelamine-----	WTH.
1,2,4-Trichloro-5-nitrobenzene-----	ALL, PCW.
Trichlorophenylsilane-----	DCC, UCC.
α,α,α -Trichlorotoluene (Benzotrichloride)-----	HK, VEL.
$\alpha,2,4$ -Trichlorotoluene-----	HN.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)-----	CGY, NIL.
1,3,5-Triethylbenzene-----	DUP.
α,α,α -Trifluorotoluene-----	HK.
Trimesic acid (1,3,5-Benzenetricarboxylic acid)-----	AMB.
Trimellitic anhydride, acid chloride-----	ARS.
1,2,3-Trimethylbenzene (Hemelliteme)-----	SNT.
1,2,4-Trimethylbenzene (Pseudocumene)-----	SNT.
1,3,5-Trimethylbenzene (Mesitylene)-----	SNT.
3,5,5-Trimethylcyclohexanol (Homomenthol)-----	ARS.
2,3,3-Trimethyl-3H-indole-----	GAF.
1,3,3-Trimethyl- Δ^2 , α -indolineacetaldehyde-----	ACS, DUP, GAF, TRC.
1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)-----	DUP, GAF.
Trimethylphenylammonium chloride-----	x.
Trimethylphenylammonium iodide-----	EK, TRC.
2,4,6-Trimethylpyridine-----	KPT.
2,4,6-Trinitrobenzenesulfonic acid-----	EK.
Triphenylmethane-----	EK.
Triphenylmethanol-----	EK.
2,4,6-Tripropoxybenzaldehyde-----	x.
α,α',α'' -Tris(dimethylamino)mesitol-----	RH.
Tris(2-methyl-1-aziridinyl)phosphine oxide-----	ARS.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J Acid Urea).	GAF, TRC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)-----	GIV, SLV.
p-Vinylbenzenesulfonic acid, sodium salt-----	DUP.
4-Vinylcyclohexene-----	UCC.
5-Vinyl-2-picoline (MVP)-----	PLC.
*Violanthrone (Dibenzanthrone)-----	ACS, ACY, DUP, GAF, MAY, SDC, TRC.
Xanthene-9-carboxylic acid-----	MAL.
m-Xylene-----	SNT.
*o-Xylene-----	ATR, CCP, CPI, CSD, CSO, ENJ, MON, PPR, SHC, SNT, SOC, TOC.
*p-Xylene-----	ACC, ATR, CSD, CSO, ENJ, HCR, PPR, SHC, SNT, SOC, SOG, TOC.
m-Xylenesulfonic acid-----	NES.
2,6-Xylenol, synthetic-----	GE, KPT.
Xylidines:	
2,4-Xylidine (m-4-Xylidine)-----	DUP.
2,6-Xylidine (p-Xylidine)-----	DUP.
Original mixture-----	DUP.
4-(2,5-Xylolazo)-o-toluidine-----	ACY.
All other cyclic intermediates-----	ABB, ACC, ACS, ACY, ALD, ALL, BJL, DUP, EK, FMP, GAF, HST, ICI, JCC, LIL, MRK, PCW, PD, PRD, RH, SAR, SDC, SK, STC, TCH, UCC, x, x, x, x, x.

¹ See report on Medicinal Chemicals for data on medicinal grade of this item.² Does not include manufacturers' identification codes for producers that report to the Division of Fossil Fuels, U.S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines Mineral Industry Survey *Coke Producers in the United States in 1974*, November 6, 1975.

CYCLIC INTERMEDIATES

47

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of cyclic intermediates to the U.S. International Trade Commission for 1974 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., Chemical Division
AC	American Color & Chemical Corp.	GE	General Electric Co.
ACC	Amoco Chemical Corp.	GIV	Givaudan Corp.
ACS	Allied Chemical Corp.: Specialty Chemicals Division	GLY	Glyco Chemicals, Inc.
ACY	American Cyanamid Co.	GNT	General Tire & Rubber Co.
AIP	Air Products & Chemicals, Inc.	GOC	Gulf Oil Corp., Gulf Oil Co., Chemical Co.-U.S.
ALD	Aldrich Chemical Co., Inc.	GP	Georgia-Pacific Corp., Rebecca Chemical Division
ALF	Allied Chemical Corp., Fibers Div.	GRS	Champlin Petroleum Co.
ALL	Alliance Chemicals, Inc.	GYR	Goodyear Tire & Rubber Co.
AMB	American Bio-Synthetics Corp.	HCR	Hercor Chemical Corp.
ARA	Arapahoe Chemical, Inc. Sub/Syntex Corp. (U.S.A.)	HEX	Hexagon Laboratories, Inc.
ARK	Armstrong Cork Co.	HK	Hooker Chemicals & Plastics Corp.
ARS	Arsynco, Inc.	HN	Tenneco Chemicals, Inc.
ARZ	Arizona Chemical Co.	HPC	Hercules, Inc.
ASH	Ashland Oil, Inc. and Ashland Chemical Co.	HSC	Chemetron Corp., Pigments Division
ASL	Ansul Chemical Co.	HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co.
ATR	Atlantic Richfield Co.	HST	American Hoechst Corp.
BAS	BASF Wyandotte Corp.	ICC	Inmont Corp.
BDO	Benzenoid Organics, Inc.	ICI	ICI United States, Inc., Specialty Chemicals Group
BJL	Burdick & Jackson Laboratories, Inc.	JCC	Jefferson Chemical Co., Inc.
BPC	Stauffer Chemical Co., Specialty-Chemical Division; Benzol Products Dept.	KF	Kay-Fries Chemicals, Inc.
BUC	Synalloy Corp., Blackman-Uhler Chemical Div.	KLM	Kalama Chemical Co.
CCP	Crown Central Petroleum Corp.	KPP	Arco/Polymers, Inc.
CCW	Cincinnati Milacron Chemicals, Inc.	KPT	Koppers Co., Inc., Organic Materials Division
CEL	Celanese Corp., Celanese Chemical Co.	LAK	Lakeway Chemicals, Inc.
CGY	Ciba-Geigy Corp.	LIL	Eli Lilly & Co. and Puerto Rico
CHL	Chemol, Inc.	MAL	Mallinckrodt Chemical Works
CLK	Clark Chemical Corp.	MAY	Otto B. May, Inc.
CMG	Nyanza, Inc.	MCB	Borg-Warner Corp., Marbon Chemical Division
CNP	Nipro, Inc.	MCH	Michigan Chemical Corp.
CO	Continental Oil Co.	MER	Merichem Co.
CPI	Commonwealth Petrochemicals, Inc.	MIL	Deering Milliken, Inc., Milliken Chemical Div.
CRS	Carus Corp., Carus Chemical Co.	MLC	Melamine Chemicals, Inc.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	MNR	Monroe Chemical Co.
CSD	Cosden Oil & Chemical Co.	MOB	Mobay Chemical Co.
CSO	Cities Service Oil Co.	MOC	Marathon Oil Co., Texas Refining Division
CSP	Coastal States Petrochemical Co.	MON	Monsanto Co.
CWN	Upjohn Co., Fine Chemicals Division	MRA	Crown-Metro, Inc.
DBC	Dow Badische Co.	MRK	Merck & Co., Inc.
DCC	Dow Corning Corp.	MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.
DOW	Dow Chemical Co.	MTO	Montrose Chemical Corp. of California
DSC	Dye Specialties, Inc.	MTR	Sobin Chemicals, Inc., Montrose Chemical Division
DUP	E.I. duPont de Nemours & Co., Inc.	NCI	Union Camp Corp., Chemicals Division
DVC	Dover Chemical Co.	NEP	Nepera Chemical Co., Inc.
ÉGR	Eagle River Chemical Corp.	NES	Nease Chemical Co., Inc.
EK	Eastman Kodak Co.: Tennessee Eastman Co. Division	NIL	Nilok Chemicals, Inc.
EKT		NOR	Norwich Pharmacal Co.
ELP	El Paso Products Co.	NPC	Northwest Petrochemical Corp.
ENJ	Exxon Chemical Co. U.S.A.	NWP	Northern Petrochemical Co.
FER	Ferro Corp., Ottawa Chemical Div.		
FG	Foster Grant Co., Inc.		
FMP	FMC Corp., Industrial Chemical Division		
FMT	Fairmount Chemical Co., Inc.		
FST	First Chemical Corp.		

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1974--CONTINUED

Code	Name of company	Code	Name of company
OMC	Olin Corp.	SNT	Suntide Refining Co.
OPC	Orbis Products Corp.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
ORO	Chevron Chemical Co.	SOG	Charter International Oil Co.
ORT	Roehr Chemicals, Inc.	STC	Sou-Tex Chemical Co., Inc.
OTC	Story Chemical Corp., Ott Division	STG	Stange Co.
PAS	Pennwalt Corp.	STP	Stepan Chemical Co.
PCR	Princeton Chemical Research, Inc.	STY	Styrochem Corp.
PCW	Pfister Chemical, Inc.	SW	Sherwin-Williams Co.
PD	Parke, Davis & Co.	SWC	Corco Cyclohexane, Inc.
PFZ	Pfizer, Inc.	TCH	Emery Industries, Inc., Trylon Chemical Division
PIT	Pitt-Consol Chemical Co.	TEN	Cities Service Co., Copperhill Operations
PLC	Phillips Petroleum Co.	TMS	Sterling Drug, Inc., Thomasset Color Division
PPG	PPG Industries, Inc.	TNA	Ethyl Corp.
PPR	Phillips Puerto Rico Corp., Inc.	TOC	Tenneco Oil Co.
PRD	Productol Chemical Co., Inc.	TRC	Toms River Chemical Corp.
PTO	Puerto Rico Chemical Co., Inc.	TRD	Manufacturing Enterprises, Inc., Squibb Manufacturing, Inc., Trade Enterprise, Inc.
PTT	Petro-Tex Chemical Corp.	TX	Texaco, Inc.
QKO	Quaker Oats Co.	UCC	Union Carbide Corp.
RBC	Fiske Chemicals, Inc.	UOC	Union Oil Co. of California
RCI	Reichhold Chemicals, Inc.	UOP	Universal Oil Products Co., UOP Chemical Division
RDA	Rhodia, Inc.	UPF	United States Pipe & Foundry Co.
RH	Rohm & Haas Co.	UPJ	Upjohn Co.
RPC	Millmaster Onyx Corp., Refined-Onyx Division	USR	Uniroyal, Inc., Chemical Division
RSA	R.S.A. Corp.	USS	USS Chemicals Div. of U.S. Steel Corp.
RUC	Rubicon Chemicals, Inc.	VAL	Valchem Corp.
SAL	Salsbury Laboratories	VEL	Velsicol Chemical Corp.
SAR	Sartomer Industries, Inc.	VGC	Virginia Chemicals, Inc.
SCN	Schenectady Chemicals, Inc.	VPC	Mobay Chemical Corp., Verona Division
SDC	Martin-Marietta Corp., Sodyeco Division	WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Division
	Sterling Drug, Inc.:	WHC	Whittaker Corp., Research & Development Division
SDH	Hilton-Davis Chemical Co. Division	WIL	Inolex Corp., Inolex Pharmaceutical Division
SDW	Winthrop Laboratories Division	WJ	Warner-Jenkinson Manufacturing Co.
	Stauffer Chemical Co.:	WTC	Witco Chemical Co., Inc.
SPA	Agricultural Division	WTH	Union Camp Corp., Harchem Division
SFC	Calhio Chemicals, Inc.	WTL	Pennwalt Corp., Lucidol Division
SFS	Specialty Chemical Division	WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
SHC	Shell Oil Co., Shell Chemical Co. Division		
SHO	Shell Oil Co.		
SK	Smith, Klein & French Laboratories		
SKC	Sinclair-Koppers Chemical Co.		
SKO	Skelly Oil Co.		
SLV	Sterwin Chemicals, Inc.		

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

Dyes

Synthetic dyes are derived in whole or in part from cyclic intermediates. Approximately two-thirds of the dyes consumed in the United States are used by the textile industry to dye natural and synthetic fibers or fabrics; about one-sixth is used for coloring paper; and the rest is used chiefly in the production of organic pigments and in 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 1974 amounted to 275 million pounds, or 3.2 percent less than the 284 million pounds produced in 1973 (table 1). Sales of dyes in 1974 amounted to 263 million pounds, valued at \$556 million, compared with 266 million pounds, valued at \$519 million, in 1973. In terms of quantity, sales of dyes in 1974 were 1.1 percent smaller than in 1973 and in terms of value, 7.1 percent larger. The average unit value of sales of all dyes in 1974 was \$2.11 per pound, compared with \$1.95 per pound in 1973.

For a few important dyes, production was larger in 1974 than in 1973. Vat Yellow 2 production increased 8.5 percent from 3,732,000 pounds in 1973 to 4,050,000 pounds in 1974. Disperse Blue 79 production increased 35.7 percent from 3,619,000 pounds in 1973 to 4,910,000 pounds in 1974. Other important dyes whose production in 1974 was substantially larger than in 1973 were Disperse Blue 3 (23.3 percent increase), Fluorescent Brightening Agent 28 (46.0 percent increase), FD&C Yellow No. 5 (10.7 percent increase), and FD&C Yellow No. 6 (11.3 percent increase).

On the other hand, the production of several important dyes was smaller in 1974 than in 1973. Disperse Yellow 3 production decreased 23.4 percent from 3,748,000 pounds in 1973 to 2,870,000 pounds in 1974. Direct Yellow 11 production decreased 20.6 percent from 2,685,000 pounds in 1973 to 2,132,000 pounds in 1974. Acid Blue 9 production decreased 9.3 percent from 2,316,000 pounds in 1973 to 1,937,000 pounds in 1974. Other important dyes whose production in 1974 was substantially smaller than in 1973 were Acid Red 88 (93.5 percent decrease), Acid Red 151 (28.2 percent decrease), Basic Yellow 11 (34.0 percent decrease), Direct Yellow 44 (50.5 percent decrease), Direct Blue 86 (40.3 percent decrease), FD&C Red No. 2 (36.6 percent decrease), and Vat Green 1, 6% (12.1 percent decrease).

Table 1A is a summary of production and sales of dyes in 1974 by class of application. Six application classes of dyes accounted for 81.7 percent of all dyes produced in 1974. Vat dyes accounted for 19.7 percent

of total production; disperse dyes for 18.5 percent; fluorescent brightening agents for 14.9 percent; direct dyes for 11.7 percent; acid dyes for 9.6 percent; and basic dyes for 7.3 percent. Of these six classes of dyes, the production of vat dyes decreased 3.8 percent from 1973 to 1974; disperse dyes production increased 1.4 percent; fluorescent brightening agents production increased 26.6 percent; direct dyes production decreased 18.0 percent; acid dyes production decreased 17.8 percent; and basic dyes production decreased 6.1 percent.

As compared with 1973 data, the 1974 production of the remaining dye classes changed in the following manner: Fiber-reactive dyes decreased by 7.5 percent; food, drug, and cosmetic colors increased by 9.2 percent; and solvent dyes increased by 17.7 percent.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974

[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]

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
				Per pound
Grand total-----	275,036	263,143	556,226	\$2.11
ACID DYES				
Total-----	26,330	24,443	71,507	2.93
Acid yellow dyes, total-----	7,659	6,983	19,193	2.75
Acid Yellow 11-----	27	38	86	2.26
Acid Yellow 17-----	184	180	455	2.53
Acid Yellow 19-----	382	325	654	2.01
Acid Yellow 23-----	336	346	956	2.76
Acid Yellow 34-----	...	76	186	2.45
Acid Yellow 36-----	256	236	520	2.20
Acid Yellow 38-----	...	52	130	2.50
Acid Yellow 40-----	71	93	342	3.68
Acid Yellow 42-----	68	40	74	1.85
Acid Yellow 54-----	...	32	85	2.66
Acid Yellow 65-----	...	40	180	4.50
Acid Yellow 99-----	...	39	116	2.97
Acid Yellow 151-----	1,786	1,603	3,587	2.24
Acid Yellow 159-----	397	397	1,298	3.27
All other-----	4,152	3,486	10,524	3.02
Acid orange dyes, total-----	3,953	3,434	8,167	2.38
Acid Orange 7-----	609	481	661	1.37
Acid Orange 8-----	252	242	413	1.71
Acid Orange 10-----	213	262	446	1.70
Acid Orange 24-----	567	522	839	1.61
Acid Orange 60-----	269	246	764	3.11
Acid Orange 64-----	46	30	94	3.13
Acid Orange 74-----	...	39	99	2.54
Acid Orange 116-----	531	433	1,210	2.79
All other-----	1,466	1,179	3,641	3.09
Acid red dyes, total-----	4,953	4,588	14,946	3.26
Acid Red 1-----	233	265	373	1.41
Acid Red 4-----	134	134	286	2.13
Acid Red 18-----	...	129	226	1.75
Acid Red 37-----	29	36	141	3.92
Acid Red 73-----	608	526	1,799	3.42
Acid Red 88-----	66	182	326	1.79
Acid Red 89-----	...	12	19	1.58
Acid Red 99-----	...	55	128	2.33
Acid Red 114-----	521	299	784	2.62
Acid Red 115-----	...	28	73	2.61
Acid Red 137-----	101	138	552	4.00
Acid Red 151-----	834	669	1,546	2.31
Acid Red 182-----	60	62	229	3.69
Acid Red 186-----	...	11	56	5.09
Acid Red 266-----	316	236	1,121	4.75
Acid Red 337-----	419	356	1,621	4.55
All other-----	1,632	1,450	5,666	3.91

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACID DYES--Continued				
Acid violet dyes, total-----	313	310	962	\$3.10
Acid Violet 1-----	...	10	19	1.90
Acid Violet 3-----	...	64	148	2.31
Acid Violet 7-----	11	50	94	1.88
Acid Violet 12-----	...	15	34	2.27
Acid Violet 17-----	...	34	102	3.00
Acid Violet 49-----	122	105	320	3.05
All other-----	180	32	245	7.66
Acid blue dyes, total-----	4,898	4,614	16,000	3.47
Acid Blue 7-----	...	28	117	4.18
Acid Blue 9-----	1,937	1,497	2,318	1.55
Acid Blue 25 ² -----	495	523	2,645	5.06
Acid Blue 27-----	153	129	527	4.09
Acid Blue 40-----	641	599	2,582	4.31
Acid Blue 41-----	22	28	141	5.04
Acid Blue 45-----	...	113	553	4.89
Acid Blue 78-----	...	28	344	12.29
Acid Blue 113-----	523	648	1,680	2.59
Acid Blue 118-----	...	57	142	2.49
Acid Blue 158 and 158A-----	115	71	241	3.39
All other-----	1,012	893	4,710	5.27
Acid green dyes, total-----	700	718	2,592	3.61
Acid Green 3-----	...	164	402	2.45
Acid Green 20-----	...	33	75	2.27
Acid Green 25-----	338	352	1,432	4.07
All other-----	362	169	683	4.04
Acid brown dyes, total-----	787	821	2,474	3.01
Acid Brown 14-----	217	243	585	2.41
All other-----	570	578	1,889	3.27
Acid black dyes, total-----	3,067	2,975	7,173	2.41
Acid Black 1-----	401	506	1,176	2.32
Acid Black 52-----	692	669	1,665	2.49
Acid Black 107-----	363	358	1,012	2.85
All other-----	1,611	1,442	3,320	2.30
AZOIC DYES AND COMPONENTS				
<i>Azoic Diazo Components, Bases (Fast Color Bases)</i>				
Azoic Diazo Components, Bases (Fast Color Bases), Total-----	662	609	1,388	2.28
<i>Azoic Diazo Components, Salts (Fast Color Salts)</i>				
Total-----	1,373	1,510	1,926	1.28
Azoic Diazo Component 1, salt-----	116	123	167	1.36
Azoic Diazo Component 3, salt-----	132	171	159	.93
Azoic Diazo Component 5, salt-----	94	132	188	1.42
Azoic Diazo Component 8, salt-----	33	46	52	1.13

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales			
		Quantity	Value	Unit Value ¹	
AZOIC DYES AND COMPONENTS--Continued					
<i>Azoic Diazo Components, Salts--Continued (Fast Color Salts)</i>					
Azoic Diazo Component 9, salt-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound	
Azoic Diazo Component 10, salt-----	107	124	109	\$0.88	
Azoic Diazo Component 12, salt-----	33	26	40	1.54	
Azoic Diazo Component 13, salt-----	216	212	243	1.15	
Azoic Diazo Component 14, salt-----	288	284	297	1.05	
Azoic Diazo Component 49, salt-----	184	206	256	1.24	
All other azoic diazo components, salts-----	...	40	124	3.10	
	170	146	291	1.99	
<i>Azoic Coupling Components (Naphthol AS and Derivatives)</i>					
Azoic Coupling Coupling Components (Naphthol AS and Derivatives), Total-----	1,816	1,643	6,492	3.95	
BASIC DYES					
Total-----	20,074	19,014	53,818	2.83	
Basic yellow dyes, total-----	5,646	5,488	13,579	2.47	
Basic Yellow 11-----	1,097	1,156	3,016	2.61	
Basic Yellow 13-----	...	303	685	2.26	
All other-----	4,549	4,029	9,878	2.45	
Basic orange dyes, total-----	2,096	2,024	4,796	2.37	
Basic Orange 1-----	290	384	666	1.73	
Basic Orange 2-----	403	468	959	2.05	
Basic Orange 21-----	1,163	897	2,224	2.48	
All other-----	240	275	947	3.44	
Basic red dyes, total-----	3,211	2,998	9,901	3.30	
Basic Red 13-----	...	55	89	1.62	
Basic Red 14-----	619	609	1,286	2.11	
Basic Red 15-----	365	339	942	2.78	
Basic Red 18-----	725	660	1,407	2.13	
Basic Red 49-----	72	52	191	3.67	
All other-----	1,430	1,283	5,986	4.67	
Basic violet dyes, total-----	3,666	3,670	10,235	2.79	
Basic Violet 1-----	1,188	1,201	2,483	2.07	
Basic Violet 16-----	406	363	1,212	3.34	
All other-----	2,072	2,106	6,540	3.11	
Basic blue dyes, total-----	3,890	3,281	11,988	3.65	
Basic Blue 3-----	740	...	...	...
Basic Blue 5-----	...	9	61	6.78	
Basic Blue 7-----	215	169	942	5.57	
Basic Blue 22-----	28	78	346	4.44	
All other-----	2,907	3,025	10,639	3.52	
Basic Brown 1-----	93	104	196	1.88	
Basic Brown 4-----	474	482	851	1.77	
Basic black dyes-----	174	180	511	2.84	
All other basic dyes-----	824	787	1,761	2.24	

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
DIRECT DYES				
Total-----		1,000 pounds	1,000 pounds	1,000 dollars
Direct yellow dyes, total-----	32,266	31,314	60,895	\$1.94
Direct Yellow 4-----	11,389	11,235	20,317	1.81
634	556	1,005	1.81	
485	511	1,024	2.00	
Direct Yellow 8-----	...	14	52	3.71
Direct Yellow 11-----	2,132	2,347	2,307	.98
Direct Yellow 12-----	116	131	512	3.91
Direct Yellow 28-----	211	179	453	2.53
Direct Yellow 44-----	503	663	1,553	2.34
Direct Yellow 50 ³ -----	998	878	1,369	1.56
Direct Yellow 84-----	705	701	1,295	1.85
Direct Yellow 105-----	...	118	341	2.89
Direct Yellow 106-----	692	632	1,229	1.94
All other-----	4,913	4,505	9,177	2.04
Direct orange dyes, total-----	1,577	1,547	3,774	2.44
Direct Orange 8-----	86	83	111	1.34
Direct Orange 15-----	416	352	500	1.42
Direct Orange 26-----	121	77	222	2.88
Direct Orange 29-----	101	123	362	2.94
Direct Orange 34-----	74	79	207	2.62
Direct Orange 37-----	...	20	54	2.70
Direct Orange 39-----	88	94	255	2.71
Direct Orange 72-----	224	188	386	2.05
Direct Orange 73-----	61	57	222	3.89
Direct Orange 102-----	169	231	706	3.06
All other-----	237	243	749	3.08
Direct red dyes, total-----	3,251	3,620	10,241	2.83
Direct Red 1-----	96	97	262	2.70
Direct Red 2-----	118	143	387	2.71
Direct Red 4-----	34	31	134	4.32
Direct Red 16-----	...	91	213	2.34
Direct Red 23-----	234	230	753	3.27
Direct Red 24-----	151	202	483	2.39
Direct Red 26-----	63	82	211	2.57
Direct Red 31-----	...	22	88	4.00
Direct Red 37-----	...	74	272	3.68
Direct Red 39-----	...	37	161	4.35
Direct Red 72-----	167	206	586	2.84
Direct Red 75-----	...	9	37	4.11
Direct Red 79-----	...	57	300	5.26
Direct Red 80-----	424	404	974	2.41
Direct Red 81-----	665	738	1,909	2.59
Direct Red 83-----	90	121	314	2.59
All other-----	1,209	1,076	3,157	2.93
Direct violet dyes, total-----	218	224	604	2.70
Direct Violet 9-----	159	139	424	3.05
All other-----	59	85	180	2.12

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
DIRECT DYES--Continued		1,000 pounds	1,000 pounds	1,000 dollars
Direct blue dyes, total-----	5,989	5,861	13,439	\$2.29
Direct Blue 1-----	221	207	681	3.29
Direct Blue 8-----	33	42	111	2.64
Direct Blue 15-----	241	224	497	2.22
Direct Blue 25-----	...	36	105	2.92
Direct Blue 76-----	...	63	99	1.57
Direct Blue 78-----	...	31	115	3.71
Direct Blue 80-----	333	388	913	2.35
Direct Blue 86-----	548	580	1,550	2.67
Direct Blue 98-----	205	170	389	2.29
Direct Blue 126-----	...	49	210	4.29
Direct Blue 191-----	...	120	212	1.77
Direct Blue 218-----	1,206	1,155	3,115	2.70
All other-----	3,202	2,796	5,442	1.95
Direct green dyes, total-----	421	404	1,800	4.46
Direct Green 1-----	57	109	183	1.68
Direct Green 6-----	143	107	267	2.50
All other-----	221	188	1,350	7.18
Direct brown dyes, total-----	1,053	1,078	1,740	1.61
Direct Brown 31 ³ -----	...	34	145	4.26
Direct Brown 95 ³ -----	341	343	510	1.49
All other-----	712	701	1,085	1.55
Direct black dyes, total-----	8,368	7,345	8,980	1.22
Direct Black 4-----	...	11	19	1.73
Direct Black 9-----	51	38	58	1.53
Direct Black 22-----	...	259	261	1.01
All other-----	8,317	7,037	8,642	1.23
DISPERSE DYES				
Total-----	50,793	46,228	140,488	3.04
Disperse yellow dyes, total-----	9,370	8,891	22,175	2.49
Disperse Yellow 3-----	2,870	2,919	5,850	2.00
Disperse Yellow 5-----	...	50	154	3.08
Disperse Yellow 23-----	797	713	1,427	2.00
Disperse Yellow 33-----	315	305	579	1.90
Disperse Yellow 34-----	110	98	175	1.79
Disperse Yellow 42-----	897	947	1,917	2.02
Disperse Yellow 54-----	1,304	1,207	4,864	4.03
All other-----	3,077	2,652	7,209	2.72
Disperse orange dyes, total-----	6,896	5,909	10,308	1.74
Disperse Orange 3-----	189	123	270	2.20
Disperse Orange 17-----	177	118	167	1.42
Disperse Orange 25-----	581	472	1,139	2.41
Disperse Orange 29-----	694	551	1,322	2.40
Disperse Orange 37-----	379	386	736	1.91
All other-----	4,876	4,259	6,674	1.57

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
DISPERSE DYES--Continued				
Disperse red dyes, total-----	9,204	8,754	31,461	\$3.59
Disperse Red 1-----	417	318	709	2.23
Disperse Red 5-----	130	76	118	1.55
Disperse Red 11-----	42	36	301	8.36
Disperse Red 15-----	102	81	353	4.36
Disperse Red 17-----	304	310	671	2.16
Disperse Red 50-----	142	...	...	...
Disperse Red 55-----	...	524	3,930	7.50
Disperse Red 59-----	20	...	...	...
Disperse Red 60-----	1,943	2,039	7,706	3.78
Disperse Red 65-----	52	159	478	3.01
Disperse Red 86-----	...	20	125	6.25
Disperse Red 177-----	...	281	945	3.36
All other-----	6,052	4,910	16,125	3.28
Disperse violet dyes, total-----	746	666	2,848	4.28
Disperse Violet 1-----	83	54	255	4.72
Disperse Violet 4-----	...	19	79	4.16
Disperse Violet 27-----	105	113	274	2.42
All other-----	558	480	2,240	4.67
Disperse blue dyes, total-----	21,673	19,351	68,240	3.53
Disperse Blue 1-----	192	199	1,344	6.75
Disperse Blue 3-----	1,678	1,375	3,127	2.27
Disperse Blue 7-----	496	480	3,682	7.67
Disperse Blue 64-----	579	629	1,297	2.06
Disperse Blue 79-----	4,910	4,593	12,759	2.78
All other-----	13,818	12,075	46,031	3.81
Disperse brown 1-----	570	590	1,565	2.65
Disperse black dyes, total-----	1,995	1,755	3,158	1.80
Disperse Black 1-----	...	89	206	2.31
All other-----	1,995	1,666	2,952	1.77
All other disperse dyes-----	339	312	733	2.35
FIBER-REACTIVE DYES				
Fiber-reactive dyes, total-----	3,416	3,126	14,874	4.76
Reactive yellow dyes-----	639	586	3,005	5.13
Reactive blue dyes-----	...	678	3,832	5.65
All other reactive dyes ⁴ -----	2,777	1,862	8,037	4.32
FLUORESCENT BRIGHTENING AGENTS				
Total-----	41,091	41,783	53,254	1.27
Fluorescent Brightening Agent 28-----	1,681	1,655	2,576	1.56
All other fluorescent brightening agents-----	39,410	40,128	50,678	1.26

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
FOOD, DRUG, AND COSMETIC COLORS		1,000 pounds	1,000 pounds	1,000 dollars
Total-----	5,725	5,318	32,922	\$6.19
Food, Drug, and Cosmetic Dyes				
Total-----	5,286	4,919	29,494	6.00
FD&C Red No. 2-----	803	720	3,524	4.89
FD&C Red No. 3-----	443	412	4,004	9.72
FD&C Yellow No. 5-----	1,525	1,392	6,005	4.31
FD&C Yellow No. 6-----	1,158	1,073	4,164	3.88
All other food, drug, and cosmetic dyes-----	1,357	1,322	11,797	8.92
Drug and Cosmetic and External Drug and Cosmetic Dyes				
Total-----	439	399	3,428	8.59
D&C green dyes-----	48	39	691	17.72
D&C Orange No. 4-----	6	5	62	12.40
D&C red dyes, total-----	266	257	1,718	6.68
D&C Red No. 7-----	27	36	205	5.69
D&C Red No. 19-----	21	18	125	6.94
D&C Red No. 34-----	...	9	53	5.89
D&C Red No. 36-----	11	8	37	4.63
All other-----	207	186	1,298	6.98
All other drug & cosmetic and external drug & cosmetic dyes ⁵ -----	119	98	957	9.77
MORDANT DYES				
Total-----	855	894	2,366	2.65
Mordant yellow dyes-----	...	56	143	2.55
Mordant orange dyes-----	87	103	206	2.00
Mordant brown dyes, total-----	125	154	452	2.94
Mordant Brown 1-----	...	16	42	2.63
Mordant Brown 33-----	...	33	87	2.64
All other-----	125	105	323	3.08
Mordant black dyes, total-----	487	538	1,388	2.58
Mordant Black 11-----	...	364	1,027	2.82
All other-----	487	174	361	2.07
All other mordant dyes-----	156	43	177	4.12
SOLVENT DYES				
Total-----	16,459	12,587	30,437	2.42
Solvent yellow dyes, total-----	1,531	1,605	4,134	2.58
Solvent Yellow 2-----	...	11	11	1.00
Solvent Yellow 14-----	511	562	1,021	1.82
Solvent Yellow 56-----	77	79	167	2.11
All other-----	943	953	2,935	3.08
Solvent orange dyes-----	1,098	1,051	2,415	2.30
Solvent red dyes, total-----	3,050	3,166	6,301	1.99
Solvent Red 26-----	...	128	349	2.73
Solvent Red 49-----	102	98	701	7.15
All other-----	2,948	2,940	5,251	1.79

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
SOLVENT DYES--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Solvent blue dyes-----	4,523	1,977	10,320	\$5.22
Solvent green dyes-----	...	191	644	3.37
Solvent brown dyes, total-----	86	97	470	4.85
Solvent Brown 12-----	20	18	69	3.83
All other-----	66	79	401	5.08
All other solvent dyes ⁶ -----	6,171	4,500	6,153	1.37
VAT DYES				
Total-----	54,196	55,565	67,030	1.21
Vat yellow dyes, total-----	4,956	4,408	10,077	2.29
Vat Yellow 2, 8-1/2%-----	4,050	3,475	5,925	1.71
All other-----	906	933	4,152	4.45
Vat orange dyes, total-----	2,332	2,512	8,773	3.49
Vat Orange 1, 20%-----	...	749	2,543	3.40
Vat Orange 2, 12%-----	...	407	1,096	2.69
Vat Orange 15, 10%-----	326	384	1,322	3.44
All other-----	2,006	972	3,812	3.92
Vat red dyes, total-----	508	463	1,922	4.15
Vat Red 1, 13%-----	172	165	635	3.85
Vat Red 13, 11%-----	...	117	540	4.62
All other-----	336	181	747	4.13
Vat violet dyes, total-----	495	535	1,697	3.17
Vat Violet 1, 11%-----	...	212	806	3.80
All other-----	495	323	891	2.76
Vat blue dyes, total-----	...	34,955	22,463	.64
Vat Blue 14, 8-1/3%-----	...	81	124	1.53
All other-----	...	34,874	22,339	.64
Vat green dyes, total-----	5,139	5,480	7,255	1.32
Vat Green 1, 6%-----	1,825	1,908	2,387	1.25
Vat Green 3, 10%-----	1,518	1,547	2,326	1.50
All other-----	1,796	2,025	2,542	1.26
Vat brown dyes, total-----	...	3,332	8,051	2.42
Vat Brown 1, 11%-----	...	706	1,873	2.65
Vat Brown 3, 11%-----	...	340	998	2.94
All other-----	...	2,286	5,180	2.27
Vat black dyes, total-----	3,717	3,880	6,792	1.75
Vat Black 25, 12-1/2%-----	2,317	2,167	3,979	1.84
Vat Black 27, 12-1/2%-----	299	472	855	1.81
All other-----	1,101	1,241	1,958	1.58
All other vat dyes ⁷ -----	37,049	...	...	...
All other dyes ⁸ -----	19,980	19,109	18,829	.99

See footnotes on following page.

Footnotes for table 1

¹ Calculated from rounded figures.² The production data for Acid Blue 45 in 1974 cannot be published separately because publication would disclose information received in confidence. The 1972 and 1973 production data for Acid Blue 45 have been revised. For 1972 the revised data are 259,000 pounds produced and 245,000 pounds sold, valued at 927,000 dollars. For 1973, the revised production data are 159,000 pounds with the sales of 137,000 pounds as previously reported.³ The data include dyes which are similar to but not chemically identical with the indicated Colour Index name.⁴ The data include sales of reactive orange, red, violet, green, brown, and black dyes.⁵ The data include D&C blue, D&C violet, D&C yellow, "all other" D&C orange, and all other external drug and cosmetic dyes.⁶ The production data include solvent green, violet, and black dyes while the sales data include solvent violet and black dyes.⁷ The data include vat blue dyes (production only) and vat brown dyes (production only).⁸ The data include azoic compositions, oxidation bases, ingrain dyes, sulfur dyes, and miscellaneous dyes. Statistics for these 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, 1974

Class of application	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	275,036	263,143	556,226	\$2.11
Acid-----	26,330	24,443	71,507	2.93
Azoic dyes and components:				
Azoic diazo components, bases (Fast color bases)---	662	609	1,388	2.28
Azoic diazo components, salts (Fast color salts)---	1,373	1,510	1,926	1.28
Azoic coupling components (Naphthol AS & derivatives)-----	1,816	1,643	6,492	3.95
Basic-----	20,074	19,014	53,818	2.83
Direct-----	32,266	31,314	60,895	1.94
Disperse-----	50,793	46,228	140,488	3.04
Fiber-reactive-----	3,416	3,126	14,874	4.76
Fluorescent brightening agents-----	41,091	41,783	53,254	1.27
Food, drug, and cosmetic colors-----	5,725	5,318	32,922	6.19
Mordant-----	855	894	2,366	2.65
Solvent-----	16,459	12,587	30,437	2.42
Vat-----	54,196	55,565	67,030	1.21
All other ² -----	19,980	19,109	18,829	.99

¹ Calculated from rounded figures.² The data includes azoic composition, oxidation base, ingrain dyes, sulfur dyes, and miscellaneous dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED
BY MANUFACTURER, 1974

[Dyes for which separate statistics are given in table 1 are marked below with an asterisk (*); dyes 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]

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES	
*Acid yellow dyes:	
Acid Yellow 1-----	ACY.
Acid Yellow 3-----	ACS, ACY.
*Acid Yellow 11-----	ATL, BDO, CMG, VPC.
Acid Yellow 12-----	VPC.
Acid Yellow 14-----	TRC.
*Acid Yellow 17-----	AC, ACS, ALT, ATL, BDO, CMG, DUP, HSH, PDC, SDH, TRC, VPC.
*Acid Yellow 19-----	AC; ACS, ALT, BAS, CMG, ICI, VPC.
*Acid Yellow 23-----	AC, ACS, ACY, ALT, GAF, MRX, PDC, TRC, VPC.
Acid Yellow 25-----	GAF.
Acid Yellow 29-----	GAF, TRC.
*Acid Yellow 34-----	AC, ACS, ATL, PDC.
*Acid Yellow 36-----	ACS, DUP, GAF, TRC.
*Acid Yellow 38-----	ACS, ATL, GAF.
*Acid Yellow 40-----	ACS, ACY, ALT, ATL, TRC, VPC.
*Acid Yellow 42-----	AC, ACY, GAF, VPC.
Acid Yellow 44-----	AC, GAF.
Acid Yellow 49-----	DUP, VPC.
*Acid Yellow 54-----	AC, ACS, TRC, VPC.
Acid Yellow 59-----	VPC.
Acid Yellow 63-----	AC, ACS.
*Acid Yellow 65-----	ALT, ATL, FAB, TRC.
Acid Yellow 73-----	ACS, SDH.
Acid Yellow 76-----	GAF, TRC.
Acid Yellow 79-----	VPC.
*Acid Yellow 99-----	CMG, GAF, TRC, VPC.
Acid Yellow 114-----	TRC.
Acid Yellow 121-----	GAF.
Acid Yellow 124-----	AC, ACS.
Acid Yellow 127-----	TRC.
Acid Yellow 128-----	TRC.
Acid Yellow 129-----	TRC.
Acid Yellow 135-----	TRC.
*Acid Yellow 151-----	AC, ACY, ALT, DUP, FAB, GAF, TRC, VPC.
Acid Yellow 152-----	ACY.
*Acid Yellow 159-----	AC, ACS, ALT, FAB, GAF, TRC, VPC.
Acid Yellow 174-----	AC, CMG, DUP, VPC.
Acid Yellow 175-----	DUP.
Acid Yellow 179-----	TRC.
Acid Yellow 190-----	HST.
Acid Yellow 198-----	DUP.
Acid Yellow 200-----	DUP.
Other acid yellow dyes-----	AC, ALT, ATL, FAB, GAF, TRC, VPC.
*Acid orange dyes:	
Acid Orange 1-----	AC, GAF.
Acid Orange 2-----	ACS.
Acid Orange 3-----	CMG.
Acid Orange 6-----	ACS.
*Acid Orange 7-----	AC, ACS, ACY, ATL, BDO, GAF, PDC, TRC, VPC.
*Acid Orange 8-----	AC, ACS, ACY, ATL, DUP, GAF, TRC, VPC.
*Acid Orange 10-----	AC, ACS, ACY, ATL, DUP, GAF, PDC, TRC, VPC.
Acid Orange 12-----	PSC.
*Acid Orange 24-----	ACS, ACY, DUP, GAF, TRC.
Acid Orange 31-----	AC.
Acid Orange 45-----	ACS.
Acid Orange 50-----	AC.
Acid Orange 51-----	TRC.
Acid Orange 56-----	GAF.
*Acid Orange 60-----	AC, ATL, CMG, DUP, GAF, TRC, VPC.
Acid Orange 62-----	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid orange dyes--Continued	
Acid Orange 63-----	ATL, GAF, TRC.
*Acid Orange 64-----	ACS, ACY, DUP.
Acid Orange 69-----	ACY.
*Acid Orange 74-----	CMG, GAF, TRC.
Acid Orange 76-----	TRC.
Acid Orange 85-----	ACS.
Acid Orange 86-----	ACS, ALT, TRC.
Acid Orange 87-----	ALT.
*Acid Orange 116-----	AC, ACS, ALT, CMG, FAB, GAF.
Acid Orange 119-----	TRC.
Acid Orange 128-----	DUP.
Acid Orange 132-----	DUP.
Acid Orange 136-----	DUP.
Other acid orange dyes-----	ALT, ATL, GAF, TRC, VPC.
*Acid red dyes:	
*Acid Red 1-----	ACS, ACY, ATL, BDO, GAF, HSH, SDH, TRC, VPC.
*Acid Red 4-----	ATL, BDO, CMG, GAF, PDC, TRC, VPC.
Acid Red 14-----	ACS, ATL, GAF, PDC.
Acid Red 17-----	ACS, ATL.
*Acid Red 18-----	ACS, GAF, PDC, TRC.
Acid Red 26-----	ACY.
Acid Red 27-----	ACS.
Acid Red 32-----	GAF.
Acid Red 35-----	GAF.
*Acid Red 37-----	AC, ACS, ATL, DUP, GAF, TRC.
Acid Red 52-----	GAF.
Acid Red 57-----	ATL, CMG, TRC.
Acid Red 66-----	AC, ATL.
*Acid Red 73-----	ACS, ACY, ATL, DUP, GAF, HSH, PSC, TRC, VPC.
Acid Red 80-----	AC, ICI.
Acid Red 85-----	ACS, GAF.
Acid Red 87-----	SDH.
*Acid Red 88-----	ACS, ACY, ATL, GAF, PDC, SDH, TRC.
*Acid Red 89-----	AC, BDO, GAF.
Acid Red 97-----	ATL, GAF.
*Acid Red 99-----	AC, ATL, FAB.
Acid Red 102-----	VPC.
Acid Red 111-----	VPC.
*Acid Red 114-----	ACS, ALT, ATL, DUP, GAF, TRC, VPC.
*Acid Red 115-----	ACS, ATL, GAF.
Acid Red 119-----	ALT, ATL.
Acid Red 133-----	GAF.
Acid Red 134-----	TRC.
*Acid Red 137-----	AC, ACS, ATL, DUP, GAF, TRC.
*Acid Red 151-----	AC, ACY, ATL, DUP, HSH, TRC, VPC.
Acid Red 167-----	ATL, TRC.
Acid Red 178-----	DUP.
Acid Red 179-----	TRC.
*Acid Red 182-----	AC, ACS, ALT, ATL, CMG, DUP, GAF.
Acid Red 183-----	TRC.
*Acid Red 186-----	CMG, GAF, VPC.
Acid Red 194-----	CMG, TRC.
Acid Red 213-----	TRC.
Acid Red 225-----	VPC.
*Acid Red 266-----	AC, DUP, TRC, VPC.
Acid Red 277-----	VPC.
Acid Red 278-----	VPC.
Acid Red 299-----	AC, ALT, FAB.
Acid Red 309-----	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid red dyes--Continued	
*Acid Red 337-----	AC, DUP, TRC, VPC.
Acid Red 350-----	GAF.
Acid Red 388-----	DUP.
Other acid red dyes-----	AC, ALT, ATL, DUP, GAF, TRC, VPC.
*Acid violet dyes:	
*Acid Violet 1-----	BDO, CMG, GAF.
*Acid Violet 3-----	ACS, ACY, TRC.
*Acid Violet 7-----	ACS, ATL, BDO, CMG, GAF, TRC, VPC.
*Acid Violet 12-----	BDO, CMG, DUP, GAF.
*Acid Violet 17-----	DUP, GAF, SDH.
Acid Violet 29-----	HSH.
Acid Violet 34-----	ATL.
Acid Violet 43-----	ATL, HSH, ICI.
*Acid Violet 49-----	ACS, ACY, SDH, TRC.
Acid Violet 56-----	GAF.
Acid Violet 58-----	GAF.
Acid Violet 76-----	ACS.
Other acid violet dyes-----	TRC.
*Acid blue dyes:	
Acid Blue 1-----	ACS, GAF.
*Acid Blue 7-----	ACS, ACY, GAF, SDH.
*Acid Blue 9-----	ACS, GAF, SDH.
Acid Blue 15-----	GAF.
Acid Blue 20-----	ACS.
Acid Blue 22-----	AC.
Acid Blue 23-----	TRC.
*Acid Blue 25-----	AC, ACS, ATL, BDO, CMG, DUP, FAB, GAF, HSH, ICI, TRC, VPC.
*Acid Blue 27-----	ATL, BDO, CMG, GAF, TRC, VPC.
Acid Blue 29-----	PDC.
*Acid Blue 40-----	ACS, ALT, ATL, BDO, CMG, DUP, GAF, ICI, TRC, VPC.
*Acid Blue 41-----	ATL, BDO, CMG, GAF.
Acid Blue 43-----	TRC.
*Acid Blue 45-----	AC, ACS, ACY, ATL, CMG, GAF, TRC.
Acid Blue 54-----	CMG.
Acid Blue 62-----	ALT, BDO, GAF, VPC.
Acid Blue 72-----	ALT.
Acid Blue 74-----	ACS, DUP.
*Acid Blue 78-----	ACS, ATL, BDO, ICI, TRC.
Acid Blue 80-----	TRC.
Acid Blue 81-----	ICI.
Acid Blue 83-----	GAF.
Acid Blue 92-----	ACS, ATL.
Acid Blue 93-----	HSC.
Acid Blue 104-----	ACS, GAF.
*Acid Blue 113-----	AC, ACS, ALT, ATL, CMG, DUP, FAB, GAF, PDC.
*Acid Blue 118-----	AC, ACS, ATL.
Acid Blue 120-----	ACS, ATL, GAF.
Acid Blue 122-----	DUP.
Acid Blue 145-----	ACS, DUP.
*Acid Blue 158 and 158A-----	AC, BDO, CMG, GAF, TRC, VPC.
Acid Blue 165-----	DUP.
Acid Blue 179-----	GAF.
Acid Blue 203-----	VPC.
Acid Blue 221-----	VPC.
Acid Blue 230-----	ACS, DUP, TRC.
Acid Blue 231-----	TRC.
Acid Blue 298-----	DUP.
Other acid blue dyes-----	ALT, ATL, CMG, GAF, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED
BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid green dyes:	
Acid Green 1-----	ACS, ACY.
*Acid Green 3-----	ACS, ACY, GAF, TRC.
Acid Green 5-----	WJ.
Acid Green 9-----	ACS, GAF.
Acid Green 12-----	ACS, GAF.
Acid Green 16-----	ACS, SDH, TRC.
Acid Green 19-----	ALT.
*Acid Green 20-----	ATL, BDO, GAF, PDC, TRC.
Acid Green 22-----	GAF.
*Acid Green 25-----	AC, ACS, ATL, GAF, HSH, TRC, VPC.
Acid Green 35-----	TRC.
Acid Green 41-----	VPC.
Acid Green 50-----	ACY, GAF.
Acid Green 70-----	TRC.
Acid Green 84-----	VPC.
Other acid green dyes-----	ALT, VPC.
*Acid brown dyes:	
Acid Brown 1-----	GAF.
Acid Brown 6-----	GAF.
*Acid Brown 14-----	AC, ACS, ACY, DUP, GAF, TRC.
Acid Brown 19-----	TRC.
Acid Brown 28-----	TRC.
Acid Brown 31-----	GAF.
Acid Brown 45-----	TRC.
Acid Brown 96-----	ACY.
Acid Brown 97-----	ACY.
Acid Brown 98-----	ACY, TRC.
Acid Brown 152-----	GAF.
Acid Brown 158-----	GAF.
Acid Brown 354-----	ACY.
Other acid brown dyes-----	ALT, DUP, GAF, VPC.
*Acid black dyes:	
*Acid Black 1-----	AC, ACS, ACY, ATL, BDO, DUP, GAF, HSH, PDC, TRC.
Acid Black 2-----	ACS, ACY.
Acid Black 24-----	AC, ACS, GAF.
Acid Black 26, 26A and 26B-----	ATL.
Acid Black 29-----	GAF.
*Acid Black 52-----	AC, ACS, ATL, FAB, GAF, TRC, VPC.
Acid Black 58-----	CMG, DUP, TRC.
Acid Black 60-----	BDO, TRC.
Acid Black 92-----	ACY.
*Acid Black 107-----	ACS, ATL, GAF, TRC.
Acid Black 108-----	GAF.
Acid Black 139-----	VPC.
Acid Black 140-----	CMG.
Acid Black 172-----	VPC.
Acid Black 186-----	ACY.
Other acid black dyes-----	AC, ALT, ATL, DUP, PDC, VPC.
AZOIC DYES AND COMPONENTS	
<i>Azoic Compositions</i>	
Azoic yellow dyes:	
Azoic Yellow 1-----	ATL, SDH.
Azoic Yellow 2-----	ALL, ATL, x.
Azoic Yellow 3-----	ATL, BUC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
Azoic Dyes and Components--Continued	
<i>Azoic Compositions--Continued</i>	
Azoic orange dyes:	
Azoic Orange 3-----	ALL, BUC, x.
Azoic Orange 10-----	BUC.
Azoic red dyes:	
Azoic Red 1-----	ALL, BUC, x.
Azoic Red 2-----	ALL, BUC, GAF.
Azoic Red 6-----	ALL, BUC, SDH, x.
Azoic Red 74-----	GAF.
Other azoic red dyes-----	ALL.
Azoic violet dyes: Azoic Violet 1-----	BUC.
Azoic blue dyes:	
Azoic Blue 2-----	VPC.
Azoic Blue 3-----	ALL, BUC, GAF, HST, SDH, x.
Azoic Blue 7-----	GAF.
Other azoic blue dyes-----	ALL, GAF.
Azoic green dyes-----	ALL, BUC, VPC.
Azoic brown dyes:	
Azoic Brown 7-----	BUC.
Azoic Brown 9-----	ALL, BUC, GAF, HST, x.
Azoic Brown 26-----	GAF.
Azoic black dyes:	
Azoic Black 1-----	HST.
Azoic Black 4-----	BUC, GAF.
Azoic Black 15-----	GAF.
Other azoic black dyes-----	ALL, GAF.
<i>Azoic Diazo Components, Bases (Fast Color Bases)</i>	
Azoic Diazo Component 2, base-----	BUC.
Azoic Diazo Component 4, base-----	BUC, GAF, SDH.
Azoic Diazo Component 5, base-----	GAF.
Azoic Diazo Component 8, base-----	SDH.
Azoic Diazo Component 10, base-----	BUC, GAF.
Azoic Diazo Component 11, base-----	PCW.
Azoic Diazo Component 12, base-----	BUC, SDH.
Azoic Diazo Component 13, base-----	BUC.
Azoic Diazo Component 14, base (includes Azoic Diazo Component 28, base).-----	AC, BUC.
Azoic Diazo Component 32, base-----	ALL.
Azoic Diazo Component 44, base-----	BUC.
Azoic Diazo Component 48, base-----	GAF.
<i>Azoic Diazo Components, Salts (Fast Color Salts)</i>	
*Azoic Diazo Component 1, salt-----	AC, ALL, BUC, GAF, SDH.
Azoic Diazo Component 2, salt-----	BUC.
*Azoic Diazo Component 3, salt-----	AC, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 5, salt-----	AC, ALL, BUC, GAF, SDH.
Azoic Diazo Component 6, salt-----	AC, BUC, GAF.
*Azoic Diazo Component 8, salt-----	AC, ALL, BUC.
*Azoic Diazo Component 9, salt-----	AC, ALL, BUC, GAF, SDH.
*Azoic Diazo component 10, salt-----	ALL, BUC, GAF.
Azoic Diazo Component 11, salt-----	AC, ALL.
*Azoic Diazo Component 12, salt-----	AC, ALL, BUC, SDH.
*Azoic Diazo Component 13, salt-----	AC, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 14, salt (including Azoic Diazo Component 28, salt).-----	AC, ALL, BUC, GAF.
Azoic Diazo Component 20, salt-----	ALL.
Azoic Diazo Component 32, salt-----	ALL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
AZOIC DYES AND COMPONENTS--Continued	
<i>Azoic Diazo Components, Salts--Continued (Fast Color Salts)</i>	
Azoic Diazo Component 34, salt-----	ALL.
Azoic Diazo Component 35, salt-----	BUC, GAF.
Azoic Diazo Component 36, salt-----	GAF.
Azoic Diazo Component 41, salt-----	ALL, BUC.
Azoic Diazo Component 42, salt-----	ALL.
Azoic Diazo Component 44, salt-----	ALL, BUC.
*Azoic Diazo Component 49, salt-----	AC, ALL, BUC, GAF, SDH.
Azoic Diazo Component 121, salt-----	GAF.
<i>Azoic Coupling Components (Naphthol AS and Derivatives)</i>	
Azoic Coupling Component 2-----	ATL, BUC, PCW.
Azoic Coupling Component 3-----	BUC, PCW.
Azoic Coupling Component 4-----	BUC.
Azoic Coupling Component 5-----	BUC.
Azoic Coupling Component 7-----	BUC, PCW, SDH.
Azoic Coupling Component 8-----	BUC, PCW.
Azoic Coupling Component 10-----	PCW.
Azoic Coupling Component 11-----	BUC, PCW.
Azoic Coupling Component 12-----	BUC, PCW.
Azoic Coupling Component 13-----	GAF, HST.
Azoic Coupling Component 14-----	BUC, PCW.
Azoic Coupling Component 15-----	BUC, GAF.
Azoic Coupling Component 16-----	BUC.
Azoic Coupling Component 17-----	BUC, PCW.
Azoic Coupling Component 18-----	BUC, GAF, PCW.
Azoic Coupling Component 19-----	BUC, GAF, PCW.
Azoic Coupling Component 20-----	BUC, GAF, PCW.
Azoic Coupling Component 21-----	BUC, PCW.
Azoic Coupling Component 23-----	PCW.
Azoic Coupling Component 24-----	PCW.
Azoic Coupling Component 29-----	BUC, PCW.
Azoic Coupling Component 34-----	BUC, PCW.
Azoic Coupling Component 35-----	BUC, PCW.
Azoic Coupling Component 41-----	HST.
Azoic Coupling Component 43-----	ATL, BUC, GAF.
Other azoic coupling components-----	ALL, ATL, VPC.
BASIC DYES	
*Basic yellow dyes:	
Basic Yellow 1-----	DUP.
Basic Yellow 2-----	ACS, ACY.
*Basic Yellow 11-----	ACS, ACY, ALT, ATL, DUP, EKT, GAF, TRC, VPC.
*Basic Yellow 13-----	ACS, ALT, ATL, DUP, GAF, VPC.
Basic Yellow 15-----	DUP.
Basic Yellow 21-----	ALT, VPC.
Basic Yellow 23-----	BAS.
Basic Yellow 24-----	ACY, BAS.
Basic Yellow 25-----	BAS.
Basic Yellow 28-----	VPC.
Basic Yellow 29-----	DUP, VPC.
Basic Yellow 31-----	DUP.
Basic Yellow 37-----	ACY.
Basic Yellow 41-----	ACY.
Basic Yellow 50-----	EKT.
Basic Yellow 52-----	DUP.
Basic Yellow 53-----	DUP.
Basic Yellow 58-----	DUP.
Other basic yellow dyes-----	ATL, DUP, GAF, JDH.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
BASIC DYES--Continued	
*Basic orange dyes:	
*Basic Orange 1-----	ACS, ACY, GAF, PSC, TRC.
*Basic Orange 2-----	ACS, ACY, DSC, DUP, GAF, PSC, TPC.
*Basic Orange 21-----	ACS, ACY, ALT, ATL, DUP, GAF, TRC, VPC.
Basic Orange 24-----	DUP.
Basic Orange 25-----	DUP.
Basic Orange 26-----	DUP.
Basic Orange 28-----	VPC.
Basic Orange 31-----	ACY.
Basic Orange 39-----	DUP.
Basic Orange 40-----	BAS.
Basic Orange 41-----	BAS.
Other basic orange dyes-----	DUP.
*Basic red dyes:	
Basic Red 1-----	BAS, DUP.
Basic Red 2-----	ACS, DUP.
Basic Red 9-----	DSC, HSC.
Basic Red 12-----	DUP, VPC.
*Basic Red 13-----	ACS, GAF, TRC, VPC.
*Basic Red 14-----	ACS, ACY, ALT, ATL, DUP, GAF, VPC.
*Basic Red 15-----	ATL, DUP, GAF, HSH, TRC.
Basic Red 16-----	DUP.
Basic Red 17-----	DUP.
*Basic Red 18-----	ATL, DUP, GAF, VPC.
Basic Red 22-----	TRC.
Basic Red 23-----	VPC.
Basic Red 29-----	BAS.
Basic Red 30-----	ACY.
Basic Red 46-----	ALT, TRC.
*Basic Red 49-----	DUP, GAF, VPC.
Basic Red 51-----	BAS.
Basic Red 65-----	EKT.
Basic Red 66-----	EKT.
Basic Red 73-----	DUP.
Other basic red dyes-----	ATL, BAS.
*Basic violet dyes:	
*Basic Violet 1-----	ACS, ACY, DSC, HSC.
Basic Violet 2-----	DSC, DUP.
Basic Violet 3-----	DSC, DUP, SDH.
Basic Violet 4-----	DSC, DUP.
Basic Violet 7-----	ATL, GAF.
Basic Violet 10-----	ACY, DUP, GAF.
Basic Violet 11-----	DUP.
Basic Violet 13-----	DSC.
Basic Violet 14-----	DSC.
Basic Violet 15-----	DUP.
*Basic Violet 16-----	ALT, ATL, DUP, GAF, TRC, VPC.
Basic Violet 18-----	ACY.
Basic Violet 24-----	DUP.
Basic Violet 66-----	VPC.
Other basic violet dyes-----	ACY, DUP.
*Basic blue dyes:	
Basic Blue 1-----	DSC, GAF, SDH, VPC.
Basic Blue 2-----	DSC.
*Basic Blue 3-----	ALT, DUP, GAF, HST.
*Basic Blue 5-----	DSC, SDH, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
BASIC DYES--Continued	
*Basic blue dyes--Continued	
Basic Blue 6-----	ACY.
*Basic Blue 7-----	DSC, DUP, SDH.
Basic Blue 9-----	ACS, ACY.
Basic Blue 11-----	DSC, SDH.
Basic Blue 21-----	ACS, DUP.
*Basic Blue 22-----	ACS, ALT, DUP, VPC.
Basic Blue 26-----	DSC, DUP.
Basic Blue 35-----	DUP.
Basic Blue 41-----	BAS, TRC.
Basic Blue 45-----	VPC.
Basic Blue 47-----	VPC.
Basic Blue 54-----	ACY, BAS.
Basic Blue 60-----	GAF.
Basic Blue 69-----	VPC.
Basic Blue 75-----	EKT.
Basic Blue 76-----	ACY.
Basic Blue 77-----	DUP.
Basic Blue 78-----	BAS.
Basic Blue 82-----	DUP.
Basic Blue 87-----	DUP.
Basic Blue 90-----	EKT.
Basic Blue 94-----	DUP.
Basic Blue 97-----	DUP.
Other basic blue dyes-----	ACS, ATL, BAS, DUP, EKT, SDH, VPC.
Basic green dyes:	
Basic Green 1-----	ACS, DSC, DUP.
Basic Green 3-----	DUP.
Basic Green 4-----	ACS, ACY, DSC, VPC.
Basic Green 7-----	DSC.
Basic brown dyes:	
*Basic Brown 1-----	ACS, ACY, DUP, GAF, PSC, TRC.
Basic Brown 2-----	GAF.
*Basic Brown 4-----	ACS, ACY, DSC, DUP, GAF, PSC, TRC.
Other basic brown dyes-----	DUP.
*Basic black dyes:	
Basic Black 9-----	VPC.
Other basic black dyes-----	ALT, BAS, DSC, VPC.
DIRECT DYES	
*Direct yellow dyes:	
*Direct Yellow 4-----	AC, ACS, ACY, ATL, DUP, GAF, SDH, TRC, VPC.
Direct Yellow 5-----	ACY, GAF.
*Direct Yellow 6-----	ACS, ACY, DUP, GAF, TRC.
Direct Yellow 7-----	ATL.
*Direct Yellow 8-----	ACS, ATL, GAF.
Direct Yellow 9-----	ATL.
*Direct Yellow 11-----	AC, ACS, ACY, DUP, GAF, SDH, TRC, VPC.
*Direct Yellow 12-----	ACS, ACY, ATL, DUP, FAB, GAF, TRC.
Direct Yellow 26-----	AC, ATL.
*Direct Yellow 28-----	ACS, ATL, DUP, GAF, PDC, TRC.
Direct Yellow 29-----	ATL, GAF.
Direct Yellow 34-----	AC, ALT.
Direct Yellow 39-----	TRC.
Direct Yellow 41-----	ATL.
*Direct Yellow 44-----	AC, ACS, ATL, DUP, FAB, GAF, HSH, TRC, VPC.
*Direct Yellow 50-----	AC, ALT, ATL, DUP, FAB, GAF, HSH, TRC, VPC.
Direct Yellow 59-----	ATL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct yellow dyes--Continued	
Direct Yellow 81-----	ATL.
*Direct Yellow 84-----	AC, ACS, ATL, FAB, GAF, TRC.
Direct Yellow 103-----	ACS.
*Direct Yellow 105-----	AC, ALT, TRC.
*Direct Yellow 106-----	AC, ACS, ALT, FAB, GAF, HSH, TRC.
Direct Yellow 107-----	ACS, ATL, GAF, TRC.
Direct Yellow 117-----	TRC.
Direct Yellow 118-----	TRC.
Direct Yellow 119-----	DUP.
Direct Yellow 127-----	DUP, TRC.
Direct Yellow 131-----	DUP.
Direct Yellow 132-----	TRC, VPC.
Direct Yellow 133-----	TRC.
Direct Yellow 137-----	DUP.
Other direct yellow dyes-----	AC, ALT, ATL, DUP, FAB, GAF, TRC, VPC.
*Direct orange dyes:	
Direct Orange 1-----	ACS.
Direct Orange 6-----	AC, ACS.
*Direct Orange 8-----	ACS, FAB, GAF.
Direct Orange 10-----	AC.
Direct Orange 11-----	GAF.
*Direct Orange 15-----	AC, ACS, ACY, DUP, GAF, TRC.
*Direct Orange 26-----	ACS, ATL, GAF, HSH, TRC.
*Direct Orange 29-----	AC, ATL, FAB, TRC, VPC.
*Direct Orange 34-----	ACS, ACY, ATL, CMG, DUP, GAF, HSH.
*Direct Orange 37-----	ACY, ATL, CMG, GAF.
*Direct Orange 39-----	AC, ALT, CMG, DUP, FAB, GAF.
Direct Orange 59-----	DUP, GAF.
Direct Orange 61-----	TRC.
Direct Orange 67-----	VPC.
*Direct Orange 72-----	AC, ACS, ATL, FAB, HSH, TRC, VPC.
*Direct Orange 73-----	DUP, GAF, TRC, VPC.
Direct Orange 74-----	DUP.
Direct Orange 78-----	VPC.
Direct Orange 80-----	VPC.
Direct Orange 81-----	DUP, GAF, VPC.
Direct Orange 83-----	GAF.
Direct Orange 88-----	DUP.
*Direct Orange 102-----	ACS, ACY, ATL, DUP, GAF, SDH.
Other direct orange dyes-----	ALT, ATL, TRC.
*Direct red dyes:	
*Direct Red 1-----	ACS, FAB, GAF.
*Direct Red 2-----	AC, ACS, ATL, DUP, FAB, TRC.
*Direct Red 4-----	ACS, ATL, TRC.
Direct Red 7-----	ATL.
Direct Red 10-----	ATL.
Direct Red 13-----	ACS.
*Direct Red 16-----	ACS, ATL, DUP, TRC.
*Direct Red 23-----	AC, ACS, ACY, ATL, DUP, FAB, GAF, HSH, TRC, VPC.
*Direct Red 24-----	AC, ACS, ATL, HSH, TRC, VPC.
*Direct Red 26-----	AC, ACS, ATL, DUP, GAF, TRC, VPC.
Direct Red 28-----	ACS, FAB.
*Direct Red 31-----	ACS, ATL, GAF, TRC.
*Direct Red 37-----	ACS, ACY, GAF.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED
BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct red dyes--Continued	
*Direct Red 39-----	ATL, GAF, TRC.
Direct Red 62-----	ATL, TRC.
*Direct Red 72-----	ACS, ATL, DUP, GAF, TRC.
Direct Red 73-----	ACS, ATL.
*Direct Red 75-----	ATL, CMG, GAF.
Direct Red 76-----	GAF.
*Direct Red 79-----	AC, ATL, CMG, TRC, VPC.
*Direct Red 80-----	AC, ACS, ALT, ATL, BDO, CMG, FAB, HSH, SDH, TRC, VPC.
*Direct Red 81-----	AC, ACS, ACY, ATL, BDO, CMG, DUP, GAF, HSH, TRC, VPC.
*Direct Red 83-----	AC, ACS, ALT, ATL, FAB, HSH, TRC.
Direct Red 95-----	VPC.
Direct Red 100-----	ATL.
Direct Red 111-----	GAF.
Direct Red 117-----	DUP.
Direct Red 122-----	TRC, VPC.
Direct Red 123-----	GAF.
Direct Red 127 and 127A-----	ATL, CMG.
Direct Red 139-----	ATL.
Direct Red 149-----	ATL, CMG.
Direct Red 152-----	CMG.
Direct Red 153-----	ATL.
Direct Red 209-----	TRC, VPC.
Direct Red 212-----	VPC.
Direct Red 236-----	DUP.
Direct Red 238-----	DUP.
Other direct red dyes-----	AC, ALT, ATL, GAF, HSH, TRC.
*Direct violet dyes:	
Direct Violet 1-----	ATL.
Direct Violet 7-----	ACS, ATL.
*Direct Violet 9-----	ACS, ATL, DUP, GAF, TRC.
Direct Violet 14-----	ATL.
Direct Violet 47-----	GAF.
Direct Violet 48-----	ACS.
Direct Violet 51-----	ACS, ATL, DUP.
Direct Violet 66-----	TRC.
Direct Violet 67-----	DUP.
Direct Violet 99-----	DUP.
Other direct violet dyes-----	ALT, ATL.
*Direct blue dyes:	
*Direct Blue 1-----	AC, ACS, ACY, ATL, DUP, GAF, TRC, VPC.
Direct Blue 2-----	AC, ACS, FAB, GAF.
Direct Blue 6-----	ACS, GAF.
*Direct Blue 8-----	ACS, ATL, DUP, GAF.
Direct Blue 14-----	ACS, ATL, TRC.
*Direct Blue 15-----	ACS, ATL, DUP, GAF, SDH, VPC.
Direct Blue 22-----	ACS, ATL.
*Direct Blue 25-----	ACS, ATL, TRC.
Direct Blue 67-----	ACS, ATL.
Direct Blue 71-----	TRC.
Direct Blue 75-----	AC, ACS, ALT, ATL, GAF, TRC, VPC.
*Direct Blue 76-----	ACS, ATL, CMG.
*Direct Blue 78-----	AC, ACS, ALT, ATL, DUP, FAB, GAF, HSH, TRC, VPC.
*Direct Blue 80-----	ATL.
Direct Blue 81-----	AC, ALT, ATL, DUP, FAB, GAF, ICC, TRC, VPC.
*Direct Blue 86-----	

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct blue dyes--Continued	
Direct Blue 91-----	TRC.
Direct Blue 93-----	HSH.
*Direct Blue 98-----	ALT, ATL, GAF, TRC, VPC.
Direct Blue 100-----	ALT, FAB.
Direct Blue 104-----	DUP.
Direct Blue 120 and 120A-----	AC, ATL, FAB, TRC.
*Direct Blue 126-----	ATL, HSH, TRC, VPC.
Direct Blue 136-----	GAF.
Direct Blue 143-----	DUP.
Direct Blue 151-----	ATL, TRC.
Direct Blue 160-----	TRC.
Direct Blue 189-----	TRC.
*Direct Blue 191-----	ACS, ALT, GAF.
Direct Blue 199-----	DUP, GAF.
*Direct Blue 218-----	AC, ACS, ALT, ATL, DUP, FAB, GAF, SDH, TRC, VPC.
Direct Blue 263-----	DUP.
Other direct blue dyes-----	AC, ALT, ATL, DUP, GAF, HSH, TRC, VPC.
*Direct green dyes:	
*Direct Green 1-----	AC, ACS, FAB, GAF.
*Direct Green 6-----	AC, ACS, ACY, FAB, GAF.
Direct Green 26-----	DUP, TRC.
Direct Green 27-----	DUP, TRC.
Direct Green 28-----	TRC.
Direct Green 38-----	GAF.
Direct Green 45-----	VPC.
Direct Green 47-----	DUP, GAF.
Direct Green 51-----	TRC.
Direct Green 69-----	TRC.
Other direct green dyes-----	DUP, TRC.
*Direct brown dyes:	
Direct Brown 1-----	AC.
Direct Brown 1A-----	GAF.
Direct Brown 2-----	AC, ACS, GAF.
Direct Brown 27-----	GAF.
*Direct Brown 31-----	ACS, ATL, GAF.
Direct Brown 32-----	GAF.
Direct Brown 44-----	GAF.
Direct Brown 74-----	ACS.
*Direct Brown 95-----	AC, ACS, ATL, FAB, GAF.
Direct Brown 106-----	GAF.
Direct Brown 111-----	DUP, GAF, TRC, VPC.
Direct Brown 112-----	ATL.
Direct Brown 154-----	ACS, FAB.
Other direct brown dyes-----	AC, ALT, ATL, HN, VPC.
*Direct black dyes:	
Direct Black 2-----	ACS.
*Direct Black 4-----	ACS, FAB, GAF.
*Direct Black 9-----	AC, ACS, ATL, DUP.
Direct Black 17-----	GAF.
Direct Black 19-----	ATL, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct black dyes--Continued	
Direct Black 22-----	ALT, ATL, GAF, TRC, VPC.
Direct Black 29-----	AC.
Direct Black 38-----	AC, ACS, ALT, FAB, GAF.
Direct Black 51-----	ACS, DUP, GAF, TRC.
Direct Black 56-----	ACS.
Direct Black 75-----	GAF.
Direct Black 78-----	AC.
Direct Black 80-----	AC, ACS, ATL, FAB, HSH.
Direct Black 95-----	ACS.
Direct Black 190-----	AC, ACS.
Other direct black dyes-----	AC, ALT, ATL, TRC.
DISPERSE DYES	
*Disperse yellow dyes:	
Disperse Yellow 1-----	GAF.
Disperse Yellow 3-----	AC, ATL, DUP, FAB, GAF, HSH, ICC, TRC.
Disperse Yellow 5-----	BAS, GAF, ICC.
Disperse Yellow 8-----	ATL, TRC.
Disperse Yellow 23-----	AC, ALT, DUP, EKT, GAF, HSH, ICC, TRC.
Disperse Yellow 31-----	GAF.
Disperse Yellow 33-----	AC, EKT, GAF, ICC, TRC.
Disperse Yellow 34-----	AC, EKT, ICC.
Disperse Yellow 42-----	AC, BUC, DUP, EKT, GAF, ICC, SDC, TRC.
Disperse Yellow 50-----	TRC.
Disperse Yellow 54-----	AC, ALT, BAS, DUP, GAF, ICC, SDC, TRC, VPC.
Disperse Yellow 56-----	BAS.
Disperse Yellow 58-----	HST.
Disperse Yellow 64-----	BAS, DUP.
Disperse Yellow 67-----	DUP.
Disperse Yellow 68-----	HST.
Disperse Yellow 69-----	ACY.
Disperse Yellow 74-----	VPC.
Disperse Yellow 77-----	VPC.
Disperse Yellow 85-----	EKT.
Disperse Yellow 86-----	AC, EKT.
Disperse Yellow 87-----	EKT.
Disperse Yellow 88-----	EKT.
Disperse Yellow 89-----	VPC.
Disperse Yellow 93-----	VPC.
Disperse Yellow 95-----	EKT.
Disperse Yellow 96-----	AC.
Disperse Yellow 108-----	ACY.
Disperse Yellow 118-----	SDC.
Disperse Yellow 123-----	DUP.
Disperse Yellow 125-----	DUP.
Disperse Yellow 131-----	DUP.
Disperse Yellow 136-----	DUP.
Disperse Yellow 137-----	DUP.
Disperse Yellow 138-----	DUP.
Other disperse yellow dyes-----	ALT, ATL, BUC, EKT, GAF, MAY, SDC, VPC.
*Disperse orange dyes:	
Disperse Orange 3-----	AC, GAF, HSH, ICC, TRC.
Disperse Orange 5-----	ATL, BUC, EKT, GAF.
Disperse Orange 17-----	AC, EKT, FAB, GAF, HSH, ICC.
Disperse Orange 21-----	TRC.
Disperse Orange 25-----	AC, ATL, DUP, EKT, TRC.
Disperse Orange 29-----	AC, FAB, GAF, HSH, VPC.
Disperse Orange 30-----	ICC, TRC.
Disperse Orange 33-----	BAS.
Disperse Orange 37-----	AC, ACY, EKT, HSH, ICC, TRC.
Disperse Orange 41-----	DUP.
Disperse Orange 42-----	HST.
Disperse Orange 44-----	DUP.
Disperse Orange 57-----	EKT.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse orange dyes--Continued	
Disperse Orange 58-----	EKT.
Disperse Orange 62-----	BUC, DUP.
Disperse Orange 65-----	VPC.
Disperse Orange 66-----	VPC.
Disperse Orange 67-----	VPC.
Disperse Orange 75-----	DUP.
Disperse Orange 77-----	MAY.
Disperse Orange 78-----	MAY, TRC.
Disperse Orange 79-----	MAY.
Disperse Orange 80-----	MAY.
Disperse Orange 89-----	AC.
Disperse Orange 91-----	AC.
Disperse Orange 94-----	SDC.
Disperse Orange 95-----	DUP.
Disperse Orange 98-----	DUP.
Disperse Orange 101-----	DUP.
Disperse Orange 103-----	ACY.
Disperse Orange 125-----	DUP.
Other disperse orange dyes-----	ALT, ATL, BUC, DUP, GAF, HSH, SDC.
*Disperse red dyes:	
*Disperse Red 1-----	AC, ATL, DUP, EKT, GAF, HSH, ICC, TRC.
Disperse Red 4-----	GAF, TRC.
*Disperse Red 5-----	AC, EKT, GAF, HSH, ICC.
Disperse Red 7-----	AC, GAF.
Disperse Red 9-----	ATL.
*Disperse Red 11-----	AC, BAS, DUP, GAF, HSH, ICC.
Disperse Red 13-----	AC, ATL, GAF.
*Disperse Red 15-----	CMG, GAF, HSH, ICC, TRC.
*Disperse Red 17-----	AC, EKT, FAB, GAF, HSH, ICC, TRC.
Disperse Red 21-----	EKT.
Disperse Red 30-----	TRC.
Disperse Red 31-----	ICC.
Disperse Red 35-----	EKT.
*Disperse Red 50-----	ALT, FAB, ICC, TRC.
Disperse Red 54-----	BAS.
*Disperse Red 55-----	AC, DUP, GAF, TRC, VPC.
*Disperse Red 59-----	ACY, DUP, GAF.
*Disperse Red 60-----	AC, BAS, DUP, EKT, GAF, SDC, TRC, VPC.
*Disperse Red 65-----	ALT, DUP, EKT, ICC, TRC.
Disperse Red 73-----	TRC.
Disperse Red 82-----	MAY, VPC.
*Disperse Red 86-----	EKT, GAF, HSH.
Disperse Red 88-----	ACY, EKT.
Disperse Red 90-----	VPC.
Disperse Red 91-----	BAS.
Disperse Red 92-----	BAS.
Disperse Red 96-----	ACY.
Disperse Red 105-----	VPC.
Disperse Red 117-----	EKT.
Disperse Red 133-----	VPC.
Disperse Red 135-----	AC, DUP.
Disperse Red 136-----	EKT.
Disperse Red 138-----	EKT.
Disperse Red 140-----	AC, DUP.
Disperse Red 159-----	VPC.
Disperse Red 161-----	DUP.
Disperse Red 162-----	DUP.
Disperse Red 163-----	EKT.
Disperse Red 167-----	GAF.
Disperse Red 176-----	ICC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse red dyes--Continued	
*Disperse Red 177-----	ALT, ICC, SDC, VPC.
Disperse Red 178-----	ICC.
Disperse Red 179-----	ICC.
Disperse Red 180-----	ICC.
Disperse Red 187-----	AC.
Disperse Red 211-----	DUP.
Disperse Red 217-----	DUP.
Disperse Red 218-----	DUP.
Disperse Red 219-----	DUP.
Disperse Red 220-----	DUP.
Other disperse red dyes-----	ALT, BUC, DUP, FAB, GAF, HSH, ICC, MAY, SDC, TRC.
*Disperse violet dyes:	
*Disperse Violet 1-----	AC, GAF, HSH, ICC, TRC.
*Disperse Violet 4-----	AC, GAF, ICC.
Disperse Violet 8-----	GAF, ICC.
Disperse Violet 26-----	DUP.
*Disperse Violet 27-----	AC, ACY, DUP, EKT, ICC, TRC.
Disperse Violet 28-----	ALT, DUP, TRC.
Disperse Violet 40-----	VPC.
Disperse Violet 41-----	EKT.
Disperse Violet 42-----	EKT.
Disperse Violet 43-----	EKT.
Disperse Violet 44-----	EKT.
Disperse Violet 64-----	DUP.
Other disperse violet dyes-----	GAF, SDC, UPC.
*Disperse blue dyes:	
*Disperse Blue 1-----	AC, GAF, ICC, TRC.
*Disperse Blue 3-----	AC, EKT, GAF, HSH, ICC, TRC.
*Disperse Blue 7-----	AC, DUP, GAF, HSH, ICC, TRC.
Disperse Blue 27-----	EKT.
Disperse Blue 31-----	MAY, UPC.
Disperse Blue 55-----	TRC.
Disperse Blue 56(includes Disperse Blue 71)-----	ALT, ICC, VPC.
Disperse Blue 60-----	ALT, DUP.
Disperse Blue 61-----	DUP.
Disperse Blue 62-----	DUP, EKT, GAF.
*Disperse Blue 64-----	AC, ATL, DUP, EKT, GAF, TRC.
Disperse Blue 73-----	ACY, TRC.
Disperse Blue 77(includes Disperse Blue 120)-----	EKT, GAF.
*Disperse Blue 79-----	AC, ALT, EKT, ICC, MAY, TRC.
Disperse Blue 81-----	VPC.
Disperse Blue 85-----	TRC.
Disperse Blue 87-----	BAS.
Disperse Blue 94-----	BAS.
Disperse Blue 95-----	GAF, HST.
Disperse Blue 102-----	EKT.
Disperse Blue 109-----	DUP, MAY.
Disperse Blue 117-----	EKT.
Disperse Blue 118-----	EKT.
Disperse Blue 119-----	EKT.
Disperse Blue 121-----	EKT.
Disperse Blue 123-----	EKT.
Disperse Blue 125-----	TRC.
Disperse Blue 132-----	DUP.
Disperse Blue 133-----	DUP.
Disperse Blue 138-----	VPC.
Disperse Blue 139-----	VPC.
Disperse Blue 152-----	HST.
Disperse Blue 165-----	DUP, VPC.
Disperse Blue 172-----	DUP.
Disperse Blue 173-----	AC.
Disperse Blue 191-----	DUP.
Disperse Blue 192-----	DUP.
Disperse Blue 193-----	DUP.
Disperse Blue 194-----	DUP.
Other disperse blue dyes-----	ALT, ATL, BAS, BUC, DUP, FAB, GAF, HSH, MAY, SDC, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
Disperse green dyes:	
Disperse Green 7-----	DUP.
Disperse Green 8-----	DUP.
Other disperse green dyes-----	GAF, HSH.
Disperse brown dyes:	
*Disperse Brown 1-----	AC, ALT, SDC, TRC.
Disperse Brown 2-----	DUP, EKT.
Disperse Brown 8-----	VPC.
Disperse Brown 11-----	AC.
Disperse Brown 14-----	DUP.
Disperse Brown 15-----	DUP.
Other disperse brown dyes-----	ALT, ATL, BAS, DUP, GAF, HSH, ICC, SDC, VPC.
*Disperse Black dyes:	
*Disperse Black 1-----	AC, ATL, DUP, GAF, TRC.
Disperse Black 2-----	ATL, TRC.
Disperse Black 6-----	ATL.
Disperse Black 9-----	AC, EKT.
Disperse Black 33-----	EKT.
Disperse Black 34-----	ATL, BAS, BUC, DUP, GAF, HSH, ICC, SDC, VPC.
Other disperse black dyes-----	
FIBER-REACTIVE DYES	
*Reactive yellow dyes:	
Reactive Yellow 1-----	ICI.
Reactive Yellow 2-----	TRC.
Reactive Yellow 3-----	TRC.
Reactive Yellow 4-----	ICI.
Reactive Yellow 6-----	TRC.
Reactive Yellow 7-----	ICI.
Reactive Yellow 13-----	HST.
Reactive Yellow 15-----	HST.
Reactive Yellow 17-----	HST.
Reactive Yellow 18-----	ICI.
Reactive Yellow 24-----	HST.
Reactive Yellow 25-----	VPC.
Reactive Yellow 27-----	VPC.
Reactive Yellow 31-----	HST.
Reactive Yellow 37-----	HST.
Reactive Yellow 42-----	ICI, HST.
Reactive Yellow 86-----	ICI.
Other reactive yellow dyes-----	HST, ICI.
Reactive orange dyes:	
Reactive Orange 1-----	FAB, ICI.
Reactive Orange 4-----	ICI.
Reactive Orange 11-----	TRC.
Reactive Orange 12-----	ICI.
Reactive Orange 13-----	ICI.
Reactive Orange 14-----	ICI.
Reactive Orange 16-----	HST.
Reactive Orange 50-----	HST.
Other reactive orange dyes-----	HST.
Reactive red dyes:	
Reactive Red 1-----	ICI.
Reactive Red 2-----	FAB, ICI.
Reactive Red 4-----	TRC.
Reactive Red 5-----	ICI.
Reactive Red 8-----	ICI.
Reactive Red 11-----	FAB, ICI.
Reactive Red 21-----	HST.
Reactive Red 29-----	ICI.
Reactive Red 31-----	ICI.
Reactive Red 33-----	ICI.

DYES

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FIBER-REACTIVE DYES--Continued	
Reactive red dyes--Continued	
Reactive Red 40-----	VPC.
Reactive Red 41-----	VPC.
Reactive Red 43-----	ICI.
Reactive Red 55-----	TRC.
Reactive Red 58-----	ICI.
Reactive Red 94-----	HST.
Reactive Red 105-----	HST.
Reactive violet dyes:	
Reactive Violet 1-----	ICI.
Reactive Violet 4-----	HST.
Reactive Violet 5-----	HST.
Other reactive violet dyes-----	HST.
*Reactive blue dyes:	
Reactive Blue 3-----	ICI.
Reactive Blue 4-----	ICI.
Reactive Blue 5-----	ICI, TRC.
Reactive Blue 19-----	HST.
Reactive Blue 21-----	HST.
Reactive Blue 25-----	ICI.
Reactive Blue 29-----	VPC.
Reactive Blue 36(includes Acid Blue 215)-----	HST.
Reactive Blue 38-----	HST.
Reactive Blue 71-----	ICI.
Reactive Blue 89-----	HST.
Reactive Blue 90-----	ICI.
Reactive Blue 109-----	HST.
Other reactive blue dyes-----	HST, ICI.
Reactive green dyes-----	HST.
Reactive brown dyes:	
Reactive Brown 9-----	ICI.
Reactive Brown 10-----	ICI.
Reactive Brown 17-----	ICI.
Other reactive brown dyes-----	HST.
Reactive black dyes:	
Reactive Black 1-----	TRC.
Reactive Black 5-----	HST.
Reactive Black 9-----	ICI.
FLUORESCENT BRIGHTENING AGENTS	
Fluorescent Brightening Agent 6-----	ACY.
Fluorescent Brightening Agent 8-----	ACY.
Fluorescent Brightening Agent 9-----	GAF, SDH.
Fluorescent Brightening Agent 22-----	CGY.
Fluorescent Brightening Agent 25-----	CGY, GAF.
*Fluorescent Brightening Agent 28-----	ACY, CCW, DUP, SDH, VPC.
Fluorescent Brightening Agent 30-----	GAF.
Fluorescent Brightening Agent 33-----	GAF.
Fluorescent Brightening Agent 45-----	TRC.
Fluorescent Brightening Agent 46-----	CGY.
Fluorescent Brightening Agent 49-----	S.
Fluorescent Brightening Agent 52-----	S.
Fluorescent Brightening Agent 54-----	CGY.
Fluorescent Brightening Agent 59-----	CGY.
Fluorescent Brightening Agent 61-----	ACY.
Fluorescent Brightening Agent 68-----	CCW, GAF.
Fluorescent Brightening Agent 71-----	ACY, CGY.
Fluorescent Brightening Agent 75-----	GAF.
Fluorescent Brightening Agent 102-----	VPC.
Fluorescent Brightening Agent 108-----	GAF.
Fluorescent Brightening Agent 109-----	GAF.
Fluorescent Brightening Agent 125-----	ACY.
Fluorescent Brightening Agent 126-----	SDH.
Fluorescent Brightening Agent 128-----	SDH.
Fluorescent Brightening Agent 130-----	ACY, SDH.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FLUORESCENT BRIGHTENING AGENTS--Continued	
Fluorescent Brightening Agent 134-----	CGY.
Fluorescent Brightening Agent 159-----	ACY.
Other fluorescent brightening agents-----	ACY, CCW, CGY, DGO, GAF, PCW, S, VPC.
FOOD, DRUG, AND COSMETIC COLORS	
<i>Food, Drug, and Cosmetic Dyes</i>	
FD&C Blue No. 1-----	ACS, ALT, KON, SDH, WJ.
FD&C Blue No. 2-----	ACS, ALT, KON, SDH, WJ.
FD&C Green No. 3-----	WJ.
*FD&C Red No. 2-----	ACS, ALT, KON, SDH, STG, WJ.
*FD&C Red No. 3-----	ACS, ALT, KON, SDH, STG, WJ.
FD&C Red No. 4-----	ALT, KON, STG, WJ.
FD&C Red No. 40-----	ACS, KON, WJ.
FD&C Violet No. 1-----	ACS.
*FD&C Yellow No. 5-----	ACS, ALT, KON, SDH, STG, WJ.
*FD&C Yellow No. 6-----	ACS, ALT, KON, SDH, STG, WJ.
Other food, drug, and cosmetic dyes-----	STG.
<i>Drug and Cosmetic Dyes</i>	
D&C Blue No. 1-----	KON.
D&C Blue No. 6-----	ACS, KON.
D&C Green No. 5-----	ACS, KON.
D&C Green No. 6-----	ACS, KON.
D&C Green No. 8-----	KON, SDH.
*D&C Orange No. 4-----	ACS, KON, TMS.
D&C Orange No. 5-----	SNA, TMS.
D&C Orange No. 10-----	TMS.
D&C Orange No. 17-----	SNA.
D&C Red No. 2-----	KON.
D&C Red No. 3-----	KON, TMS.
D&C Red No. 6-----	SNA, TMS.
*D&C Red No. 7-----	KON, SNA, TMS.
D&C Red No. 8-----	KON, SNA.
D&C Red No. 9-----	KON, SNA, TMS.
D&C Red No. 10-----	KON, SNA.
D&C Red No. 11-----	KON, SNA.
D&C Red No. 12-----	KON, SNA, TMS.
D&C Red No. 13-----	SNA, TMS.
*D&C Red No. 19-----	ACS, KON, SNA, TMS.
D&C Red No. 21-----	SNA, TMS.
D&C Red No. 22-----	KON, SDH.
D&C Red No. 27-----	TMS.
D&C Red No. 28-----	ACS.
D&C Red No. 30-----	KON, SNA.
D&C Red No. 31-----	KON.
D&C Red No. 33-----	ACS, KON.
*D&C Red No. 34-----	KON, SNA, TMS.
*D&C Red No. 36-----	ALT, KON, TMS.
D&C Red No. 37-----	ACS.
D&C Violet No. 2-----	ACS, SDH.
D&C Yellow No. 5-----	KON, TMS.
D&C Yellow No. 6-----	KON.
D&C Yellow No. 7-----	ALT.
D&C Yellow No. 10-----	KON.
D&C Yellow No. 11-----	ACS, KON.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FOOD, DRUG, AND COSMETIC COLORS--Continued	
<i>Drug and Cosmetic Dyes, External</i>	
Ext. D&C Green No. 1-----	ACS, KON.
Ext. D&C Violet No. 2-----	KON.
Ext. D&C Yellow No. 1-----	ACS, KON.
Ext. D&C Yellow No. 7-----	KON.
INGRAIN DYES	
<i>Ingrain blue dyes:</i>	
Ingrain Blue 3-----	ICI.
MORDANT DYES	
*Mordant yellow dyes:	
Mordant Yellow 1-----	GAF, PDC.
Mordant Yellow 5-----	TRC.
Mordant Yellow 8-----	ACS, PDC.
Mordant Yellow 14-----	ACS, PDC.
Mordant Yellow 16-----	ACY.
Mordant Yellow 20-----	ACS.
Mordant Yellow 26-----	VPC.
Mordant Yellow 29-----	GAF.
Mordant Yellow 30-----	TRC.
*Mordant orange dyes:	
Mordant Orange 1-----	ACY, PDC, TRC.
Mordant Orange 4-----	GAF.
Mordant Orange 6-----	ATL, CMG, GAF, PDC, TRC.
Mordant Orange 8-----	TRC.
Mordant red dyes:	
Mordant Red 3-----	ACY.
Mordant Red 7-----	BDO, GAF.
Mordant Red 9-----	MRX.
Mordant Red 11-----	ACY.
Mordant Red 60-----	SDH.
Mordant violet dyes: Mordant Violet 5-----	PDC.
Mordant blue dyes:	
Mordant Blue 1-----	GAF.
Mordant Blue 3-----	GAF.
Mordant Blue 9-----	GAF, PDC.
Mordant Blue 13-----	HSH.
*Mordant brown dyes:	
*Mordant Brown 1-----	ACS, DUP, GAF, TRC.
Mordant Brown 12-----	PDC.
Mordant Brown 13-----	ACS.
Mordant Brown 15-----	GAF.
Mordant Brown 18-----	ACS, DUP, PDC.
Mordant Brown 21-----	GAF.
*Mordant Brown 33-----	ACS, GAF, TRC.
Mordant Brown 40-----	GAF.
Mordant Brown 50-----	TRC.
Mordant Brown 63-----	TRC.
Mordant Brown 70-----	DUP, PDC.
*Mordant black dyes:	
Mordant Black 8-----	VPC.
Mordant Black 9-----	ACS, CMG, VPC.
*Mordant Black 11-----	GAF, TRC, VPC.
Mordant Black 13-----	HSH.
Mordant Black 17-----	GAF, TRC.
Mordant Black 19-----	PDC.
Mordant Black 26-----	TRC.
Mordant Black 38-----	PDC.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
OXIDATION BASES	
Oxidation bases-----	PDC.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent Yellow 2-----	ACY, DUP, GAF.
Solvent Yellow 3-----	ACS, PSC.
Solvent Yellow 13-----	ACY, GAF.
*Solvent Yellow 14-----	AC, ACS, ACY, DUP, GAF, PSC.
Solvent Yellow 19-----	GAF.
Solvent Yellow 29-----	ACS, PSC.
Solvent Yellow 30-----	AC, ACS, ACY.
Solvent Yellow 33-----	ACY, DSC.
Solvent Yellow 34-----	ACS.
Solvent Yellow 40-----	ACS.
Solvent Yellow 42-----	ACS.
Solvent Yellow 43-----	GAF.
Solvent Yellow 45-----	ACS.
Solvent Yellow 47-----	ACY, DUP.
*Solvent Yellow 56-----	AC, ACS, ACY, PSC.
Solvent Yellow 71-----	ACY.
Solvent Yellow 72-----	ACY.
Solvent Yellow 87-----	ACY.
Solvent Yellow 107-----	MRT.
Other solvent yellow dyes-----	AC, ATL, DSC, MRT.
*Solvent orange dyes:	
Solvent Orange 2-----	PSC.
Solvent Orange 3-----	ACS, ACY, DSC, GAF, PSC.
Solvent Orange 5-----	GAF.
Solvent Orange 7-----	ACS, ACY, DUP, GAF, PSC.
Solvent Orange 20-----	ACY, GAF.
Solvent Orange 23-----	ACS.
Solvent Orange 24-----	DUP.
Solvent Orange 25-----	ACY, DUP.
Solvent Orange 31-----	ACS.
Solvent Orange 48-----	ACY.
Solvent Orange 51-----	ACY.
Other solvent orange dyes-----	AC, ACY, DSC, DUP.
*Solvent red dyes:	
Solvent Red 1-----	PSC.
Solvent Red 8-----	GAF.
Solvent Red 22-----	GAF.
Solvent Red 24-----	ACS, ACY, DUP, GAF, PSC.
*Solvent Red 26-----	AC, ACS, ACY, PSC.
Solvent Red 27-----	ACS, PSC.
Solvent Red 33-----	DUP, GAF.
Solvent Red 35-----	GAF.
Solvent Red 40-----	GAF.
Solvent Red 41-----	DSC.
*Solvent Red 49-----	ACY, DSC, DUP, GAF.
Solvent Red 52-----	AC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
SOLVENT DYES--Continued	
*Solvent red dyes--Continued	
Solvent Red 68-----	ACS.
Solvent Red 69-----	DSC, DUP.
Solvent Red 74-----	ACS.
Solvent Red 105-----	ACY.
Solvent Red 106-----	ACY.
Solvent Red 108-----	ACY.
Solvent Red 111-----	ACY.
Solvent Red 126-----	ACY.
Solvent Red 164-----	MRT.
Solvent Red 166-----	MRT.
Other solvent red dyes-----	AC, ACY, ATL, DSC, MRT.
Solvent violet dyes:	
Solvent Violet 8-----	ACY, DSC.
Solvent Violet 9-----	DSC.
Solvent Violet 13-----	AC, ATL, HSH.
Solvent Violet 14-----	AC, MRT.
Other solvent violet dyes-----	AC, DSC, MRT.
*Solvent blue dyes:	
Solvent Blue 3-----	ACY, SW.
Solvent Blue 4-----	DSC, DUP, SDH.
Solvent Blue 5-----	DSC.
Solvent Blue 6-----	DSC.
Solvent Blue 7-----	ACY.
Solvent Blue 9-----	GAF.
Solvent Blue 11-----	BDO, GAF.
Solvent Blue 12-----	ACS.
Solvent Blue 13-----	ACY.
Solvent Blue 16-----	ACS.
Solvent Blue 23-----	HSC.
Solvent Blue 36-----	AC, DUP.
Solvent Blue 37-----	DUP.
Solvent Blue 38-----	ACS, ACY, ATL, DUP, GAF.
Solvent Blue 43-----	ACS.
Solvent Blue 57-----	DUP.
Solvent Blue 58-----	ACY.
Solvent Blue 59-----	ACY.
Solvent Blue 74-----	ACS.
Solvent Blue 89-----	ACY.
Solvent Blue 98-----	MRT.
Solvent Blue 100-----	MRT.
Other solvent blue dyes-----	AC, DSC, GAF, x.
*Solvent green dyes:	
Solvent Green 1-----	ACY, DSC.
Solvent Green 2-----	GAF.
Solvent Green 3-----	AC, ACS, ATL, GAF, HSH.
Other solvent green dyes-----	DSC, GAF.
*Solvent brown dyes:	
Solvent Brown 11-----	GAF.
*Solvent Brown 12-----	DSC, GAF., PSC.
Solvent Brown 19-----	DUP.
Solvent Brown 20-----	ACY, DUP.
Solvent Brown 22-----	DUP, PSC.
Solvent Brown 36-----	ACY.
Other solvent brown dyes-----	DSC.
Solvent black dyes:	
Solvent Black 5-----	ACS, ACY, DSC.
Solvent Black 7-----	ACS, ACY, DSC, PSC.
Solvent Black 12-----	ACS.
Solvent Black 13-----	ACS.
Solvent Black 17-----	DUP.
Solvent Black 26-----	ACY.
Other solvent black dyes-----	ATL, DSC, GAF, MRT.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
SULFUR DYES	
Sulfur yellow dyes:	
Leuco Sulfur Yellow 1-----	SDC.
Leuco Sulfur Yellow 2-----	ACY, SDC.
Leuco Sulfur Yellow 4-----	SDC.
Leuco Sulfur Yellow 9-----	STC.
Other sulfur yellow dyes-----	SDC.
Sulfur orange dyes:	
Leuco Sulfur Orange 1-----	STC.
Other sulfur orange dyes-----	SDC.
Sulfur red dyes:	
Leuco Sulfur Red 5-----	STC.
Leuco Sulfur Red 10-----	SDC.
Other sulfur red dyes-----	SDC.
Sulfur blue dyes:	
Sulfur Blue 7-----	SDC.
Leuco Sulfur Blue 7-----	ACY, SDC.
Sulfur Blue 8-----	SDC.
Leuco Sulfur Blue 8-----	SDC.
Leuco Sulfur Blue 11-----	SDC.
Leuco Sulfur Blue 13-----	ACY.
Other sulfur blue dyes-----	SDC.
Sulfur green dyes:	
Leuco Sulfur Green 2-----	SDC.
Leuco Sulfur Green 3-----	SDC.
Sulfur Green 14-----	SDC.
Leuco Sulfur Green 16-----	SDC.
Other sulfur green dyes-----	SDC.
Sulfur brown dyes:	
Leuco Sulfur Brown 1-----	STC.
Solubilized Sulfur Brown 1-----	STC.
Leuco Sulfur Brown 3-----	SDC.
Leuco Sulfur Brown 10-----	SDC.
Sulfur Brown 14-----	SDC.
Leuco Sulfur Brown 14-----	SDC.
Leuco Sulfur Brown 20-----	STC.
Leuco Sulfur Brown 26-----	STC.
Sulfur Brown 52-----	SDC.
Other sulfur brown dyes-----	ACY, SDC.
Sulfur black dyes:	
Sulfur Black 1-----	SDC.
Leuco Sulfur Black 1-----	ACY, SDC.
Sulfur Black 2-----	SDC.
Leuco Sulfur Black 2-----	ACY, SDC.
Solubilizer Sulfur Black 2-----	SDC.
Leuco Sulfur Black 10-----	ACY.
Sulfur Black 11-----	SDC.
Leuco Sulfur Black 11-----	SDC.
Other sulfur black dyes-----	SDC.
VAT DYES	
*Vat yellow dyes:	
*Vat Yellow 2, 8-1/2%-----	AC, ACY, ATL, GAF, TRC, VPC.
Vat Yellow 3, 12-1/2%-----	DUP.
Vat Yellow 4, 12-1/2%-----	GAF, HST, VPC.
Vat Yellow 33, 15%-----	TRC, VPC.
Other vat yellow dyes-----	VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES --Continued	
*Vat yellow dyes--Continued	
Vat Yellow 10, 10%	GAF.
Vat Yellow 14, 12-1/2%	TRC.
Vat Yellow 15, 11-1/2%	ACY.
Vat Yellow 22, 10%	DUP.
Vat Yellow 33, 15%	TRC, VPC.
Other vat yellow dyes-----	VPC.
*Vat orange dyes:	
*Vat Orange 1, 20%	ACY, ATL, DUP, GAF, HST, TRC, VPC.
*Vat Orange 2, 12%	ACY, BAS, DUP, GAF, TRC.
Vat Orange 3, 13-1/2%	DUP, GAF, HST.
Vat Orange 4, 6%	DUP.
Vat Orange 5, 10%	DUP, HST.
Vat Orange 7, 11%	HST, TRC.
Vat Orange 9, 12%	ACY, TRC.
Vat Orange 11, 6%	DUP.
*Vat Orange 15, 10%	AC, ACY, ATL, GAF, TRC, VPC.
Other vat orange dyes-----	SDC.
*Vat red dyes:	
*Vat Red 1, 13%	AC, ACY, ATL, HST.
Solubilized Vat Red 1, 37%	HST.
Vat Red 10, 18%	BAS, GAF.
Vat Red 12, 8-1/2%	DUP.
*Vat Red 13, 11%	DUP, GAF, TRC.
Vat Red 14, 10%	GAF, HST.
Vat Red 15, 10%	HST, TRC.
Vat Red 16, 11%	DUP.
Vat Red 29, 18%	GAF.
Vat Red 32, 20%	DUP, GAF.
Vat Red 41, 20%	HST.
Vat Red 52, 10%	DUP.
*Vat violet dyes:	
*Vat Violet 1, 11%	ACY, ATL, DUP, GAF, TRC.
Vat Violet 2, 20%	ACY, HST.
Vat Violet 3, 15%	HST.
Vat Violet 9, 12%	DUP, GAF, TRC.
Vat Violet 13, 6-1/4%	BAS, GAF, HST, TRC.
Vat Violet 21-----	VPC.
Other vat violet dyes-----	GAF, MAY.
*Vat blue dyes:	
Vat Blue 1, 20%	ACS.
Vat Blue 4, 10%	DUP, GAF.
Vat Blue 5, 16%	ATL, HST.
Vat Blue 6, 8-1/3%	ACY, BAS, DUP, GAF, TRC.
Vat Blue 12, 6-1/2%	DUP.
*Vat Blue 14, 8-1/3%	DUP, GAF, TRC.
Vat Blue 16, 16-1/2%	BAS, DUP.
Vat Blue 18, 13%	AC, ACY, ATL, DUP, GAF, MAY, TRC.
Vat Blue 20, 14%	AC, ACY, ATL, DUP, GAF, MAY, TRC.
Vat Blue 39, 12%	GAF.
Vat Blue 43-----	SDC.
Vat Blue 60-----	DUP.
Vat Blue 67-----	HST.
Other vat blue dyes-----	GAF.
*Vat green dyes:	
*Vat Green 1, 6%	ACY, ATL, DUP, MAY.
*Vat Green 3, 10%	AC, ACY, ATL, DUP, GAF, MAY, TRC.
Vat Green 8, 8-1/2%	ATL, DUP, GAF.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES--Continued	
*Vat green dyes--Continued	
Vat Green 9, 12-1/2%	GAF, HST, MAY, TRC.
Vat Green 20, 6%	DUP.
Vat Green 32	VPC.
Other vat green dyes	SDC.
*Vat brown dyes:	
*Vat Brown 1, 11%	ACY, DUP, GAF, TRC.
*Vat Brown 3, 11%	AC, ACY, DUP, GAF, TRC, VPC.
Vat Brown 5, 13%	ACY, HST.
Vat Brown 11, 12%	MAY, TRC.
Vat Brown 12, 12-1/2%	DUP.
Vat Brown 13, 17%	MAY.
Vat Brown 20, 10-1/2%	GAF.
Vat Brown 31, 28%	AC.
Vat Brown 40, 14%	DUP.
Vat Brown 57, 12.8%	HST, TRC.
Other vat brown dyes	SDC, VPC.
*Vat black dyes:	
Solubilized Vat Black 1, 27-1/2%	HST.
Vat Black 9, 16%	MAY.
Vat Black 13, 14%	DUP.
Vat Black 16	ACS.
Vat Black 22, .19%	ACY, TRC.
*Vat Black 25, 12-1/2%	AC, ACY, DUP, MAY, TRC.
*Vat Black 27, 12-1/2%	ACY, BDO, DUP, GAF, TRC.
Vat Black 38, 20%	GAF.
Other vat black dyes	ATL, BAS, GAF, SDC, TRC.
All other dyes	ACY, DUP, GAF, HSH, MRT, SDC.

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of dye manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 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.	ICC	Inmont Corp.
ACS	Allied Chemical Corp., Specialty Chemicals Div.	ICI	ICI United States, Inc.
ACY	American Cyanamid Co.	KON	H. Kohnstamm & Co., Inc.
ALL	Alliance Chemical, Inc.	MAY	Otto B. May, Inc.
ALT	Crompton & Knowles Corp., Dyes & Chemicals Div.	MRT	Morton Norwich Products, Morton Chemical Co., Div.
ATL	Atlantic Chemical Corp.	MRX	Max Marx Color & Chemical Co.
BAS	BASF Wyandotte Corp.	PCW	Pfister Chemical Works
BDO	Benzoid Organics, Inc.	PDC	Berncolors-Poughkeepsie, Inc.
BUC	Synalloy Corp., Blackman-Uhler Chemical Div.	PSC	Passaic Color & Chemical Co.
CCW	Cincinnati Milacron Chemicals, Inc.	S	Sandoz, Inc.
CGY	Ciba-Geigy Corp.	SDC	Martin-Marietta Corp., Sodyeco Div.
CMG	Nyanza, Inc.	SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
CPC	Childs Pulp Colors, Inc.	SNA	Sun Chemical Corp.
DGO	Day-Glo Color Corp.	STC	Sou-Tex Chemical Co., Inc.
DSC	Dye Specialties, Inc.	STG	Stange Co.
DUP	E. I. duPont de Nemours & Co., Inc.	SW	Sherwin-Williams Co.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	TMS	Sterling Drug, Inc., Thomasset Colors Div.
FAB	Fabricolor Manufacturing Corp.	TRC	Toms River Chemical Corp.
GAF	GAF Corp., Chemical Div.	VPC	Mobay Chemical Corp, Verona Div.
HSC	Chemetron Corp., Pigments Div.		
HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co.		
HST	American Hoechst Corp.		Warner-Jenkinson Manufacturing Co.

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

SYNTHETIC ORGANIC CHEMICALS, 1974

ORGANIC PIGMENTS

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 1974 are given in table 1.¹ Statistics on sales of a few selected pigments by commercial forms (dry full-strength form, dry extended form, dry dispersions, aqueous dispersions, and flushed colors) are given 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 1974 was 69.8 million pounds--0.6 percent more than the 69.4 million pounds produced in 1973 and 5.9 percent more than the 65.9 million pounds produced in 1972. Total sales of organic pigments in 1974 amounted to 58.5 million pounds, valued at \$227.8 million, compared with 61.5 million pounds, valued at \$182.2 million, in 1973 and 53.2 million pounds, valued at \$149.3 million, in 1972. In terms of quantity, sales of organic pigments in 1974 were 4.9 percent smaller than in 1973 and 9.9 percent greater than in 1972; in terms of value, sales in 1974 were 25.1 percent greater than in 1973 and 52.5 percent greater than in 1972.

Production of toners in 1974 amounted to 67.5 million pounds--0.8 percent more than the 66.9 million pounds reported for 1973. Sales in 1974 were 56.3 million pounds, valued at \$222.8 million, compared with 59.0 million pounds, valued at \$178.6 million, in 1973. Sales in 1974 were 4.5 percent smaller than those in 1973 in terms of quantity, and 24.8 percent more in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1974 were Pigment Yellow 12, 8.0 million pounds; Pigment Blue 15, beta form, 6.0 million pounds; Pigment Blue 15, alpha form, 5.1 million pounds; and Pigment Red 49, barium toner, 4.8 million pounds.

Production of lakes totaled 2.3 million pounds in 1974--4.6 percent less than the 2.4 million pounds reported for 1973. Sales of lakes in 1974 amounted to 2.2 million pounds, valued at \$5.0 million, compared with sales in 1973 of 2.5 million pounds, valued at \$3.6 million. Sales in 1974 were 12.5 percent less than those in 1973 in terms of quantity, and 39.7 percent more in terms of value.

For each of 9 selected pigments, or groups of pigments, table 1A gives data on sales by commercial forms. Pigment Yellow 12 and Pigment Red 53, barium toner, were sold principally in the flushed form. The remaining 7 pigments, or groups of pigments, for which statistics are published were sold principally in the dry full-strength form. Statistics on sales by commercial forms could not be published for Pigment Red 49, barium toner, Pigment Red 49, calcium toner, Pigment Red 49, sodium toner, Pigment Red 90, Pigment Violet 3, fugitive, Pigment Blue 19, and Pigment Blue 24, without revealing the operations of individual companies.

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

ORGANIC PIGMENTS

853

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1974

[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 or where no data were reported.) Table 2 lists separately all organic pigments for which data on production and/or sales were reported and identifies the manufacturers of each]

Pigment	Production	Sales		
		Quantity 1,000 pounds	Value 1,000 dollars	Unit value ¹ per pound
Grand total-----	69,798	58,481	227,812	\$3.90
TONERS				
Total-----	67,464	56,318	222,805	3.96
Yellow toners, total-----	18,753	13,517	49,564	3.67
Acetocetarylides yellows:				
Pigment Yellow 1, C.I. 11 680-----	662	428	1,344	3.14
Pigment Yellow 3, C.I. 11 710-----	301	205	627	3.06
Pigment Yellow 73, C.I. 11 738-----	1,170	...	...	...
Pigment Yellow 74, C.I. 11 741-----	1,295	1,041	4,319	4.15
Benzidine yellows, total-----	13,943	10,031	33,627	3.35
Pigment Yellow 12, C.I. 21 090-----	8,019	5,468	16,432	3.01
Pigment Yellow 14, C.I. 21 095-----	3,604	2,927	9,246	3.16
Pigment Yellow 17, C.I. 21 105-----	834	472	1,789	3.79
Pigment Yellow 83-----	...	9	60	6.67
All other-----	1,486	1,155	6,100	5.28
All other-----	1,382	1,812	9,647	5.32
Orange toners, total-----	1,886	1,470	7,190	4.89
Pigment Orange 5, C.I. 12 075-----	757	614	1,876	3.06
Pigment Orange 13, C.I. 21 110-----	434	256	1,209	4.72
Pigment Orange 16, C.I. 21 160-----	358	296	1,234	4.17
Pigment Orange 34, C.I. 21 115-----	60	46	265	5.76
All other-----	277	258	2,606	10.10
Red toners, total-----	24,243	22,101	71,805	3.25
Naphthol reds, total-----	1,084	817	4,775	5.84
Pigment Red 2, C.I. 12 310-----	90	39	152	3.90
Pigment Red 5, C.I. 12 490-----	83	31	250	8.06
Pigment Red 17, C.I. 12 390-----	58	48	247	5.15
Pigment Red 22, C.I. 12 315-----	115	100	506	5.06
Pigment Red 23, C.I. 12 355-----	240	198	1,270	6.41
Other naphthol reds-----	498	401	2,350	5.86
Pigment Red 3, C.I. 12 120-----	2,240	1,807	5,348	2.96
Pigment Red 4, C.I. 12 085-----	364	364	846	2.32
Pigment Red 48, C.I. 15 865-----	2,554	2,296	7,560	3.29
Pigment Red 49, C.I. 15 630:				
Barium toner-----	4,787	4,682	7,811	1.67
Calcium toner-----	1,257	1,294	2,469	1.91
Pigment Red 52, C.I. 15 860-----	1,730	1,552	5,346	3.44
Pigment Red 53, C.I. 15 585, barium toner-----	3,656	3,466	7,715	2.23
Pigment Red 57, C.I. 15 850, calcium toner-----	1,553	1,323	4,619	3.49
Pigment Red 63, C.I. 15 880-----	27	...	...	...
Pigment Red 81, C.I. 45 160, PMA-----	643	579	4,232	7.31
Pigment Red 81, C.I. 45 160, PTA-----	93	80	663	8.29
Pigment Red 90, C.I. 45 380-----	1,633	...	...	...
Pigment Red 122-----	99	82	1,178	14.37
All other-----	2,523	3,759	19,243	5.12

See footnotes at end of table.

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Pigments	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
TONERS--Continued				
Violet toners, total-----	2,859	2,461	22,177	\$9.01
Pigment Violet 1, C.I. 45 170, PTA-----	122	103	932	9.05
Pigment Violet 3, C.I. 42 535, fugitive-----	584	531	1,197	2.25
Pigment Violet 3, C.I. 42 535, PMA-----	424	370	1,752	4.74
Pigment Violet 3, C.I. 42 535, PTA-----	59	49	305	6.22
Pigment Violet 23, C.I. 51 319-----	225	217	3,618	16.67
All other-----	1,445	1,191	14,373	12.07
Blue toners, total-----	15,478	12,845	51,574	4.02
Pigment Blue 14, C.I. 42 600, PMA-----	284	265	968	3.65
Pigment Blue 15, C.I. 74 160, alpha form-----	5,137	3,958	15,977	4.04
Pigment Blue 15, C.I. 74 160, beta form-----	6,032	5,144	23,494	4.57
All other-----	4,025	3,478	11,135	3.20
Green toners, total-----	3,960	3,719	20,015	5.38
Pigment Green 1, C.I. 42 040, PMA-----	8	6	36	6.00
Pigment Green 2, C.I. 42 040 and 49 005, PMA-----	52	53	479	9.04
Pigment Green 2, C.I. 42 040 and 49 005, PTA-----	38	35	246	7.03
Pigment Green 7, C.I. 74 260-----	3,272	3,114	16,217	5.21
Pigment Green 36, C.I. 74 265-----	228	253	1,491	5.89
All other-----	362	258	1,546	5.99
Brown and black toners, total-----	285	205	480	2.34
Pigment Brown 5, C.I. 15 800-----	37	...	...	...
All other-----	248	205	480	2.34
LAKES				
Total-----	2,334	2,163	5,007	2.31
Red lakes:				
Pigment Red 60, C.I. 16 105-----	474	456	1,385	3.04
Pigment Red 83, C.I. 58 000-----	52	51	259	5.08
(Acid Red 26), C.I. 16 150-----	71	57	87	1.53
Violet lake: Pigment Violet 5, C.I. 58 055-----	174	124	441	3.56
All other lakes-----	1,563	1,475	2,835	1.92

¹ Calculated from rounded figures.

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 1A.--U.S. SALES OF SELECTED DRY FULL-STRENGTH COLORS, DRY EXTENDED COLORS, DRY DISPERSIONS, AQUEOUS DISPERSIONS, AND FLUSHED COLORS, 1974

Selected pigments by commercial forms	Sales		
	Quantity ¹	Value	Unit value ²
Pigment Yellow 12, C.I. 21 090, total-----	1,000 pounds	1,000 dollars	Per pound.
Dry full-strength toner-----	5,468	17,003	\$3.11
Flushed color-----	1,680	4,872	2.90
Aqueous dispersions ³ and dry dispersions ⁴ -----	3,379	10,932	3.24
	409	1,199	2.93
Pigment Yellow 13, C.I. 21 100; Pigment Yellow 14, C.I. 21 095; Pigment Yellow 17, C.I. 21 105; and other benzidine yellows, total-----	4,563	17,400	3.81
Dry full-strength toner-----	2,554	10,104	3.96
Aqueous dispersions ³ -----	1,091	3,998	3.66
Flushed color-----	888	3,192	3.59
Dry extended toner and dry dispersions ⁴ -----	30	106	3.53
Pigment Red 3, C.I. 12 120, total-----	1,807	5,569	3.08
Dry full-strength toner-----	1,109	3,120	2.81
Dry extended toner, aqueous dispersions ³ , and flushed color ⁴ -----	698	2,449	3.51
Pigment Red 48, C.I. 15 865, total-----	2,296	7,561	3.29
Dry full-strength toner-----	2,010	6,576	3.27
Dry extended toner, dry dispersions, and aqueous dispersions ³ , ⁴ -----	126	444	3.52
Flushed color-----	160	541	3.38
Pigment Red 53, C.I. 15 585, barium toner, total-----	3,466	7,792	2.25
Dry full-strength toner-----	1,288	2,716	2.11
Flushed color-----	1,845	4,360	2.36
Dry dispersion and aqueous dispersions ³ , ⁴ -----	333	716	2.15
Pigment Violet 3, C.I. 42 535, PMA and PTA, total-----	419	2,072	4.95
Dry full-strength toner-----	316	1,520	4.81
Flushed color-----	60	388	6.47
Dry extended toner and aqueous dispersions ³ , ⁴ -----	43	164	3.81
Pigment Blue 15, C.I. 74 160, alpha form, total-----	3,958	15,977	4.04
Dry full-strength toner-----	1,656	8,041	4.86
Aqueous dispersions ³ -----	1,175	3,454	2.94
Flushed color-----	449	1,307	2.91
Dry dispersion and dry extended toner ⁴ -----	678	3,175	4.68
Pigment Blue 15, C.I. 74 160, beta form, total-----	5,144	23,888	4.64
Dry full-strength toner-----	2,070	9,586	4.63
Dry extended toner and dry dispersions ⁴ -----	126	567	4.50
Aqueous dispersions ³ -----	1,220	4,967	4.07
Flushed color-----	1,728	8,768	5.07
Pigment Green 7, C.I. 74 260, total-----	3,114	16,381	5.26
Dry full-strength toner-----	1,493	8,372	5.61
Dry extended toner-----	280	1,299	4.64
Flushed color and dry dispersion ⁴ -----	294	1,910	6.50
Aqueous dispersions ³ -----	1,047	4,800	4.58

¹ Quantity of the various commercial forms is given in terms of dry full-strength toner content.

² Calculated from rounded figures.

³ Includes presscake.

⁴ Separate data on these commercial forms may not be published without revealing the operations of individual companies.

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

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

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Organic pigments for which separate statistics are given in table 1 are marked below with an asterisk (*); products 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]

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS	
*Yellow toners:	
Acetoacetarylides yellows:	
*Pigment Yellow 1, C.I. 11 680-----	ACS, ACY, AMS, CPC, DUP, HPC, HSC, HSH, HST, KON, S, SDH, SNA.
*Pigment Yellow 3, C.I. 11 710-----	ACS, HPC, HSC, HSH, HST, KCW, KON, PPG, SNA.
Pigment Yellow 4, C.I. 11 665-----	ACS.
Pigment Yellow 5, C.I. 11 660-----	HPC.
Pigment Yellow 6, C.I. 11 670-----	CIK, HPC.
Pigment Yellow 60, C.I. 12 705-----	KON.
Pigment Yellow 65-----	ACS, HPC.
*Pigment Yellow 73, C.I. 11 738-----	ACS, CIK, HPC, SNA.
*Pigment Yellow 74, C.I. 11 741-----	ACS, DUP, HPC, HSC, SDH, SNA.
Pigment Yellow 75, C.I. 11 770-----	HPC.
Pigment Yellow 97-----	ACS.
All other acetoacetarylides yellows-----	DUP, KCW.
*Benzidine yellows:	
*Pigment Yellow 12, C.I. 21 090-----	ACS, AMS, APO, BOR, HPC, HSC, HSH, HST, ICC, KON, ROM, S, SDH, SNA.
Pigment Yellow 13, C.I. 21 100-----	APO, BUC, GAF, HPC, HSH, HST, ICC, MRA, ROM, SDH, SNA.
*Pigment Yellow 14, C.I. 21 095-----	ACS, AMS, BUC, GAF, HPC, HSC, HSH, HST, ICC, MRA, ROM, S, SDH, SNA, x.
*Pigment Yellow 17, C.I. 21 105-----	ACS, AMS, BUC, HPC, HSC, HST, ICC, MRA, ROM, SDH, SNA.
Pigment Yellow 55 (includes Pigment Yellow 76), C.I. 21 096-----	HPC.
*Pigment Yellow 83-----	ACS, HSC, SNA.
(Vat Yellow 83)-----	HST.
All other benzidine yellows-----	HSH, ICC, ROM, S.
Pigment Yellow 16, C.I. 20 040-----	HST, ICC.
Pigment Yellow 108, C.I. 68 420-----	ACS, ICC.
Pigment Yellow 109-----	ACS.
Pigment Yellow 110-----	ACS.
Pigment Yellow 112 (Vat Yellow 1), C.I. 70 600-----	ACS.
(Basic Yellow 2), C.I. 41 000, fugitive-----	LVR, MRX.
(Basic Yellow 37), C.I. 41 001-----	LVR.
(Direct Yellow 4), C.I. 24 890-----	LVR.
(Direct Yellow 6), C.I. 40 001-----	LVR.
(Direct Yellow 11), C.I. 40 000-----	LVR.
(Vat Yellow 97)-----	HST.
All other-----	BAS, ICC, S.
*Orange toners:	
Pigment Orange 1, C.I. 11 725-----	ACS, KCW.
Pigment Orange 2, C.I. 12 060-----	HPC, UHL.
*Pigment Orange 5, C.I. 12 075-----	ACY, HPC, HSC, HST, SDH, SNA.
*Pigment Orange 13, C.I. 21 110-----	ACS, AMS, HPC, HSC, ICC, KON, MRX, S, SNA.
Pigment Orange 14, C.I. 21 165-----	ROM.
Pigment Orange 15, C.I. 21 130-----	ACS.
*Pigment Orange 16, C.I. 21 160-----	ACS, GAF, HPC, HSC, HSH, HST, ICC, MRA, ROM, SDH, SNA.
*Pigment Orange 34, C.I. 21 115-----	BUC, ICC, MRA, SDH.
Pigment Orange 43 (Vat Orange 7), C.I. 71 105-----	ACS, HST.
Pigment Orange 46, C.I. 15 602-----	HSC.
All other-----	KON.
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310-----	ACS, HPC, HSH, KCW, KON, S.
*Pigment Red 5, C.I. 12 490-----	GAF, HPC, HSH, ICC, ROM, S, SDH.
Pigment Red 7, C.I. 12 420-----	HST, S.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Red toners--Continued	
*Naphthol reds--Continued	
Pigment Red 9, C.I. 12 460-----	HPC, HST, MRX.
Pigment Red 13, C.I. 12 395-----	HPC, KCW.
Pigment Red 15, C.I. 12 465-----	DUP.
*Pigment Red 17, C.I. 12 390-----	ACY, HPC, ICC, S, SNA, UHL.
*Pigment Red 22, C.I. 12 315-----	ACY, DUP, GAF, HPC, MRX, S, SNA.
*Pigment Red 23, C.I. 12 355-----	ACY, BUC, DUP, HPC, ICC, ROM, SDH, S, UHL.
Pigment Red 31, C.I. 12 360-----	MRA.
Pigment Red 112, C.I. 12 370-----	HPC, HST.
All other naphthol reds-----	ICC, KCW, ROM, S, SDH.
Pigment Red 1, C.I. 12 070, dark-----	AMS, HPC, HSH, KON.
Pigment Red 1, C.I. 12 070, light-----	HPC, HSH, SDH.
*Pigment Red 3, C.I. 12 120-----	ACY, CIK, CPC, DUP, HPC, HSC, HSH, KCW, KON, PPG, SDH, SNA, UHL.
*Pigment Red 4, C.I. 12 085-----	ACY, AMS, HPC, HSC, KON, MRX, SDH, UHL.
Pigment Red 6, C.I. 12 090-----	DUP, HSH, KCW, KON.
Pigment Red 19, C.I. 46 500-----	MRA.
Pigment Red 38, C.I. 21 120-----	ACS, GAF, SNA.
Pigment Red 40, C.I. 12 170-----	HSH.
Pigment Red 41, C.I. 21 200-----	ACS.
*Pigment Red 48, C.I. 15 865-----	ACS, ACY, AMS, BOR, DUP, GAF, HPC, HSC, HSH, ICC, S, SNA.
Pigment Red 49, C.I. 15 630:	
*Barium toner-----	ACY, AMS, BOR, CIK, HSC, KON, SDH, SNA, UHL.
*Calcium toner-----	ACY, AMS, BOR, HSC, SDH.
Sodium toner-----	HSC, KON, SDH.
*Pigment Red 52, C.I. 15 860-----	APO, HPC, HSC, HSH, SNA.
*Pigment Red 53, C.I. 15 585, barium toner-----	ACY, AMS, BOR, CIK, HPC, HSC, KON, MGR, MRX, SDH, SNA.
Pigment Red 53, C.I. 15 585, sodium toner-----	HSC, KON.
Pigment Red 54, C.I. 14 830, calcium toner-----	HPC, HSH, SDH.
Pigment Red 55, C.I. 15 820-----	HSH.
*Pigment Red 57, C.I. 15 850, calcium toner-----	AMS, APO, BOR, CIK, DUP, HPC, HSC, KON, MGR, SDH, SNA.
Pigment Red 58, C.I. 15 825-----	DUP, HPC.
*Pigment Red 63, C.I. 15 880-----	HSH, KON, SNA.
Pigment Red 81, C.I. 45 160, fugitive-----	MGR.
*Pigment Red 81, C.I. 45 160, PMA-----	BOR, CPC, DUP, GAF, HPC, KON, MGR, MRX, SNA, UHL.
*Pigment Red 81, C.I. 45 160, PTA-----	AMS, DUP, GAF, HPC, HSC, KON, MGR, MRX, SNA, UHL.
Pigment Red 87, C.I. 73 310-----	ACS.
Pigment Red 88, C.I. 73 312-----	ACS, HST.
*Pigment Red 90, C.I. 45 380-----	AMS, BOR, SDH.
*Pigment Red 122-----	ACS, HST, SNA.
Pigment Red 123, C.I. 71 140 (similar to)-----	ACS, HSC.
Pigment Red 146-----	HST.
Pigment Red 149-----	HST.
Pigment Red 168 (Vat Orange 3), C.I. 59 300-----	ACS, HST.
Pigment Red 170-----	HST.
Pigment Red 176-----	HST.
Pigment Red 177-----	TRC.
Pigment Red 179, C.I. 71 130-----	ACS.
Pigment Red 181 (Vat Red 1), C.I. 73 360-----	HST.
Pigment Red 185-----	HST.
Pigment Red 190 (Vat Red 29), C.I. 71 140-----	ACS, HSC.
Pigment Red 194 (Vat Red 15), C.I. 71 100-----	HST.
Pigment Red 197 (Vat Orange 4), C.I. 59 710-----	ACS.
Pigment Red 198, C.I. 73 390-----	ACS.
(Direct Red 81), C.I. 28 160-----	LVR.
(Vat Red 41), C.I. 73 300-----	HST.
All other-----	DUP, ICC, x.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Violet toners:	
Pigment Violet 1, C.I. 45 170, fugitive-----	UHL.
Pigment Violet 1, C.I. 45 170, PMA-----	GAF, HPC, MGR, MRX, SNA, UHL.
*Pigment Violet 1, C.I. 45 170, PTA-----	DUP, GAF, HPC, HSC, MGR, MRX, SNA.
*Pigment Violet 3, C.I. 42 535, fugitive-----	ACY, AMS, HSC, KON, MGR, UHL.
*Pigment Violet 3, C.I. 42 535, PMA-----	AMS, CIK, DUP, GAF, HPC, HSC, KON, MGR, MRX, SDH, UHL.
*Pigment Violet 3, C.I. 42 535, PTA-----	ACY, HPC, HSC, KON, MRX.
Pigment Violet 19, C.I. 46 500-----	ACS, DUP, SNA.
*Pigment Violet 23, C.I. 51 319-----	ACS, BUC, GAF, HSC, HST, MRA, SDC, SNA.
Pigment Violet 31 (Vat Violet 1), C.I. 60 010-----	DUP.
Pigment Violet 36 (Vat Violet 2), C.I. 73 385-----	HST.
Pigment Violet 38, C.I. 73 395-----	ACS.
All other-----	ACY, BUC, HPC, ICC, LVR, ROM.
*Blue toners:	
Pigment Blue 1, C.I. 42 595, PMA-----	DUP, GAF, HPC, KON, MGR, MRX, UHL.
Pigment Blue 1, C.I. 42 595, PTA-----	GAF, KON, MRX.
Pigment Blue 2, C.I. 44 045, PMA-----	GAF, HSC.
Pigment Blue 2, C.I. 44 045, PTA-----	KON.
Pigment Blue 9, C.I. 42 025, PMA-----	KON, UHL.
Pigment Blue 9, C.I. 42 025, PTA-----	GAF.
Pigment Blue 10, C.I. 44 040, PMA-----	SDH.
Pigment Blue 10, C.I. 44 040, PTA-----	LVR.
*Pigment Blue 14, C.I. 42 600, PMA-----	DUP, GAF, HPC, LVR.
Pigment Blue 14, C.I. 42 600, PTA-----	DUP, GAF, LVR.
*Pigment Blue 15, C.I. 74 160, alpha form-----	ACS, ACY, APO, DUP, GAF, HPC, HSC, ICC, MGR, MRA, SNA, TMS.
*Pigment Blue 15, C.I. 74 160, beta form-----	ACS, ACY, AMS, BAS, BOR, BUC, DUP, GAF, HPC, HSC, ICC, POP, SDH, SNA, TMS.
Pigment Blue 19, C.I. 42 750A-----	AMS, HSC, SW.
Pigment Blue 22, C.I. 69 810-----	ACS, DUP.
Pigment Blue 25, C.I. 21 180-----	ICC, S.
Pigment Blue 27, C.I. 77 510-----	CPC.
All other-----	DUP, GAF, SDH, TNI, UHL.
*Green toners:	
*Pigment Green 1, C.I. 42 040, PMA-----	MRX, S, UHL.
Pigment Green 1, C.I. 42 040, PTA-----	MGR.
*Pigment Green 2, C.I. 42 040 and 49 005, PMA-----	GAF, KON, MGR, MRX, UHL.
*Pigment Green 2, C.I. 42 040 and 49 005, PTA-----	ACY, DUP, HPC, KON, MRX.
Pigment Green 4, C.I. 42 000, fugitive-----	GAF.
Pigment Green 4, C.I. 42 000, PMA-----	KON, MGR.
Pigment Green 4, C.I. 42 000, PTA-----	ACY.
*Pigment Green 7, C.I. 74 260-----	ACS, ACY, BAS, CIK, DUP, GAF, HPC, HSC, POP, SDH, SNA, TMS.
Pigment Green 8, C.I. 10 006-----	HPC, HSH, KCW.
Pigment Green 10, C.I. 12 775-----	DUP, HPC.
*Pigment Green 36 (including Pigment Green 38), C.I. 74 265-----	ACS, ACY, DUP, GAF, SNA.
Pigment Green 40-----	HST.
*Brown and Black toners:	
Pigment Brown 2, C.I. 12 071-----	S.
Pigment Brown 3, C.I. 21 010, PMA-----	KCW, KON.
*Pigment Brown 5, C.I. 15 800-----	ACS, BUC, ICC, ROM.
Pigment Brown 26, C.I. 71 129-----	ACS.

ORGANIC PIGMENTS

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Brown and Black toners--Continued	
Pigment Brown 32-----	HST.
(Acid Brown 14), C.I. 20 195-----	LVR.
Pigment Black 7, C.I. 77 266-----	GAF.
All other-----	DUP, SDH, UHL.
LAKES	
Yellow lakes: (Acid Yellow 23), C.I. 19 140-----	KON, MRX.
Orange lakes:	
Pigment Orange 7, C.I. 15 530-----	CPC.
Pigment Orange 17, C.I. 15 510-----	KCW, KON.
Red lakes:	
*Pigment Red 60, C.I. 16 105-----	HSH, KON, MRX, SDH, SNA.
Pigment Red 81, C.I. 45 160, PMA-----	LVR.
*Pigment Red 83, C.I. 58 000-----	HPC, HSH, KON, MRX, UHL.
(Acid Red 17), C.I. 16 180-----	HPC.
*(Acid Red 26), C.I. 16 150-----	CPC, HPC, KCW.
All other-----	LVR.
Violet lakes: *Pigment Violet 5, C.I. 58 055-----	ACS, DUP, HPC, HSH, KON, MRX, S, UHL.
Blue lakes:	
Pigment Blue 17, C.I. 74 180-----	CPC, GAF.
Pigment Blue 24, C.I. 42 090-----	AMS, BOR, KON, SDH.
Brown lakes-----	KON.

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

When the name of a color is enclosed in parentheses, it indicates that this name is that of the dye from which the pigment can be made and that no name for the pigment itself is given in the *Colour Index*.

The abbreviations PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acid, respectively.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of organic pigment manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 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., Specialty Chemicals Div.	KON	H. Kohnstamm & Co., Inc.
ACY	American Cyanamid Co.		
AMS	Sinclair & Valentine Co., Inc., Ridgway Color & Chemical	LVR	C. Lever Co., Inc.
APO	Apollo Colors, Inc.		
BAS	BASF Wyandotte Corp.	MGR	Magruder Color Co., Inc.
BOR	Borden, Inc., Printing Ink Div.	MRA	Crown Metro, Inc.,
BUC	Synalloy Corp., Blackman-Uhler Chemical Div.	MRX	Max Marx Color & Chemical Co.
		POP	Pope Chemical Corp.
CIK	Tenneco Chemicals, Inc., Cal/Ink Div.	PPG	PPG Industries, Inc.
CPC	Childs Pulp Colors, Inc.		
DUP	E. I. duPont de Nemours & Co., Inc.	ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.
GAF	GAF Corp., Chemical Div.	S	Sandoz, Inc., Color & Chemicals Div.
HPC	Hercules, Inc.	SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
HSC	Chemetron Corp., Pigments Div.	SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co.	SNA	Sun Chemical Corp.
HST	American Hoechst Corp.	SW	The Sherwin-Williams Co.
ICC	Inmont Corp.	TMS	Sterling Drug, Inc., Thomasset Colors Div.
KCW	Keystone Color Works, Inc.	TNI	Gillette Co., Gillette Chemical Co. Div.
		TRC	Toms River Chemical Corp.
		UHL	Paul Uhlich & Co., Inc.

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

Medicinal Chemicals

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

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, e.g., 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 1974 amounted to 246.5 million pounds, or 5.5 percent more than the 233.6 million pounds produced in 1973 and 5.2 percent more than the 234.3 million pounds produced in 1972. Total sales of bulk medicinal chemicals in 1974 amounted to 177.5 million pounds, valued at \$814.8 million, compared with sales in 1973 of 179.2 million pounds, valued at \$582.4 million, and sales in 1972 of 163.2 million pounds, valued at \$490.1 million. In terms of quantity, sales in 1974 were thus 1 percent less than in 1973 and 8.8 percent larger than in 1972. In terms of value, however, sales in 1974 were 39.9 percent larger than in 1973 and 66.3 percent larger than in 1972.

Production of the more important groups of medicinal chemicals in 1974 was as follows: Antibiotics, 20.5 million pounds (1.4 percent less than in 1973); of which 13.2 million pounds was for medicinal use and 7.4 million pounds was for other uses; anti-infective agents other than anti-

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

biotics, 39.3 million pounds (18.2 percent greater than in 1973); central nervous system depressants and stimulants, 52.8 million pounds (8.6 percent larger); and vitamins, 40.9 million pounds (20.2 percent larger).

Production of some of the more important individual products listed in the table was as follows: Choline chloride, 39.8 million pounds (14.6 percent smaller than in 1973); aspirin, 33.3 million pounds (3.5 percent larger); ascorbic acid, 22.2 million pounds (43.8 percent larger); penicillins (except semi-synthetic), 5,240 trillion units (6 percent larger); tetracyclines, 2.5 million kilograms (11.6 percent larger); and vitamin E, 1,849 billion units (6.8 percent larger).

MEDICINAL CHEMICALS

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1974

[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 manufacturer of each]

Chemical	Production	Sales ¹		
		Quantity	Value	Unit value ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	246,453	177,515	814,767	\$4.59
Acyclic-----	102,807	83,927	101,315	1.21
Benzeneoid ³ -----	119,014	76,565	466,099	6.09
Cyclic nonbenzenoid ⁴ -----	24,632	17,023	247,353	14.53
Antibiotics, total ⁵ -----	20,549	8,250	254,477	30.85
Antifungal and antitubercular antibiotics, for medicinal use-----	1,238	821	24,009	29.24
Neomycin, for medicinal use-----	...	132	2,997	22.70
Penicillins (except semisynthetic), total-----	7,812	4,149	47,656	11.49
Penicillin G, potassium for medicinal use-----	3,130	...	...	...
All other, for all uses-----	4,682	4,149	47,656	11.49
Semisynthetic penicillins, for medicinal use, total-----	1,454	312	27,461	88.02
Ampicillin-----	1,057	256	23,070	90.12
Ampicillin, sodium-----	47	...	...	...
All other-----	350	56	4,391	78.41
Tetracyclines, for all uses-----	5,579	795	21,313	26.81
Other antibiotics, total-----	4,466	2,041	131,041	64.20
For medicinal use ⁶ -----	2,266	881	109,954	124.81
For nonmedicinal uses ⁷ -----	2,200	1,160	21,087	18.18
Antihistamines, total-----	573	289	13,951	48.27
Antinauseants-----	76	...	...	...
Chlorpheniramine maleate-----	35	...	...	...
All other-----	462	289	13,951	48.27
Anti-infective agents (except antibiotics), total-----	39,258	27,243	104,242	3.83
Anthelmintics, total-----	12,677	8,444	34,822	4.12
Piperazine-----	4,582	1,553	1,435	.92
Piperazine dihydrochloride-----	1,932	1,945	1,789	.92
Piperazine hydrochloride-----	603	350	272	.78
All other-----	5,560	4,596	31,326	6.82
Antifungal agents-----	989	...	...	...
Antiprotozoan agents, total-----	13,352	12,619	40,602	3.22
Arsenic and bismuth compounds-----	5,932	...	...	...
All other-----	7,420	12,619	40,602	3.22
Mercury compounds-----	12	12	681	56.75
Oxyquinoline sulfate-----	9	11	55	5.00
Sulfonamides-----	7,104	2,650	13,921	5.25
Urinary antiseptics-----	497	...	...	...
Other anti-infective agents ⁸ -----	4,618	3,507	14,161	4.04
Autonomic drugs, total-----	971	764	16,404	21.47
Parasympatholytic (anticholinergic) tertiary amines (except tropine derivatives)-----	66	46	2,316	50.35
Sympathomimetic (adrenergic) agents, total-----	858	696	12,421	17.85
Phenylephrine base, bitartrate, and tannate-----	10	9	466	51.78
Phenylpropanolamine hydrochloride-----	372	353	2,322	6.58
All other-----	476	334	9,633	28.84
Other autonomic drugs-----	47	22	1,667	75.77
Cardiovascular agents-----	3,098	1,461	22,223	15.21

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production ¹	Sales ¹		
		Quantity 1,000 pounds	Value 1,000 dollars	Unit value ² per pound
Central depressants and stimulants, total-----				
Amphetamines-----	52,810	39,015	107,782	\$ 2.76
Analgesics and antipyretics, total-----				
Acetanilide derivatives-----	11	...	...	...
Aspirin-----	43,680	32,497	63,362	1.95
Meperidine hydrochloride-----	7,769	8,128	14,534	1.79
Methadone hydrochloride-----	33,290	...	...	...
All other-----	35	...	...	...
Antidepressants-----	4	...	...	...
Barbiturates-----	2,582	24,369	48,828	2.00
Hypnotics and sedatives (except barbiturates)-----	196	...	...	...
Skeletal muscle relaxants and tranquilizers-----	587	483	4,262	8.82
Other central depressants and stimulants ³ -----	336	21	170	8.10
Dermatological agents (except salicylic acid) and local anesthetics-----	1,085	...	...	...
Diagnostic agents, total-----	6,915	6,014	39,988	6.65
Roentgenographic contrast media-----	1,490	1,063	2,440	2.30
All other-----	907	...	...	...
Expectorants and mucolytic agents, total-----				
Ethylenediamine dihydriodide-----	1,894	1,862	7,195	3.86
All other-----	1,297	1,279	4,446	3.48
Gastrointestinal agents (except methionine, hydroxy analog), total-----	597	583	2,749	4.72
Choleretics and hydrocholeretics-----	41,096	36,886	14,875	.40
Choline chloride (all grades)-----	92	...	...	...
All other-----	39,788	35,824	11,966	.33
Hematological agents, total-----	1,216	1,062	2,909	2.74
Sodium heparin-----	27	21	3,412	162.48
All other-----	4	...	...	...
Hormones and synthetic substitutes, total-----	23	21	3,412	162.48
Corticosteroids-----	1,160	119	61,224	514.49
Estrogens and progestogens-----	55	36	44,356	1,232.11
Synthetic hypoglycemic agents-----	30	21	5,130	244.29
Thyroid hormone and antithyroid agents-----	1,018	...	...	...
All other-----	40	...	...	...
Renal-acting and edema-reducing agents, total-----	17	62	11,738	189.32
Benzothiadiazine derivatives-----	2,285	335	7,949	23.73
Mercurial diuretics-----	...	130	4,983	38.33
Theophylline derivatives-----	...	(¹⁰)	10	62.50
All other-----	157	...	...	...
Therapeutic nutrients-----	2,128	205	2,956	14.42
Vitamins, total-----	1,895	1,430	4,337	3.03
Ascorbic acid-----	40,868	29,506	158,704	5.38
Niacin and niacinamide (all grades)-----	22,166	...	...	...
Pantothenic acid and derivatives, total-----	5,150	5,245	9,053	1.73
Calcium pantothenate (racemic)-calcium chloride complex-----	3,382	2,349	4,838	2.06
All other-----	2,056	...	...	...
	1,326	2,349	4,838	2.06

See footnotes at end of table.

MEDICINAL CHEMICALS

97

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production ¹	Sales ¹		
		Quantity	Value	Unit value ²
Vitamins--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Vitamin D ¹¹ -----	17	11	3,360	\$305.45
Vitamin E ¹¹ -----	3,672	3,229	52,456	16.25
Vitamin K-----	225	...	...	...
All other vitamins-----	6,256	18,672	88,997	4.77
Miscellaneous medicinal chemicals ¹² -----	37,572	29,271	35,552	1.21

¹ The data on production and sales are for bulk medicinal chemicals only; they exclude finished preparations and dosage-form products, which are manufactured from bulk chemicals. All quantities are given in terms of 100% active ingredient.

² Calculated from rounded figures.

³ The term "benzenoid," as used in this report, describes any cyclic medicinal chemical whose molecule contains either a six-membered carbocyclic ring with conjugated double bonds (e.g., the benzene ring or the quinone ring) or a six-membered heterocyclic ring with 1 or 2 hetero atoms and conjugated double bonds, except the pyrimidine ring (e.g., the pyridine ring or the pyrazine ring.)

⁴ Includes antibiotics of unknown structure.

⁵ With the exception of bacitracin, the penicillins (except semisynthetic), and a few other antibiotics which were reported in terms of U.S.P. units, all quantities for antibiotics were reported as grams of antibiotic base. (Thus production of 480,900 grams of tetracycline hydrochloride, for example, would have been reported as 444,430 grams of tetracycline base.) For inclusion in the main statistical table, all quantities were converted from grams of antibiotic base to pounds of antibiotic base (453.6 grams = 1 pound) or from U.S.P. units to pounds (22.7 million units of bacitracin, 458 million units of procaine penicillin G, 723 million units of potassium penicillin G, etc. = 1 pound). The following tabulation shows statistics for all individually publishable antibiotics in terms of kilograms of antibiotic base (Kg) or billions of U.S.P. units (BU):

Antibiotic	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
Antifungal and antitubercular antibiotics, for medicinal use-----	---Kg---	561,386	372,492	24,009	\$64.46
Neomycin, for medicinal use-----	---Kg---	...	60,007	2,997	49.94
Penicillins (except semisynthetic), total-----	---BU---	5,239,625	2,602,451	47,656	18.31
Penicillin G, potassium, for medicinal use-----	---BU---	2,262,934	...	...	...
All other, for all uses-----	---BU---	2,976,691	2,602,451	47,656	18.31
Semisynthetic penicillins, for medicinal use, total-----	---Kg---	659,418	141,426	27,461	194.17
Ampicillin-----	---Kg---	479,260	116,154	23,070	198.62
Ampicillin, sodium-----	---Kg---	21,475	...	...	...
All other-----	---Kg---	158,683	25,272	4,391	175.75
Tetracyclines, for all uses-----	---Kg---	2,530,725	360,515	21,313	59.12

⁶ Production of all antibiotics for medicinal use amounted to 13,172,000 pounds, sales amounted to 5,308,000 pounds, valued at \$211,834,000.

⁷ Production of all antibiotics for animal feeds and other nonmedicinal uses amounted to 7,377,000 pounds, sales amounted to 2,943,000 pounds, valued at \$42,643,000.

⁸ Includes sales of antifungal agents and urinary antiseptics.

⁹ Includes production and sales of anticonvulsants, antitussives, general anesthetics, and stimulants; also includes sales of amphetamines, antidepressants, skeletal muscle relaxants, and tranquilizers.

(Continued)

SYNTHETIC ORGANIC CHEMICALS, 1974

Footnotes for table 1-- Continued

¹⁰ Sales of mercurial diuretics amounted to 160 pounds.

¹¹ All quantities for vitamins A, B₁₂, D, and E were reported in terms of grams or units, but were converted to pounds for inclusion in the main statistical table (1.317 billion units of vitamin A acetate, 0.824 billion units of vitamin A palmitate, 453.6 grams of vitamins B₁₂, 18.14 billion units of vitamin D, 617,000 units of d-alpha tocopheryl acetate, 454,000 units of dl-alpha tocopheryl acetate, etc. = 1 pound). The following tabulation shows statistics for vitamins D and E (vitamins A and B₁₂ were not separately publishable) in terms of millions of international units (MU) or billions of U.S.P. units (BU), as appropriate:

Vitamin	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
Vitamin D-----	----BU----	312,873	199,066	1,000 dollars	\$16.88
Vitamin E-----	----MU----	1,849,300	1,631,480	52,456	32.15

¹² Includes production and sales of antineoplastic agents, methionine, hydroxy analog, calcium salt, salicylic acid, smooth muscle relaxants, and unclassified medicinal chemicals; also includes sales of diagnostic agents.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Medicinal chemicals for which separate statistics are given in table 1 are marked below with an asterisk (*); medicinal 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]

Chemical	Manufacturers' identification codes (according to list in table 3)
*Antibiotics: ¹	
*Antifungal and antitubercular antibiotics:	
Antifungal antibiotics:	
Amphotericin B-----	OMS, TRD.
Candidin-----	PEN.
Nystatin-----	ACY, OMS, TRD.
Antitubercular antibiotics:	
Cycloserine-----	COM.
Dihydrostreptomycin-----	MRK, PFZ.
Streptomycin-----	MRK, PFZ.
Viomycin-----	PFZ.
*Neomycin-----	OMS, PEN, PFZ, UPJ.
*Penicillins (except semisynthetic):	
Penicillin G, benzathine-----	WYT.
*Penicillin G, potassium-----	OMS, PFZ, WYT.
Penicillin G, procaine-----	OMS, PFZ, WYT.
Penicillin G, procaine, for nonmedicinal uses-----	MRK, OMS.
Penicillin G, sodium-----	BRS, OMS.
Penicillin O, sodium-----	PFZ.
Phenoxyethylpenicillin (Penicillin V)-----	BRS, LIL, OMS.
Phenoxyethylpenicillin, benzathine-----	WYT.
Phenoxyethylpenicillin, hydrabamine-----	ABB.
Phenoxyethylpenicillin, potassium-----	ABB, LIL.
*Semisynthetic penicillins:	
*Ampicillin-----	BEE, BOC, BRS, TRD, WYT.
*Ampicillin, sodium-----	BEE, OMS, WYT.
Amoxicillin-----	BEE.
Carbenicillin, disodium-----	BEE, PFZ.
Cloxacillin, sodium-----	BEE, BRS.
Dicloxacillin, sodium-----	BEE, BRS, WYT.
Hetaisin-----	BRS.
Methicillin, sodium-----	BEE, BRS.
Nafcillin, sodium-----	WYT.
Oxacillin, sodium-----	BEE, BRS.
Phenethicillin, potassium-----	BRS.
*Tetracyclines:	
Chlortetracycline-----	ACY, RLS.
Chlortetracycline, for nonmedicinal uses-----	ACY.
Demeclocycline-----	ACY.
Doxycycline-----	PFZ.
Methacycline-----	PFZ.
Minocycline-----	ACY.
Oxytetracycline-----	PFZ.
Oxytetracycline, for nonmedicinal uses-----	PFZ.
Tetracycline-----	ACY, BRS, PFZ, RLS.
*Other antibiotics:	
*For medicinal use:	
Bacitracin-----	COM, PEN.
Cefazolin-----	LIL.
Cephalexin-----	LIL.
Cephalexine-----	LIL.
Cephalothin-----	LIL.
Chloramphenicol-----	PD, RLS.
Clindamycin-----	UPJ.
Dihydrocephalexin-----	SK.
Erythromycin-----	ABB, LIL, UPJ.
Fumagillin-----	ABB.
Gentamycin-----	SCH.
Kanamycin-----	BRS.

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Antibiotics ¹ --Continued	
*Other antibiotics--Continued	
*For medicinal use--Continued	
Lincomycin-----	UPJ.
Novobiocin-----	MRK, UPJ.
Oleandomycin-----	PFZ.
Paromomycin-----	MRK.
Polymyxin B-----	PFZ.
Spectinomycin-----	ABB, UPJ.
Streptozocin-----	PFN, UPJ.
Thiostrepton-----	OMS.
Troleandomycin-----	PFZ.
Tyrothricin-----	PEN.
Vancomycin-----	LIL.
*For nonmedicinal uses:	
Bacitracin-----	COM, PEN.
Cycloheximide-----	UPJ.
Hygromycin B-----	LIL.
Lincomycin-----	UPJ.
Monensin, sodium-----	LIL
Neomycin-----	PFZ.
Novobiocin-----	UPJ
Nystatin-----	OMS.
Spectinomycin-----	UPJ.
Streptomycin-----	MRK, PFZ.
Tylosin-----	COM, LIL.
*Antihistamines:	
*Antinauseants:	
Cyclizine hydrochloride-----	BUR.
Dimenhydrinate-----	SRL.
Meclizine hydrochloride-----	PFZ.
Trimethobenzamide hydrochloride-----	HOF.
Bromodiphenhydramine hydrochloride-----	PD.
Brompheniramine maleate-----	SCH.
Carbinoxamine-----	SCH.
Chlorcyclizine hydrochloride-----	BUR.
Chlorothen citrate-----	ACY.
*Chlorpheniramine maleate-----	HEX, SCH, SK.
Chlorpheniramine tannate-----	MAL.
Cyproheptadine hydrochloride-----	MRK.
Dexbrompheniramine maleate-----	SCH.
Dexchlorpheniramine mealeate-----	SCH.
Dimethindene maleate-----	CGY.
Diphenhydramine hydrochloride-----	GAN, PD.
Doxylamine succinate-----	BJL, BKC.
Methapyrilene fumarate-----	ABB.
Methapyrilene hybenzate-----	LIL.
Methapyrilene hydrochloride-----	ABB, MON.
Methdilazine-----	BJL.
Methdilazine hydrochloride-----	BUR.
Phenindamine tartrate-----	HOF.
Pheniramine maleate-----	HEX, SCH.
Phenyltoloxamine citrate-----	BRS.
Pyrilamine-----	HEX.
Pyrilamine maleate-----	HEX, MRK.
Pyrilamine resin adsorbate-----	MRK.
Pyrilamine tannate-----	MAL.
Pyrrobutamine phosphate-----	LIL.
Thonzylamine hydrochloride-----	NEP.
Tripeleannamine-----	CGY.
Tripeleannamine citrate-----	CGY.
Tripeleannamine hydrochloride-----	CGY.
Triprolidine hydrochloride-----	BUR.
Zolamine hydrochloride-----	SCH.

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics):	
*Anthelmintics:	
Dichlorvos-----	SHC.
Diethylcarbamazine citrate-----	ACY.
Gentian violet-----	SDH.
Hexylresorcinol-----	MRK.
Phenothiazine-----	WAG.
*Piperazine-----	DOW, JCC, UCC.
Piperazine citrate-----	BUR.
*Piperazine dihydrochloride-----	DOW, FLM, JCC, WHL.
Piperazine hexahydrate-----	JCC.
*Piperazine hydrochloride-----	DOW, FLM, JCC.
Piperazine phosphate-----	BUR, JCC.
Piperazine sulfate-----	JCC.
Pyrvinium pamoate-----	X.
Thiabendazole-----	MRK.
*Antifungal agents:	
Benzoic acid-----	MON.
Calcium undecylenate-----	WTI.
Chlordantoin-----	ARA.
Sodium caprylate-----	LEM.
Undecylenic acid-----	NTL.
Zinc undecylenate-----	NTL, WTL.
*Antiprotozoan agents:	
Akloamide-----	SAL.
Amodiaquin-----	PD.
Amodiaquin hydrochloride-----	PD.
Amprolium-----	MRK.
*Arsenic and bismuth compounds:	
Arsanilic acid-----	ABB, FLM, WHL.
Bismuth dipropylacetate-----	ARA.
Bismuth subsalicylate-----	MAL, NOR, PEN.
Carbarsone-----	LIL, WHL.
Glycobiarisol-----	SDW.
Nitarsone-----	SAL.
Roxarsone-----	SAL.
Roxarsone, sodium-----	SAL.
Chloroquine phosphate-----	SDW.
Clopido-----	DOW.
Diiodohydroxyquin-----	RSA, SRL.
Dimetridazole-----	RDA.
3,5-Dinitro-o-toluamide-----	DOW.
Furazolidone-----	NOR.
Hydroxychloroquine sulfate-----	SDW.
Iodochlorhydroxyquin-----	CGY.
Ipronidazole-----	HOF.
Metronidazole-----	RDA.
Nifuroxime-----	NOR.
Nifursol-----	LEM.
Nitrophenide-----	ACY.
Primaquine phosphate-----	PD, SDW.
Pyrimethamine-----	BUR.
*Mercury compounds:	
Merbromin-----	HYN.
Nitromersol-----	ABB.
Phenylmercuric borate-----	MRK.
Thimerosal-----	LIL.
*Oxyquinoline sulfate-----	ASH, LEM, MRK, RSA.
*Sulfonamides:	
Acetyl sulfamethoxypyridazine-----	ACY.
Acetyl sulfisoxazole-----	HOF.
Azosulfamide-----	SDW.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Sulfonamides--Continued	
Dinsed-----	SAL.
Mafenide acetate-----	SDW.
Mafenide hydrochloride-----	SDW.
Phthalylsulfacetamide-----	LEM.
Phthalylsulfathiazole-----	MRK.
Sulfabenzamide-----	ACY, LEM.
Sulfabenzamide, sodium-----	ACY.
Sulfabromomethazine, sodium-----	MRK.
Sulfacetamide-----	LEM.
Sulfacetamide, sodium-----	LEM.
Sulfachloropyrazine, sodium-----	ACY.
Sulfachloropyridazine, sodium-----	ACY.
Sulfadiazine-----	ACY.
Sulfadiazine, sodium-----	ACY.
Sulfadimethoxine-----	HOF.
Sulfaguanidine-----	ACY, SAL.
Sulfamerazine-----	ACY.
Sulfamerazine, sodium-----	ACY.
Sulfamethazine-----	ACY, LEM, MRK.
Sulfamethazine, sodium-----	ACY, LEM.
Sulfamethizole-----	ACY.
Sulfamethoxazole-----	HOF.
Sulfanilamide-----	MRK, SAL.
Sulfanitran-----	SAL.
Sulfapyridine-----	ACY.
Sulfapyridine, sodium-----	ACY.
Sulfaquinoxaline-----	LEM, MRK.
Sulfaquinoxaline, sodium-----	LEM.
Sulfasalazine (salicylazosulfapyridine)-----	SAL.
Sulfathiazole-----	MRK.
Sulfathiazole, sodium-----	MRK.
Sulfisoxazole-----	HOF.
Sulfisoxazole, sodium-----	HOF.
*Urinary antiseptics:	
Mandelic acid-----	MAL.
Methenamine hippurate-----	RIK.
Methenamine mandelate-----	ARN, MAL, NEP.
Methenamine sulfosalicylate-----	GAN.
Methylene blue-----	ACY.
Nitrofurantoin-----	NOR.
Phenazopyridine hydrochloride-----	HOF, NEP.
*Other anti-infective agents:	
Aminacrine-----	SDW.
Aminacrine hydrochloride-----	SDW.
Antileprotic and antitubercular agents:	
Aminosalicylic acid-----	x.
Isoniazid-----	RIL.
Sodium aminosalicylate-----	x.
Sodium sulfoxone-----	ABB.
Antiviral agent: Amantadine-----	ALD.
Betanaphthol ³ -----	ACY.
Bromoform-----	DOW.
Cetalkonium chloride-----	FIN, SDW.
Cetylpyridinium chloride-----	FIN, HEX.
Chlorobutanol-----	BPC, PD.
Furazone-----	NOR.
8-Hydroxy-5-quinolinesulfonic acid-----	MRK.
Iodoform ² -----	MAL, PEN.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Other anti-infective agents--Continued	
Nalidixic acid-----	SDH.
Nitrofurathiazide-----	SCH.
Nitrofurazone-----	NOR.
Ormetoprim-----	HOF.
Oxolinic acid-----	NEP.
Oxyquinoline-----	ASH, MRK.
Oxyquinoline benzoate-----	ASH, LEM.
Oxyquinoline citrate-----	ASH, MRK.
Povidone - iodine complex-----	GAF.
Resorcinol ³ -----	KPT.
Thymol-----	GIV.
Thymol iodide-----	MAL.
Trimethoprim-----	BUR.
*Autonomic drugs:	
*Parasympatholytic (anticholinergic) tertiary amines (except tropane derivatives):	
Adiphenine hydrochloride-----	CGY.
Cyclamine hydrochloride-----	LIL.
Dicyclomine hydrochloride-----	BKC.
Orphenadrine citrate-----	RIK.
Oxyphencyclimine hydrochloride-----	PFZ.
Piperidolate hydrochloride-----	LKL.
Thi phenamyl hydrochloride-----	BJL.
Trihexphenidyl hydrochloride-----	ACY, SDW.
*Sympathomimetic (adrenergic) agents:	
Cinnamedrine hydrochloride-----	SDW.
Clorprenaline hydrochloride-----	LIL.
Cyclopentamine hydrochloride-----	LIL.
Ephedrine-----	UPJ.
Epinephrine (levo)-----	BLP.
Epinephrine bitartrate (dextro)-----	SDW.
Epinephrine bitartrate (levo)-----	BLP, SDW.
Epinephrine hydrochloride (levo)-----	BLP.
Epinephrine hydrochloride (racemic)-----	BLP, ECL.
Isoproterenol hydrochloride-----	LIL, SDW.
Isoproterenol sulfate-----	ABB.
Levarterenol bitartrate-----	SDW.
Mephentermine-----	ARA.
Mephentermine sulfate-----	ARA.
Methoxyphenamine hydrochloride-----	X.
Naphazoline hydrochloride-----	CGY.
Nordefrin hydrochloride-----	SDW.
Nyldrin hydrochloride-----	BKL.
*Phenylephrine base, bitartrate, and tannate:	
Phenylephrine-----	GAN, SDW.
Phenylephrine bitartrate-----	GAN, SDW.
Phenylephrine tannate-----	X.
Phenylephrine hydrochloride-----	GAN, HEX, SDW.
*Phenylpropanolamine hydrochloride-----	ARS, GAN, NEP, ORT, PD.
Propylhexedrine-----	SK.
Protokylol hydrochloride-----	LKL.
Pseudoephedrine-----	GAN.
Pseudoephedrine hydrochloride-----	BUR, GAN.
Pseudoephedrine sulfate-----	GAN.
Tetrahydrozoline hydrochloride-----	PFZ.
*Other autonomic drugs:	
Ganglionic blocking agents:	
Hexamethonium bromide-----	RSA.
Tetraethylammonium chloride-----	RSA.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Autonomic drugs--Continued	
*Other autonomic drugs--Continued	
Parasympatholytic (anticholinergic) quaternary ammonium compounds (except tropane derivatives):	
Diphenanil methysulfate-----	SCH.
Hexocyclium methysulfate-----	ABB.
Isopropamide iodide-----	SK.
Mepenzolate bromide-----	LKL.
Pipenzolate bromide-----	LKL.
Tridihexethyl iodide-----	ACY.
Parasympatholytic (anticholinergic) tropane derivatives:	
Anisotropine methylbromide-----	ARA.
Benztropine mesylate-----	ARA.
Homatropine-----	ARA.
Homatropine hydrobromide-----	ARA.
Homatropine methylbromide-----	ARA.
Parasympathomimetic (cholinergic) agents:	
Carbachol-----	RSA.
Neostigmine bromide-----	HOF.
Neostigmine methylsulfate-----	HOF.
Pyridostigmine bromide-----	HOF.
*Cardiovascular agents:	
Antihypertensive agents:	
Alkavervir-----	RIK.
Guanethidine sulfate-----	CGY.
Hydralazine hydrochloride-----	CGY.
Methyldopa-----	MRK.
Pargyline hydrochloride-----	ABB.
Reserpine-----	PEN.
Antilipemic agents:	
Colestipol hydrochloride-----	x.
Dextrothyroxine, sodium-----	BAX.
Sitosterols-----	LIL, UPJ.
Bioflavonoids:	
Hesperidin-----	SKG.
Lemon bioflavonoid complex-----	SKG.
Naringin-----	SKG.
Vasodilators:	
Amyl nitrite-----	MAL.
Dioxyline phosphate-----	LIL.
Ethyl nitrite-----	MAL.
Trolnitrate phosphate-----	PFZ.
Other cardiovascular agents:	
Procainamide hydrochloride-----	OMS, PD.
Quinidine polygalacturonate-----	LEM.
*Central depressants and stimulants:	
*Amphetamines:	
Amphetamine (racemic)-----	ARN.
Amphetamine sulfate (racemic)-----	ARN.
Dextroamphetamine-----	ARN.
Dextroamphetamine sulfate-----	ARN, SK.
Methamphetamine (levo)-----	GAN.
Methamphetamine hydrochloride (dextro)-----	ARN.
*Analgesics and antipyretics:	
*Acetanilide derivatives:	
Acetaminophen-----	ATP, MAL, NOR, PEN.
Phenacetin-----	MON.
*Aspirin-----	DOW, MON, NOR, SDG, x.
*Meperidine hydrochloride-----	PEN, SDW, WYT.
*Methadone hydrochloride-----	LIL, MAL, PEN.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Analgesics and antipyretics--Continued	
*Other analgesics and antipyretics:	
p-Aminobenzoic acid and salts:	
Aminobenzoic acid-----	GAN, PD.
Potassium aminobenzoate-----	GAN.
Sodium aminobenzoate-----	GAN.
Anileridine hydrochloride-----	MRK.
Aurothioglucose-----	SCH.
Calcium succinate-----	LEM.
Dextropropoxyphene napsylate-----	LIL.
Ethoheptazine citrate-----	WYT.
Indomethacin-----	MRK.
Mefenamic acid-----	PD.
Naproxen (racemic)-----	ARA.
Oxycodone hydrochloride-----	EN.
Oxyphenbutazone-----	CGY.
Pentazocine-----	SDW.
Pentazocine hydrochloride-----	SDW.
Phenylbutazone-----	CGY.
Propoxyphene hydrochloride-----	LEM, LIL.
Salicylates:	
Aluminum aspirin-----	ABB.
Phenyl salicylate-----	DOW.
Potassium salicylate-----	HN.
Salicylamide-----	PEN.
Salicylate meglumine-----	LEM.
Salicylic acid, 2-acetamidophenyl ester-----	SDW.
Salsalate (salicylsalicylic acid)-----	PD.
Sodium salicylate-----	HN.
*Antidepressants:	
Amitriptyline-----	MRK.
Desipramine hydrochloride-----	LKL.
Doxepin hydrochloride-----	PFZ, SK.
Imipramine hydrochloride-----	CGY.
Nialamide-----	PFZ.
Nortriptyline-----	LIL.
Phenelzine sulfate-----	NEP.
Protriptyline-----	MRK.
*Barbiturates:	
Allylbarbituric acid-----	GAN.
Allylbarbituric acid, sodium-----	GAN.
Amobarbital-----	GAN, LIL.
Amobarbital, sodium-----	GAN, LIL.
Barbital-----	GAN.
Barbital, sodium-----	GAN.
Butabarbital-----	ABB, GAN.
Butabarbital, sodium-----	ABB, GAN.
5-sec-Butyl-5-ethyl-2-thiobarbituric acid, sodium derivative-----	ABB.
Hexobarbital-----	GAN.
Hexobarbital, sodium-----	SDW.
Mephobarbital-----	GAN, SDW.
Metharbital-----	ABB.
Methohexital, sodium-----	LIL.
Pentobarbital-----	ABB, GAN.
Pentobarbital, sodium-----	ABB, GAN.
Phenobarbital-----	GAN, MAL.
Phenobarbital, sodium-----	GAN, MAL.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Barbiturates--Continued	
Secobarbital-----	GAN.
Secobarbital, sodium-----	GAN, LIL.
Thiamylal, sodium-----	PD.
Thiopental, sodium-----	ABB.
*Hypnotics and sedatives (except barbiturates):	
Carbromal-----	PD.
Ethchlorvynol-----	ABB.
Ethinamate-----	LIL.
Glutethimide-----	BKL, CGY, GAN.
Methyprylon-----	HOF.
*Skeletal muscle relaxants and tranquilizers:	
Skeletal muscle relaxants:	
Carisoprodol-----	BKL.
Chlorphenesin carbamate-----	UPJ.
Phenaglycodol-----	LIL.
Succinylcholine chloride-----	ABB, BUR.
Tubocurarine-----	ABB.
*Tranquilizers:	
Buclizine hydrochloride-----	PFZ.
Chlorazepate dipotassium-----	ABB.
Chlordiazepoxide hydrochloride-----	HOF.
Chlormezanone-----	SDW.
Diazepam-----	HOF.
Ethoxybutamoxane-----	LIL.
Flurazepam hydrochloride-----	HOF.
Hydroxyzine hydrochloride-----	PFZ.
Hydroxyzine pamoate-----	PFZ.
Meprobamate-----	ABB, BKL.
Oxazepam-----	WYT.
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.
Prazepam-----	NEP.
Thiothixene hydrochloride-----	PFZ.
*Other central depressants and stimulants:	
Anticonvulsants:	
Diphenylhydantoin-----	PD.
Diphenylhydantoin, sodium-----	PD.
Ethosuximide-----	PD.
Ethotoin-----	ABB.
Methsuximide-----	PD.
Phenacemide-----	ABB.
Phensuximide-----	PD.
Antitussives:	
Benzonatate-----	CGY.
Caramiphephen edisylate-----	SK.
Carbetapentane citrate-----	PFZ.
Chlophedianol hydrochloride-----	RIK.
Codeine-----	MRK.
Dextromethorphan hydrobromide-----	HOF.
Ethylmorphine hydrochloride-----	MAL, MRK.
Hydrocodone bitartrate-----	MAL, PEN.
Noscapine-----	MRK.
Thebaine-----	MRK.
General anesthetic: Ketamine hydrochloride-----	PD.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Other central depressants and stimulants--Continued	
Stimulants:	
Benzphetamine hydrochloride-----	UPJ.
Caffeine:	
Natural-----	CPR. GNF.
Synthetic-----	PFZ.
Caffeine, citrated-----	MAL.
Chlorphentermine hydrochloride-----	NEP.
Deanol acetamidobenzoate-----	RIK.
Diethylpropion hydrochloride-----	BKC.
Nikethamide-----	CGY.
Pemoline-----	ABB.
Phendimetrazine tartrate-----	BAX.
Phentermine-----	HEX.
*Dermatological agents (except salicylic acid) and local anesthetics:	
Dermatological agents:	
Allantoin-----	HFT.
Aluminum phenolsulfonate-----	SAL.
Ammonium phenolsulfonate-----	SAL.
Bismuth subgallate-----	MAL, PEN.
Glycol salicylate-----	RDA.
Podophyllum resin-----	PEN.
Zinc phenolsulfonate-----	MAL, SAL.
Local anesthetics:	
Butamben picrate-----	ABB.
Butyl aminobenzoate (Butamben)-----	ABB.
p-Butylaminobenzoic acid, ethyl ester-----	GAN.
Dibucaine-----	CGY.
Dibucaine hydrochloride-----	CGY.
Ethyl aminobenzoate (Benzocaine)-----	PD.
Isobutyl aminobenzoate-----	RSA.
Lidocaine-----	AST, RLS, SDW.
Lidocaine hydrochloride-----	SDW.
Mepivacaine hydrochloride-----	ARA.
Oxethazaine-----	WYT.
Phenacaine hydrochloride-----	SDW.
Pramoxine hydrochloride-----	ABB.
Procaine hydrochloride-----	PFZ, UOP.
Proparacaine hydrochloride-----	OMS.
Tetracaine-----	SDW.
Diagnostic agents:	
*Roentgenographic contrast media:	
Acetrizoate, sodium-----	MAL.
Diatrizoate, meglumine-----	OMS, SDW.
Diatrizoate, sodium-----	OMS, SDW.
Iodipamide, meglumine-----	OMS.
Iodohippurate, sodium-----	MAL.
Iopanoic acid-----	SDW.
Iophendylate-----	x.
Iothalamate, meglumine-----	MAL.
Iothalamate, sodium-----	MAL.
Methiodal, sodium-----	SDW.
Trypanoate, sodium-----	SDW.
*Other diagnostic agents:	
Betazole hydrochloride (gastric secretion test)-----	LIL.
Fluorescein, sodium (corneal trauma indicator)-----	SDH.
Indocyanine green (cardiac output test)-----	HYN, x.
Ketodase-----	NEP.
Metyrapone (pituitary function test)-----	CGY.
Phenolphthalein monophosphate, dicyclohexylamine salt-----	NEP.
Phenolsulfonphthalein (kidney function test)-----	HYN.
Sulfobromophthalein, sodium (liver function test)-----	HYN.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Expectorants and mucolytic agents:	
*Ethylenediamine dihydriodide-----	HFT, MAL, WAG, WHL.
Glyceryl guaiacolate-----	GAN, PEN.
Iodinated glycerol-----	X.
Lobeline sulfate-----	ABB.
Potassium guaiacolsulfonate-----	HN.
Terpin hydrate-----	PEN.
Thonzonium bromide-----	NEP.
*Gastrointestinal agents (except methionine, hydroxy analog):	
*Choleretics and hydrocholeretics:	
Bile acids, oxidized-----	SRL, WIL.
Dehydrocholic acid-----	WIL.
Florantyrene-----	SRL.
Iron bile salts-----	LIL, WIL.
Ox bile extract-----	ABB, WIL.
Sodium dehydrocholate-----	WIL.
Tocamphyl-----	ARA.
*Choline chloride:	
Feed grade-----	COM, DA, DOW, HFT, TMH.
Medicinal grade-----	HFT.
Technical grade-----	HFT.
*Other gastrointestinal agents:	
Betaine base-----	HFT.
Betaine hydrochloride-----	HFT.
Calcium polycarbophil-----	SCH.
Choline bicarbonate-----	COM.
Choline bitartrate-----	ACY, HFT.
Choline citrate (Tricholine citrate)-----	ACY, HFT.
Choline dihydrogen citrate-----	ACY, HFT.
Dihydroxyaluminum aminoacetate-----	CHT.
Magnesium citrate-----	MAL.
Pectin-----	SKG.
Phenolphthalein-----	SCH.
Podophyllin-----	ABB.
Sodium tartrate-----	MAL.
*Hematological agents:	
Anticoagulants:	
Ammonium heparin-----	ABB, RIK, WIL.
Anisindione-----	SCH.
Bishydroxycoumarin-----	ABB.
Calcium heparin-----	RIK.
Diphenadione-----	UPJ.
Lithium heparin-----	RIK.
*Sodium heparin-----	ABB, RIK, WIL.
Warfarin-----	SDW.
Other hematological agents:	
Aminocaproic acid-----	ACY.
Cellulose, oxidized-----	EKT.
Dextran-----	PHR.
Protamine-----	LIL.
*Hormones and synthetic substitutes:	
*Corticosteroids:	
Betamethasone alcohol and acetate-----	SCH.
Betamethasone benzoate-----	X.
Betamethasone phosphate-----	SCH.
Betamethasone valerate-----	SCH.
Cortisone acetate-----	MRK, UPJ.
Dexamethasone-----	MRK, SCH.
Dexamethasone sodium phosphate-----	MRK.
Fludrocortisone acetate-----	UPJ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Hormones and synthetic substitutes--Continued	
*Corticosteroids--Continued	
Fluorometholone-----	UPJ.
9 α -Fluoroprednisolone acetate-----	UPJ.
9-Fluoro-11 β ,16 α , 17, 21-tetrahydroxypregna-1,4-diene-3,20-dione 16,21-diacetate-----	TRD.
Fluprednisolone-----	UPJ.
Halcinonide-----	TRD.
Hydrocortisone-----	MRK, PFZ, UPJ..
Hydrocortisone acetate-----	MRK, UPJ.
Medrysone-----	UPJ.
Methylprednisolone-----	UPJ.
Prednisolone-----	MRK, SCH, UPJ.
Prednisolone acetate-----	UPJ.
Prednisone-----	MRK, SCH, UPJ.
Triamcinolone-----	TRD, x.
Triamcinolone acetonide-----	OMS.
Triamcinolone diacetate-----	OMS.
*Estrogens and progestogens:	
Estrogens:	
Chlorotrianisene-----	BJL, BKC.
Diethylstilbestrol-----	ARA, DLI, LIL.
Diethylstilbestrol diphosphate-----	ARA.
Estradiol cypionate-----	UPJ.
Estrogenic substances, conjugated-----	ORG.
Natural estrogenic substance-----	ORG.
Piperazine estrone sulfate-----	ABB.
Potassium estrone sulfate-----	PEN.
Progestogens:	
Medroxyprogesterone acetate-----	UPJ.
Melengestrol acetate-----	UPJ.
Norgestrel-----	WYT.
Progesterone-----	UPJ.
*Synthetic hypoglycemic agents:	
Acetohexamide-----	LIL.
Chlorpropamide-----	PFZ.
Glyburide-----	x.
Phenformin hydrochloride-----	BKL.
Tolazamide-----	UPJ.
Tolbutamide-----	UPJ.
*Thyroid hormone and antithyroid agents:	
Levothyroxine, sodium-----	BAX.
Methimazole-----	LIL.
Propylthiouracil-----	ARA.
2-Thiouracil-----	ACY.
Thyroglobulin-----	NEP.
Thyroid hormone-----	LIL.
*Other hormones and synthetic substitutes:	
Anabolic agents and androgens:	
Fluoxymesterone-----	UPJ.
Testosterone cypionate-----	UPJ.
Zeranol-----	COM.
Corticotropin (ACTH)-----	ARP, ORG.
Insulin-----	ARP, LIL.
*Renal-acting and edema-reducing agents:	
*Benzothiadiazine derivatives:	
Bendroflumethiazide-----	OMS.
Benzthiazide-----	PFZ.
Chlorothiazide-----	LEM, MRK.
Flumethiazide-----	OMS.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Renal-acting and edema-reducing agents--Continued	
*Benzothiadiazine derivatives--Continued	
Hydrochlorothiazide-----	ABB, CGY, MRK.
Hydroflumethiazide-----	X.
Methyclothiazide-----	ABB.
Polythiazide-----	PFZ.
Trichlormethiazide-----	SCH.
*Mercurial diuretics:	
Meralluride-----	LKL.
Mersalyl acid-----	SDW.
Sodium mercaptomerin-----	WYT.
*Theophylline derivatives:	
Aminophylline-----	GAN, SRL.
8-Bromotheophylline, 2-amino-2-methyl-1-	
propanol salt-----	GAN.
Oxtriphylline-----	NEP.
Theophylline sodium glycinate-----	CHT.
*Other renal-acting and edema-reducing agents:	
Acetazolamide-----	ACY.
Chlorthalidone-----	CGY.
Dichlorphenamide-----	MRK.
Ethacrynic acid-----	MRK.
Ethoxzolamide-----	ARA.
Probenecid-----	MRK.
Triamterene-----	ACY, SK.
*Therapeutic nutrients:	
Amino acids:	
Amino acid mixtures-----	MDJ.
Arginine aspartic acid-----	LEM.
Glutamic acid and salts:	
Glutamic acid-----	LEM.
Glutamic acid hydrochloride-----	LEM.
Potassium glutamate-----	LEM.
L-Tyrosine-----	MDJ.
Other therapeutic nutrients:	
Calcium glucoheptonate-----	PFN.
Calcium gluconate-----	PFZ.
Copper gluconate-----	PFZ.
Ferrous gluconate-----	PFZ, SDW.
Magnesium gluconate-----	PFZ.
Manganese gluconate-----	PFZ.
Potassium gluconate-----	PFZ.
Zinc glucoheptonate-----	PFN.
*Vitamins:	
*Ascorbic acid-----	HOF, MRK, PFZ.
*Niacin and niacinamide (all grades):	
Niacin (nicotinic acid) (feed grade)-----	MRK, NEP, RIL.
Niacin (nicotinic acid) (medicinal grade)-----	MRK, RIL.
Niacinamide-----	MRK, NEP, PD, RIL.
*Pantothenic acid and derivatives:	
Calcium pantothenate (dextro)-----	HFT.
Calcium pantothenate (racemic) (feed grade)-----	CKL, DA, HFT, TMH.
Calcium pantothenate (racemic) (medicinal grade)-----	HFT.
*Calcium pantothenate (racemic) - calcium chloride	
complex-----	CKL, DA, DLI, HFT.
Dexpanthenol-----	HOF.
Panthenol (racemic)-----	HOF.
Pantothenic acid-----	PD.
Sodium pantothenate-----	PD

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Vitamins--Continued	
*Vitamin D:	
Cholecalciferol (Vitamin D ₃)-----	DA, DLI, TMH, VTM.
7-Dehydrocholesterol (Provitamin D ₃)-----	JUL.
Ergocalciferol (Vitamin D ₂)-----	SCR, VTM.
*Vitamin E:	
d-Alpha tocopherol-----	EKT, GNM.
dl-Alpha tocopherol-----	GNM, HOF.
d-Alpha tocopheryl acetate-----	EKT, GNM.
dl-Alpha tocopheryl acetate-----	DA, EKT, GNM, HOF.
dl-Alpha tocopheryl acetate (feed grade)-----	HOF.
d-Alpha tocopheryl acid succinate-----	EKT, GNM.
*Vitamin K:	
Menadiol sodium diphosphate-----	HOF.
Menadione-----	ABB, HET, WHL.
Menadione sodium bisulfite-----	ABB, HET, HFT, WHL.
Phytomadione-----	MRK.
*Other Vitamins:	
Ascorbic acid salts:	
Calcium ascorbate-----	PFZ.
Sodium ascorbate-----	HOF, MRK, PFZ.
Biotin-----	HOF.
Cyanocobalamin (feed grade)-----	MRK.
Cyanocobalamin (medicinal grade)-----	MRK.
Cyanocobalamin (U.S.P. crystalline)-----	MRK.
Inositol-----	STA.
Magnesium nicotinate-----	MRK.
Niacinamide hydrochloride-----	NEP.
Pyridoxine-----	HOF.
Riboflavin (feed grade)-----	GPR, HOF, MRK.
Riboflavin (medicinal grade)-----	HOF, MRK.
Riboflavin-5-phosphate, sodium-----	HOF.
Thiamine hydrochloride-----	HOF, MRK.
Thiamine mononitrate-----	HOF, MRK.
Vitamin A:	
Beta-carotene (Provitamin A)-----	HOF.
Vitamin A acetate:	
Feed grade-----	EKT, HOF.
Medicinal grade-----	HOF.
Vitamin A acid-----	EK.
Vitamin A alcohol-----	HOF.
Vitamin A palmitate:	
Feed grade-----	HOF.
Medicinal grade-----	EKT, HOF.
*Miscellaneous medicinal chemicals:	
Antineoplastic agents:	
Azathioprine-----	BUR.
Calusterone-----	UPJ.
Mercaptapurine-----	BUR.
Thioguanine-----	BUR.
Vinblastine sulfate-----	LIL.
Vincristine sulfate-----	LIL.
Methionine, hydroxy analog, calcium salt-----	DUP, MON.
Salicylic acid ³ -----	DOW, HN.
Smooth muscle relaxants:	
Alverine citrate-----	ARA.
Alverine hydrochloride-----	ARA.
Papaverine hydrochloride-----	LIL, PEN.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Miscellaneous medicinal chemicals--Continued	
Unclassified medicinal chemicals:	
Allopurinol-----	BUR.
Berberine hydrochloride----- ¹	PEN.
Dinoprost tromethamine-----	X.
Etidronate, disodium-----	LEM.
Hydrastine hydrochloride-----	PEN.
Levodopa-----	HOF.
Penicillamine-----	MRK.

¹ All antibiotics listed are for medicinal use unless otherwise specified.² Producers of technical grade are listed in "Miscellaneous chemicals."³ Producers of technical grade are listed in "Cyclic intermediates."

MEDICINAL CHEMICALS

113

TABLE 3.--MEDICINAL CHEMICALS: DIRECTORY OF MANUFACTURERS, 1974
ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of medicinal chemicals to the U.S. International Trade Commission for 1974 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	LEM	Napp Chemicals, Inc.
ACY	American Cyanamid Co.	LIL	Eli Lilly & Co. and Puerto Rico
ALD	Aldrich Chemical Co.	LKL	Lakeside Laboratories Div. of Richardson-Merrill, Inc.
ARA	Arapahoe Chemicals, Inc.	MAL	Mallinckrodt Chemical Works
ARN	Arenol Chemical Corp.	MDJ	Mead Johnson & Co. Div.
ARP	Armour Pharmaceutical Co.	MON	Monsanto Co.
ARS	Arsynco, Inc.	MRK	Merck & Co., Inc.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	NEP	Nepera Chemical Co., Inc.
AST	Astra Pharmaceutical Products, Inc.	NES	Nease Chemical Co., Inc.
ATP	Northern Fine Chemicals, Inc.	NOR	Norwich Pharmacal Co.
BAX	Baxter Laboratories, Inc.	NTL	NL Industries, Inc.
BEE	Beecham, Inc.	OMS	E.R. Squibb & Sons, Inc.
BJL	Burdick & Jackson Laboratories, Inc.	ORG	Organics, Inc.
BKC	J.T. Baker Chemical Co.	ORT	Roehr Chemicals, Inc.
BKL	Millmaster Onyx Corp., Millmaster Chemical Div., Berkeley Chemical Dept.	PD	Parke, Davis & Co.
BLP	Belpoint Co., Inc.	PEN	CPC International, Inc., S.B. Penick Co.
BOC	Biocraft Laboratories, Inc.	PFN	Pfanstiehl Laboratories, Inc.
BPC	Stauffer Chemical Co., Specialty Chemical Div., Benzol Products	PFZ	Pfizer, Inc. and Pfizer Pharmaceuticals, Inc.
BRS	Bristol-Myers Co., Bristol Laboratories Div.	PHR	Pharmachem Corp.
BUR	Burroughs-Wellcome Co.	RDA	Rhodia, Inc.
CGY	Ciba-Geigy Corp. and Ciba Pharmaceutical Co.	RIK	Riker Laboratories, Inc., Sub. of 3M Co.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.	RIL	Reilly Tar & Chemical Corp.
CKL	Chemlek Laboratories, Inc.	RLS	Rachelle Laboratories, Inc.
COM	Commercial Solvents Corp.	RSA	R.S.A. Corp.
CPR	Certified Processing Corp.	SAL	Salsbury Laboratories
DA	Diamond Shamrock Corp.	SCH	Schering Corp.
DLI	Dave's Laboratories, Inc.	SCR	R.P. Scherer Corp.
DOW	Dow Chemical Co.	SDG	Sterling Drug Corp.:
DUP	E.I. duPont de Nemours & Co., Inc.	SDH	Glenbrook Laboratories Div.
ECL	Eastside Chemical Laboratory	SDW	Hilton-Davis Chemical Co. Div.
EK	Eastman Kodak Co.:	SHC	Winthrop Laboratories Div.
EKT	Tennessee Eastman Co. Div.	SK	Shell Oil Co., Shell Chemical Co. Div.
EN	Endo Laboratories, Inc.	SKG	Smith, Kline & French Laboratories
FIN	Fine Organics, Inc.	SRL	Sunkist Growers, Inc.
FLM	Fleming Laboratories, Inc.	STA	G.D. Searle & Co.
GAF	GAF Corp., Chemical Div.	TMH	A.E. Staley Manufacturing Co.
GAN	Gane's Chemical Works, Inc.	TRD	Thompson-Hayward Chemical Co.
GIV	Givaudan Corp.	UCC	Manufacturing Enterprises, Inc., Squibb
GNF	General Foods Corp., Maxwell House Div.	UOP	Manufacturing Inc., Trade Enterprises, Inc.
GNM	General Mills Chemicals, Inc.	UPJ	Union Carbide Corp.
GPR	Grain Processing Corp.	VTM	Universal Oil Products Co., UOP Chemical Div.
HET	Heterochemical Corp.	WAG	Upjohn Co.
HEX	Hexagon Laboratories, Inc.	WHL	Vitamins, Inc.
HFT	Syntex Aribusiness, Inc., Nutrition & Chemical Div.	WIL	West Agro-Chemicals, Inc.
HN	Tenneco Chemicals, Inc.	WTL	Whitmoyer Laboratories, Inc.
HOF	Hoffmann-LaRoche, Inc.	WYT	Inolex Corp., Inolix Pharmaceutical Div.
HYN	Hynson, Westcott & Dunning, Inc.		Pennwalt Corp., Lucidol Div.
JCC	Jefferson Chemical Co., Inc.		Wyeth Laboratories, Inc., Wyeth Laboratories
JUL	Julian Associates, Inc.		Div. of American Home Products Corp.
KPT	Koppers Co., Inc., Organic Material Div.		

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

FLAVOR AND PERFUME MATERIALS

Flavor and perfume materials are organic chemicals used to impart flavors and odors to foods, beverages, cosmetics and soaps. These aromatic 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 1974 amounted to 135.3 million pounds (table 1).¹ Sales of these materials in 1974 amounted to 107.4 million pounds, valued at \$166.7 million compared with 108.3 million pounds, valued at \$108.5 million in 1973. These totals do not include benzyl alcohol, which was, before 1973, included in flavor and perfume materials but is shown in the miscellaneous cyclic section of this series. U.S. production of flavor and perfume materials in 1974 increased 15.7 percent over 1973 but the quantity of sales declined slightly, by 0.8 percent.

Production of cyclic flavor and perfume materials in 1974 amounted to 55.7 million pounds; sales amounted to 42.7 million pounds, valued at \$100.9 million. The individual chemical in the cyclic group produced in the greatest volume in 1974 was methyl salicylate (7 million pounds).

U.S. output of acyclic flavor and perfume materials in 1974 amounted to 79.6 million pounds; sales of these materials amounted to 64.7 million pounds, valued at \$65.8 million. Monosodium glutamate was by far the most important of the acyclic chemicals, and the individual flavor and perfume chemical produced in the greatest volume (47.2 million pounds).

The report for 1974 has eliminated the separate section for "Essential oils, chemically modified", included prior to 1973. Chemicals previously listed under this heading have been distributed throughout the cyclic and acyclic groups.

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

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1974

[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 manufacturers of each]

Material	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 dollars	Per pound	
Grand total-----	135,321	107,447	166,726	\$1.55
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total-----	.55,729	42,721	100,922	2.36
<i>Benzoid and Naphthalenoid</i>				
Total-----	44,793	34,997	78,133	2.23
4-Allyl-2-methoxyphenol (Eugenol)-----	422	330	2,130	6.46
p-Anisaldehyde-----	1,103	1,065	3,326	3.12
Anisyl acetate-----	...	8	49	6.26
Benzophenone ² -----	959	466	892	1.92
Benzyl acetate-----	2,092	2,002	1,264	.63
Benzyl benzoate-----	1,426	1,195	758	.63
Benzyl butyrate-----	13	...	...	...
Benzyl cinnamate-----	9	10	42	4.45
Benzyl propionate-----	41	41	56	1.38
Benzyl salicylate-----	819	834	1,109	1.39
Cinnamyl acetate-----	11	10	41	4.11
Cinnamyl alcohol-----	240	278	655	2.35
Cinnamyl anthranilate-----	1	1	15	18.45
Cinnamyl propionate-----	...	1	13	8.87
Ethyl phenylglycidate-----	16	...	...	...
Hydrocoumarin-----	45	43	272	6.31
Isobutyl phenylacetate-----	22	16	29	1.77
Isobutyl Salicylate-----	...	15	17	1.10
Isopentyl salicylate-----	933	788	671	.85
α -Methylcinnamaldehyde-----	...	5	12	2.29
Methyl phenylacetate-----	31	32	79	2.47
Methyl salicylate-----	7,012	6,256	4,341	.69
α -Pentylcinnamaldehyde-----	901	769	1,275	1.66
Phenethyl acetate-----	129	88	224	2.54
Phenethyl isobutyrate-----	12	...	...	...
Phenethyl isovalerate-----	...	20	67	3.32
2-Phenethyl phenylacetate-----	24	14	57	3.97
3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	39	34	88	2.62
p-Propenylanisole (Anethole)-----	2,235	2,383	12,189	5.12
All other benzenoid and naphthalenoid materials-----	26,258	18,293	48,462	2.65

See footnotes at end of table.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Material	Production	Sales			
		Quantity	Value	Unit value ¹	
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued					
<i>Terpenoid, Heterocyclic, and Alicyclic</i>					
Total-----	10,936	7,724	22,789	\$2.95	
Cedryl acetate-----	427	226	873	3.86	
α -Ionone-----	106	87	524	6.01	
Ionone (α -and β)-----	82	73	414	5.66	
Lavandin, acetylated-----	4	4	43	10.93	
Menthol, synthetic, U.S.P. and tech-----	285	281	1,570	5.58	
Methylionones-----	790	453	3,031	6.68	
Terpineols-----	4,080	3,236	1,728	.53	
α -Terpinyl acetate-----	804	...	...	...
Vetivinyl acetate-----	35	12	658	55.66	
All other terpenoid, heterocyclic, and alicyclic materials-----	4,323	3,352	13,948	4.16	
FLAVOR AND PERFUME MATERIALS, ACYCLIC					
Total-----	79,592	64,726	65,804	1.02	
Allyl hexanoate-----	...	23	64	2.80	
Butyl butyryl lactate-----	37	35	127	3.67	
Citronellyl acetate-----	...	39	201	5.10	
Citronellyl formate-----	35	28	177	6.32	
Citronellyl isobutyrate-----	5	...	...	...
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)-----	70	53	269	5.09	
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)-----	3,551	2,824	4,930	1.75	
3,7-Dimethyl-1,6-octadien-3-ol (Linalool; Linalyl alcohol)-----	2,666	...	...	...
3,7-Dimethyl-6-octen-1-al (Citronellal)-----	1,379	...	...	...
3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	1,280	1,022	2,997	2.93	
Ethyl butyrate-----	569	454	353	.78	
Ethyl heptanoate-----	14	20	55	2.69	
Ethyl hexanoate (Ethyl caproate)-----	13	7	17	2.30	
Ethyl nonanoate-----	4	3	11	3.66	
Ethyl octanoate-----	...	3	9	2.61	
Ethyl oxyhydrate-----	28	21	38	1.86	
Ethyl propionate-----	111	96	81	.85	
Geranyl acetate-----	125	114	507	4.45	
Geranyl formate-----	11	11	68	6.16	
Glutamic acid, monosodium salt (Monosodium glutamate)-----	47,185	45,926	30,135	.66	
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)-----	857	503	4,931	9.80	
Isopentyl butyrate-----	102	90	95	1.05	
Isopentyl formate-----	5	5	10	1.92	
Isopentyl isovalerate-----	34	...	...	...
Octanal-----	13	9	41	4.53	
Rhodinol-----	15	...	...	...
All other acyclic materials-----	21,483	13,440	20,688	1.54	

¹ Calculated from the unrounded figures.² Includes significant quantities having other end uses.

FLAVOR AND PERFUME MATERIALS

117

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974

[Flavor and perfume materials for which separate statistics are given in table 1 are marked below with an asterisk (*); those 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 are taken from table 3. An x signifies that the manufacturer did not consent to his identification with the designated product]

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC	
<i>Benzoid and Naphthalenoid</i>	
2'-Acetonaphthone-----	GIV.
1-Acetoxy-2-sec-butyl-1-ethenylcyclohexane-----	GIV.
5-Acetyl-1,1,2,3,3,6-hexamethylindan-----	PFW.
p-Allylanisole-----	GIV, GLD.
Allyl cyclohexyl propionate-----	GIV.
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)-----	GIV, UOP.
*4-Allyl-2-methoxyphenol (Eugenol)-----	CI, FB, GIV, IFF, PEN, RT, UNG, UOP.
4-Allyl-2-methoxyphenol acetate (Eugenol acetate)-----	CI, GIV.
4-Allyl-1,2-(methylenedioxy)benzene (Safrole)-----	FB, GIV.
Allyl phenoxyacetate-----	GIV.
p-tert-Amylcyclohexanone (Orivone)-----	CI, IFF.
*p-Anisaldehyde-----	GIV, OPC, UOP.
*Anisyl acetate-----	ELN, GIV, UOP.
Benzaldehyde-----	FB.
*Benzophenone-----	GAF, NEO, PD, UOP.
*Benzyl acetate-----	GIV, MON, OPC, UOP.
*Benzyl benzoate-----	MON, OPC, PFZ, UOP, VEL.
*Benzyl butyrate-----	ELN, FB, GIV.
*Benzyl cinnamate-----	FB, GIV, UOP.
2-Benzyl-1,3-dioxolane-----	GIV.
Benzyl ether-----	VEL.
Benzyl formate-----	GIV, UOP.
Benzyl glyceryl acetal-----	GIV.
Benzyl isobutyrate-----	GIV.
Benzyl isopentyl ether-----	GIV.
Benzyl isovalerate-----	FB.
Benzyl laurate-----	GIV.
1-(Benzyl oxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether).-----	GIV, UOP.
Benzyl phenylacetate-----	ELN, GIV.
*Benzyl propionate-----	ELN, FB, GIV, OPC.
*Benzyl salicylate-----	GIV, MON, UNG, UOP.
α -Bromostyrene-----	UOP.
2-sec-Butylcyclohexanone-----	GIV.
p-tert-Butylcyclohexanone-----	CI.
p-tert-Butylcyclohexyl acetate-----	CI, IFF.
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 -methylhydrocinnamaldehyde-----	GIV, UOP.
Butyl phenylacetate-----	GIV.
1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzene (Musk Tibetene).-----	GIV, UOP.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylo).-----	GIV.
Carvacrol-----	GIV.
Cinnamaldehyde-----	CI, FB, UOP.
*Cinnamyl acetate-----	ELN, FB, GIV.
*Cinnamyl alcohol-----	FB, GIV, NEO, UOP.
*Cinnamyl anthranilate-----	FEL, GIV, RT.
Cinnamyl butyrate-----	FB.
Cinnamyl cinnamate-----	FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
<i>Benzoid and Naphthalenoid--Continued</i>	
*Cinnamyl propionate-----	ELN, FB, GIV.
Cinnamyl tiglate-----	FB.
Coumarin-----	DOW, RDA.
Cuminalcohol-----	GIV.
Cyclohexylcyclohexanone-----	GIV.
trans-Decahydro- β -naphthol-----	IFF.
2,4-Dibromo-6-nitro-m-cresyl methyl ether-----	GIV.
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrole)-----	GIV, UOP.
3,7-Dimethyl-1,6-octadien-3-yl, anthranilate (Linalyl anthranilate).-----	FMT.
trans-3,7-Dimethyl-2,6-octadien-1-ol, benzoate (Geranyl benzoate).-----	GIV.
3,7-Dimethyl-1,6-octadien-3-ol, benzoate (Linalyl benzoate).-----	HOF.
3,7-Dimethyl-1,6-octadien-3-ol, cinnamate (Linalyl cinnamate).-----	HOF.
3,7-Dimethyl-1,6-octadien-3-ol, formate (Linalyl formate).-----	HOF.
3,7-Dimethyl-2,6-octadienylphenylacetate (Geranyl phenylacetate).-----	GIV.
α,α -Dimethylphenethyl acetate-----	IFF.
α,α -Dimethylphenethyl alcohol-----	IFF.
α,α -Dimethylphenethyl alcohol, tech-----	IFF.
α,α -Dimethylphenethyl butyrate-----	UOP.
Diphenylmethane (Benzylbenzene)-----	GIV.
1,3-Diphenyl-2-propanone (Dibenzyl ketone)-----	GIV.
β -Ethoxybenzaldehyde-----	MON, SLV.
3-Ethoxy-4-hydroxybenzaldehyde (Ethyvanillin)-----	GIV.
2-Ethoxynaphthalene-----	FB.
Ethyl anthranilate-----	ELN.
Ethyl benzoate-----	HOF.
Ethyl butylcyclohexanol-----	ELN, GIV.
Ethyl cinnamate-----	ELN.
Ethyl α,β -epoxy- β -methylhydrocinnamate-----	FEL.
2-Ethylhexyl salicylate-----	GIV.
Ethyl phenylacetate-----	GIV, PFW, UOP.
*Ethyl phenylglycidate-----	FB.
Ethyl salicylate-----	GIV, UOP.
3'-Ethy-5',6',7',8'-tetrahydro-5',5',8',8'-tetramethyl-2'-acetonaphthone.-----	IFF.
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl cyclopenta- γ -2-benzopyran (Galaxolide).-----	GIV.
Hexyl benzoate-----	CI, IFF.
α -Hexylcinnamaldehyde-----	GIV, IFF.
Hydratropaldehyde-----	GIV, IFF.
Hydratropaldehyde, dimethyl acetal-----	ARS.
Hydrocinnamic acid-----	ARS, GIV, UOP.
*Hydrocoumarin-----	GIV.
Hydroxycitronellalmethyl anthranilate-----	SLV.
3-Hydroxy-4-methoxybenzaldehyde (Isovanillin)-----	MON, SLV.
4-Hydroxy-3-methoxybenzaldehyde (Vanillin)-----	GIV.
4-(4-Hydroxy-3-methoxyphenyl)-2-butanone-----	GIV.
Indole-----	GIV.
Isoamyl phenylacetate-----	GIV.
Isobutyl benzoate-----	ELN.
p-Isobutyl- α -methylhydrocinnamaldehyde-----	RDA.
*Isobutyl phenylacetate-----	ELN, FB, GIV.
Isobutylquinoline-----	IFF.
*Isobutyl salicylate-----	FB, GIV, UOP.
Isohexenyl tetrahydrobenzaldehyde-2,3,7,8 (Myrac aldehyde).-----	IFF.
Isononyl acetate-----	CI.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
<i>Benzoid and Naphthalenoid--Continued</i>	
Isopentyl benzoate-----	GIV.
*Isopentyl salicylate-----	FB, GIV, MON, OPC, UOP.
p-Isopropylbenzaldehyde (Cumaldehyde)-----	GIV.
p-Isopropylcyclohexanol-----	CI, GIV.
p-Isopropyl- α -methylhydrocinnamaldehyde (Cyclamen aldehyde).-----	GIV, RDA.
p-Mentha-1,8-diene (Limonene)-----	SKG.
Menthyl anthranilate-----	PFW.
4'-Methoxyacetophenone (Acetanisole)-----	GIV, UOP.
p-Methoxybenzyl alcohol (Anisyl alcohol)-----	GIV, UOP.
α -Methoxycinnamaldehyde-----	CI.
2-Methoxynaphthalene-----	GIV.
1-(p-Methoxyphenyl)-1-penten-3-one-----	GIV.
2-Methoxy-4-propenylphenol (Isoeugenol)-----	CI, FB, GIV, UOP.
2-Methoxy-4-propenylphenol, acetate-----	UOP.
4'-Methylacetophenone-----	GIV, UOP.
p-Methylanisole-----	GIV, OPC, SW.
Methyl anthranilate-----	FB, PFW, UNG.
Methyl benzoate-----	HN.
α -Methylbenzyl acetate (Styralyl acetate)-----	CI, ELN, GIV.
α -Methylbenzyl alcohol (Styralyl alcohol)-----	CI.
* α -Methylcinnamaldehyde-----	CI, FB, GIV.
Methyl cinnamate-----	CI, FB, UOP.
6-Methylcoumarin-----	GIV.
Methylcyclohexyl propionate-----	GIV.
1,2-(Methylenedioxy)-4-propenylbenzene (Isosafrole)-----	GIV.
4-Methyl-7-ethoxycoumarin-----	GIV.
p-Methylhydratropaldehyde-----	GIV.
1-Methyl-4-isoheptyl-hexahydrobenzaldehyde (Vernaldehyde).-----	GIV.
2-Methyl-5-isopropylphenol (Carvacrol)-----	GIV.
Methyl-N-methylanthranilate-----	GIV.
2-Methyl-6-(4-methyl-3-cyclohexenylidene)-2-heptene, and C ₁₅ hydrocarbon isomers.-----	HOF.
*Methyl phenylacetate-----	ELN, GIV, OPC.
*Methyl salicylate-----	DOW, HN, MON.
1H-Naphtho-[2,3-c]pyran-3,4,6,7,8,9-hexahydro-4,6,6,9,9- pentamethyl (Musk 89).-----	IFF.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan-----	GIV.
* α -Pentylcinnamaldehyde-----	CI, FB, GIV, IFF, UOP.
*Phenethyl acetate-----	GIV, IFF, NEO.
Phenethyl alcohol-----	IFF, NEO.
Phenethyl anthranilate-----	RT.
Phenethyl formate-----	ELN, IFF.
*Phenethyl isobutyrate-----	ELN, GIV, IFF.
*Phenethyl isovalerate-----	ELN, FB, GIV, OPC.
*2-Phenethyl phenylacetate-----	ELN, FB, GIV, IFF.
Phenethyl propionate-----	ELN, GIV, IFF.
Phenethyl salicylate-----	GIV.
2-Phenoxyethyl isobutyrate-----	ELN, GIV, IFF.
Phenylacetaldehyde-----	GIV.
Phenylacetaldehyde, dimethyl acetal-----	GIV, UOP.
α -Phenylanisole (2-Methoxybiphenyl)-----	GIV.
4-Phenyl-3-buten-2-one (Benzylideneacetone)-----	FB, UOP.
Phenylethyl acetal-----	GIV.
Phenylethyl tiglate-----	FB.
*3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	ELN, FB, GIV, UOP.
3-Phenylpropyl acetate-----	ELN, GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
<i>Benzoid and Naphthalenoid--Continued</i>	
3-Phenylpropyl cinnamate-----	FB.
Piperonal (Heliotropin)-----	AMB, GIV.
Piperonal bisulfite (Heliotropin bisulfite)-----	AMB.
*p-Propenylanisole (Anethole)-----	ARZ, GLD, HN, HPC, NCI, RSA.
p-Propenylanisole (Dihydroanethole)-----	FB, GIV.
N-Propylphenylethyl alcohol-----	GIV.
Sassafrass oil, hydrogenated-----	GIV.
Sweeteners, synthetic:	
Cyclohexanesulfamic acid-----	ABB.
Cyclohexanesulfamic acid, calcium salt-----	ABB.
Cyclohexanesulfamic acid, sodium salt-----	ABB.
Saccharin (1,2-Benzisothiazolin-3-one, 1,1-dioxide)-----	SW.
Saccharin, calcium salt-----	SW.
Saccharin, sodium salt-----	SW.
p-Tolualdehyde-----	GIV, TCC..
p-Tolylacetraldehyde-----	GIV.
p-Tolyl acetate-----	ELN, GIV.
p-Tolyl phenylacetate-----	GIV.
α-(Trichloromethyl)benzyl acetate (Rosetone)-----	NEO.
<i>Terpenoid, Heterocyclic, and Alicyclic</i>	
Acetyl cedrene (Vertofix)-----	IFF.
Amyris acetate-----	GIV.
β-Caryophyllene-----	CI, GIV.
Caryophyllene acetate-----	CI.
Caryophyllene alcohol-----	FB.
L-Caryvyl acetate-----	FB.
Caryophyllene oxide-----	GIV.
α-Cedrene epoxide (Andrane)-----	IFF.
Cedrene-8-ol-----	IFF.
Cedrenol-----	GIV.
Cedrol-----	ELN, GIV, IFF, NEO.
*Cedryl acetate-----	ELN, GIV, IFF, NEO, UOP.
Cedryl formate-----	IFF.
Cedryl methyl ether (Cedramber)-----	IFF.
Chemically modified butter oil-----	RT.
Clove leaf oil terpenes-----	CI.
Cyclopentanone-----	ARA.
Dihydronordicyclobutyrate (Cyclabute)-----	IFF.
Dihydronordicyclopentadienyl acetate-----	GIV, IFF.
Dihydronordicyclopentadienyl propionate-----	GIV, IFF.
Dihydroterpinyl acetate-----	GIV.
Ethyl furoate-----	RT.
Ethynilcyclohexanol-----	x.
Furfuryl acrolein (Furfural acrolein)-----	RT.
4-(2-Furyl)-3-butene-2-one (Furfural acetone)-----	RT.
Guaicwood acetate-----	ELN, GIV, NEO.
Guaiene-----	FB.
3,4,5,8,9,10-Hexahydro-4-isopropyl-1,6-dimethyl-naphthalene (Cadinene).-----	FB.
2-Hexyl-2-cyclopenten-1-one (Isojasmone)-----	PFZ.
3-Hydroxy-2-ethyl-4-pyrone (Ethyl maltol)-----	IFF.
4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-10-carboxaldehyde (Lyrail).-----	

FLAVOR AND PERFUME MATERIALS

121

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
<i>Terpenoid, Heterocyclic, and Alicyclic--Continued</i>	
3-Hydroxy-2-methyl-4-pyrone (Maltol)-----	PFZ.
4-Hydroxynonanoic acid, γ -lactone (γ -Nonalactone)-----	GIV, UOP.
4-Hydroxyoctanoic acid, γ -lactone (γ -Octalactone)-----	GIV, RT, UOP.
4-Hydroxyundecanoic acid, γ -lactone (γ -Undecalactone)-----	ELN, FB.
<i>Ionones:</i>	
* α -Ionone-----	GIV, HOF, IFF, MYW.
β -Ionone-----	HOF, MYW.
*Ionone (α - and β)-----	GIV, MYW, NEO.
Isobornyl acetate-----	FB, RDA.
Isobornyl propionate-----	GIV.
Isocamphyl cyclohexanols (Terpinyl cyclohexanols)-----	GIV.
Isomenthone-----	GLD.
5-Isopropenyl-2-methylcyclohexanol (Dihydrocarveol)-----	GLD.
5-Isopropenyl-2-methylcyclohexanone (Dihydrocarvone)-----	GLD.
4-Isopropylidene-1-methylcyclohexene (Terpinolene)-----	IFF.
Jasmal-----	FEL, GIV, UNG.
*Lavandin, acetylated-----	FB.
p-Mentha- α ,8-dien-2-ol (L-Carveol)-----	NEO.
p-Mentha-6,8-dien-2-one (Carvone; Carvol)-----	GLD.
p-Mentha-1,3-diene (α -Terpinene)-----	GLD.
p-Mentha-1,4-diene (γ -Terpinene)-----	GIV, NEO.
p-Menth-3-one (Menthone)-----	GIV.
p-Menth-1-en-3-one-----	GIV.
p-Menth-4(8)-en-3-one (d-Pulegone)-----	GIV.
p-Menth-8-en-3-ol (Isopulegol)-----	GIV.
1,1-p-Menth-6-yl-1-propanone-----	GIV.
*Menthol, synthetic:	
Tech-----	GIV.
U.S.P -----	GIV, GLD, NEO.
Methyl acetate-----	GIV.
*Methylionones:	
6-Methyl- α -ionone-----	GIV, MYW.
Methylionone (α - and β)-----	GIV, IFF, MYW, NEO, UNG.
γ -Methylionone-----	GIV.
Nonyl acetate-----	CI, FEL, NEO.
3-Pentyl-tetrahydro-4-pyranol (Jessemal)-----	IFF.
Rose oxide-----	FB.
Santalol-----	GIV, IFF.
Santalyl acetate-----	GIV.
Terpin hydrate, tech-----	HPC.
*Terpineols:	
α -Terpineol-----	GLD, HPC, NCI.
Terpineol (α - and β)-----	GIV, NEO.
* α -terpinyl acetate-----	GIV, NCI, NEO, PFW, UNG.
Terpinyl acetate (mixed α - and β)-----	RDA.
α -Terpinyl propionate-----	ELN, GIV.
Tetrahydropseudoionone-----	CI.
Tricyclodencyl propionate-----	CI.
Tricyclononyl acetate-----	CI.
3,3,5-Trimethyl cyclohexanol (Homomenthol)-----	ARS.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl- α -ionone).-----	IFF.
Vetivenol-----	GIV, UOP.
*Vetivenyl acetate-----	ELN, FB, GIV, IFF, NEO, UOP.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Acetylbutyryl-2,3-hexanedione-----	FB.
Acetylisovaleryl-5-methyl-2,3-hexanedione-----	FB.
3-Acetylnonyl acetate-----	CI.
Acetylpropionyl-2,3-pentanedione-----	FB.
Allyl disulfide-----	RT.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Allyl heptanoate-----	FB, RT.
*Allyl hexanoate-----	ELN, FB, GIV, PFW.
Allyl isovalerate-----	RT.
Allyl octanoate (Allyl caprylate)-----	RT.
Allyl sulfide-----	RT.
Amyl propionate-----	GIV.
Butyl butyrate-----	FB.
*Butyl butyryl lactate-----	ARS, BJL, RT.
Butyl undecylenate-----	CI.
1-Butyne-----	x.
Citral dimethyl acetal-----	GIV, IFF.
*Citronellyl acetate-----	ELN, GIV, IFF.
Citronellyl butyrate-----	GIV.
*Citronellyl formate-----	ELN, GIV, IFF, NEO.
*Citronellyl isobutyrate-----	ELN, GIV, IFF.
Citronellyl oxyacetaldehyde-----	IFF.
Citronellyl propionate-----	GIV, IFF.
Decanal (Capraldehyde)-----	CI, GIV, IFF.
Decen-9-ol-1 (Rosalva)-----	IFF.
Decyl acetate-----	GIV.
Diethyl acetal-----	FB.
Diethyl sebacate-----	ELN, FEL, UOP.
Diethyl succinate-----	ELN, UCC.
Dihydromycenol-----	IFF.
Dihydromyrcenyl formate (Dimyrcetol)-----	IFF.
2,6-Dimethyl-5-hepten-1-al-----	GIV.
Dimethylhexanediol-----	x.
Dimethylhexynediol-----	x.
3,7-Dimethyl-3-methoxy-1,6-octadiene (Linalyl methyl ether).-----	HOF.
3,7-Dimethyl-1,6-nonadien-3-ol (Ethyl linolool)-----	HOF.
3,7-Dimethyl-1,6-nonadien-3-ol, acetate (Ethyl linalyl acetate).-----	HOF.
3,7-Dimethyl-2,6-nonadienenitrile-----	GIV.
*3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)-----	ELN, FB, GIV, GLD, IFF.
3,7-Dimethyl-trans-2,6-octadienol (Citral a; Geraniol)-----	FB, FEL, GIV, GLD, NCI, RDA, UOP.
3,7-Dimethyl-2,6-octadienol (mixture of cis and trans isomers).-----	CI.
3,7-Dimethyl-trans-2,6-octadienal dimethyl acetate-----	CI.
*3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)-----	CI, ELN, FB, FEL, GIV, GLD, IFF, NCI, NEO, UOP.
*3,7-Dimethyl-1,6-octadien-3-ol (Linalool; Linalyl alcohol).-----	ELN, FB, FEL, GIV, GLD, HOF, NCI, UNG.
3,7-Dimethyl-1,6-octadien-3-ol acetate (Linalyl acetate).-----	ELN, FB, GIV, HOF, IFF, NEO, UNG.
3,7-Dimethyl-1,6-octadien-3-y1 isobutyrate (Linalyl isobutyrate).-----	HOF.
3,7-Dimethyl-1,6-octadien-3-ol propionate (Linalyl propionate).-----	HOF.
3,7-Dimethyl-1,7-octanediol-----	GIV.
3,7-Dimethyloctan-3-ol (Tetrahydrolinalool)-----	HOF.
3,7-Dimethyl-1-octanol (Dihydrocitronellol)-----	GIV.
*3,7-Dimethyl-6-octen-1-al (Citronellal)-----	CI, ELN, FB, GIV, GLD, IFF, NEO, RDA, UOP.
*3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	CI, ELN, FB, GIV, GLD, IFF, NCI, NEO.
2,6-Dimethyl-2-octene-7-yne-6-ol-----	RDA.
3,7-Dimethyl-7-octenol and 6-octenol isomer-----	GIV.
Dimethyloctynol-----	x.
*Ethyl butyrate-----	FB, NW, UOP.
Ethyl caprate-----	FB.
Ethyl formate-----	FB.
*Ethyl heptanoate-----	ELN, FB, FEL, RT, UOP.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
6-Ethyl-5 hepten-2-one	HOF.
*Ethyl hexanoate (Ethyl caproate)	ELN, FB, NW, PFW, RT.
Ethyl isohexanoate	PFW.
Ethyl isovalerate	FB, PFW.
Ethyl laurate	ELN.
Ethyl 2-methylbutyrate	GLD.
Ethyl myristate	RT.
*Ethyl nonanoate	ELN, FB, FEL, GIV.
*Ethyl octanoate	ELN, FB, RT.
*Ethyl oxyhydrate	FB, FEL, FLO, MON, PFW, RT.
*Ethyl propionate	FB, NW, UOP.
Ethyl valerate	PFW.
Geranic acid	FB.
*Geranyl acetate	CI, ELN, FEL, GIV, IFF.
Geranyl butyrate	ELN, CI, GIV.
*Geranyl formate	IFF.
Geranyl isobutyrate	FB.
Geranyl isovalerate	IFF.
Geranyl neryl formate	CI, IFF.
Geranyl nitrile (Geranonitrile)	FB.
Geranyl propionate	FB, FMT.
Geranyl tiglate (Geranyl dimethylacrylate)	COM, GRW, SFF.
*Glutamic acid, monosodium salt (Monosodium glutamate)	CI.
Glyceryl trihexanoate (Caproic acid triglyceride)	FB.
γ-Heptalactone	UCC.
Heptyl alcohol (1-Heptanol)	FB.
Hexanoic acid (Caproic acid)	GLD.
Hexenal	FB, GIV.
2-Hexenal	RT.
2-Hexenoic acid	FB.
2-Hexenol	GLD.
trans-2-Hexenol	GIV, x.
cis-3-Hexen-1-ol	RT.
cis-3-Hexen-1-ol lactate	GIV.
cis-3-Hexen-1-yl acetate	GLD.
cis-3-Hexenyl 2-methylbutyrate	HOF, x.
3-Hexyn-1-ol	FMT.
3-Hydroxy-2-butanone (Acetoin)	CI, GIV, GLD, IFF, NEO, RDA, UOP.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	GIV, UOP.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal)	
Isoamyl acetate	FB.
Isoamyl geranate	FB.
Isoamyl propionate	FB.
Isoamyl undecenate	GIV.
Isobutyl acetate	FB.
Isobutyl hexanoate	GIV.
Isodihydro lavandulol	FB.
Isodihydro lavandulyl acetate	FB.
Isodihydro lavandulyl aldehyde	FB.
Isopentyl acetate	NW.
*Isopentyl butyrate	FB, GIV, NW, PFW, UOP.
*Isopentyl formate	ELN, FB, GIV, RT.
*Isopentyl isovalerate	ELN, FB, PFW, RT.
Lauraldehyde	CI, GIV.
Methyl butenol	x.
Methyl butynol	x.
Methyl heptadienone	HOF.
3-Methyl-5-heptanone oxime	GIV.
2-Methyl-2-hepten-6-one	RDA.
2-Methyl-2-hepten-7-one	RDA.
6-Methyl-5-hepten-2-one	HOF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE
REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Methyl hexyl ether-----	GLD.
Methyl isobutyrate-----	PFW.
Methyl 2-methyl butyrate-----	GLD.
3-Methyl-2-(and 3) nonenitrile-----	GIV.
Methyl-2-nonenanoate-----	GIV.
Methylol methyl hexyl ketone-----	GIV.
3-Methyl-3-pentenyl-1-isobutyrate-----	HOF.
Methyl pentynol-----	x.
B-Methylthiopropionaldehyde-----	RT.
2-Methylundecanal-----	GIV.
Muguol (Allocimeno1)-----	IFF.
Myrcenyl acetate-----	IFF.
Myristaldehyde-----	GIV.
Neryl acetate-----	FB, GIV.
Nonanal-----	GIV.
Nonane-1,3-diol monoacetate-----	CI, GIV.
Nonanol-----	GIV.
2-Nonanone-----	HOF.
Nonyl acetate-----	GIV.
Ocimenol-----	IFF.
Ocimenyl acetate-----	IFF.
*Octanal-----	CI, GIV, IFF.
3-Octanol-----	GIV.
3-Octanone (Ethyl amyl ketone)-----	GIV.
n-Octyl acetate-----	FB, GIV.
Octyl alcohol (1-Octanol)-----	GIV.
Octyl isovalerate-----	RT.
Pentyl acetate-----	UOP.
Propyne-----	x.
Pseudolinalyl acetate-----	IFF.
Pyrolysate ester (Aconitic ester)-----	GIV.
*Rhodinol-----	FB, FEL, GIV, IFF, NEO.
Rhodinyl acetate-----	GIV, IFF.
Tepyl acetate-----	UOP.
Tetrahydromuguol (T. H. allocimeno1)-----	IFF.
3,7,11-Trimethyl-1,6,10-dodecatriene-3-ol-----	HOF.
2,6,10-Trimethyl-9-undecen-1-al-----	GIV.
3,6,10-Trimethyl-9-undecen-2-one and isomers-----	GIV.
2,6,6-Trimethyl-2-vinyl-5-hydroxytetrahydropyrane (Linalool oxide).-----	HOF.
Undecanal-----	GIV, IFF.
9-Undecenal-----	GIV.
γ-Valerolactone-----	GIV.

TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of flavor and perfume materials to the U.S. International Trade Commission for 1974 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	MNR	Monroe Chemical Co.
AIP	Air Products & Chemicals, Inc.	MON	Monsanto Co.
AMB	American Bio-Synthetics Corp.	MYW	Stepan Chemical Co.
ARA	Arapahoe Chemical Inc., Sub/Syntex (U.S.A.), Inc.	NCI	Union Camp Corp., Chemical Division
ARS	Arsynco, Inc.	NEO	Norda Inc.
ARZ	Arizona Chemical Co.	NW	Northwestern Chemical Co.
BJL	Burdick & Jackson Labs., Inc.	OPC	Orbis Products Corp.
CI	Chem-Fleur, Inc.	PD	Parke, Davis & Co.
COM	Commercial Solvents Corp.	PEN	CPC International, Inc., Penick Division
DOW	Dow Chemical Co.	PFW	Polak's Frutal Works, Inc.
ELN	Elan Chemical Co.	PFZ	Pfizer, Inc.
FB	Fritzsche, Dodge & Olcott, Inc.	RDA	Rhodia, Inc.
FEL	Felton International, Inc.	RSA	R.S.A. Corp.
FLO	Florasynth, Inc.	RT	F. Ritter & Co.
FMT	Fairmount Chemical Co., Inc.	SFF	Stauffer Chemical Co., Food Ingredients Div.
GAF	GAF Corp., Chemical Division	SKG	Sunkist Growers, Inc.
GIV	Givaudan Corp.	SLV	Sterwin Chemicals, Inc.
GLD	SCM Corp., Glidden-Durkee Division	SW	Sherwin-Williams Co.
GRW	Great Western Sugar Co.	TCC	Tanatex Chemical Corp.
HN	Tenneco Chemicals, Inc.	UCC	Union Carbide Corp.
HOF	Hoffman-LaRoche, Inc.	UNG	Ungerer & Co.
HPC	Hercules, Inc.	UOP	Universal Oil Products Co., UOP Chemical Division
IFF	International Flavor & Fragrances, Inc.	VEL	Velsicol Chemical Corp.

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

SYNTHETIC ORGANIC CHEMICALS, 1974

PLASTICS AND RESIN MATERIALS

Plastics and resin materials are high molecular weight polymers which, at some stage in their manufacture, exist in such physical condition that they can be shaped or otherwise processed by the application of heat and pressure. Depending on the chemical composition, manufacturing process or intended use, the commercial products may contain plasticizers, fillers, extenders, stabilizers, coloring agents or other additives. 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. These statistics also cover polyether and polyester polyols for urethanes which are not plastics materials themselves, but are precursors.

Statistics covering urethane type elastomers are reported for the first time in this section; through 1973, these data were reported under the elastomers (synthetic rubbers) section.

Statistics on U.S. production and sales of synthetic plastic and resin materials for 1974 are given in table 1.¹ U.S. production of plastics and resin materials in 1974 totaled 30,348 million pounds, or less than one percent more than the 30,251 million pounds produced in 1973. Sales in 1974 totaled 26,128 million pounds, valued at \$7,887 million compared with 27,018 million pounds, valued at \$5,347 million in 1973.

Thermosetting materials are those which harden with a change in composition in the final treatment so that they cannot again be softened by heat or solvents. U.S. production of thermosetting materials totaled 6,119 million pounds in 1974 compared with 6,394 million pounds in 1973. Production of the most important products in 1974 included phenolic resins (1,598 million pounds), amino (or urea and melamine) resins (1,236 million pounds), polyester resins, (unsaturated) (838 million pounds) and alkyd resins (726 million pounds).

Thermoplastic materials are those which can be repeatedly softened by heat and shaped. U.S. production of thermoplastic materials totaled 24,229 million pounds in 1974 compared with 23,856 million pounds in 1973. Production of the most important products in 1974 included polyethylene (8,826 million pounds), vinyl resins (5,669 million pounds), and styrene type materials (5,060 million pounds).

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

PLASTICS AND RESIN MATERIALS

127

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1974

[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 and/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]

Material	Production	Sales		
		Quantity	Value	Unit value ¹
		1,000 pounds dry basis ²	1,000 pounds dry basis ²	1,000 dollars
Grand total-----	30,348,130	26,128,106	7,887,358	\$0.302
Plastics and resin materials, benzenoid ³ -----	9,767,809	8,341,509	3,243,405	.389
Plastics and resin materials, nonbenzenoid-----	20,580,321	17,786,597	4,643,953	.261
THERMOSETTING RESINS				
Total-----	6,118,815	4,976,462	1,778,014	.357
Alkyd resins, total ⁴ -----	726,057	402,808	186,500	.463
Phthalic anhydride type-----	662,370	365,938	169,874	.464
Polybasic acid type-----	31,458	19,344	10,001	.517
Styrene alkyd polyesters ⁵ -----	32,229	17,526	6,625	.378
Polyester resins, unsaturated ⁶ -----	838,427	722,513	291,067	.403
Amino resins, total-----	1,235,881	1,058,584	204,538	.193
Melamine-formaldehyde resins-----	204,338	150,753	68,735	.456
Urea-formaldehyde resins-----	1,031,543	907,831	135,803	.150
Dicyandiamide resins-----	1,991	1,808	1,584	.876
Epoxy resins: ^{7,8}				
Unmodified-----	270,251	234,657	144,988	.618
Advanced-----	(41,722)	(24,844)	(25,102)	1.010
Furfuryl type resins-----	4,249	3,900	1,518	.389
Phenolic and other tar acid resins-----	1,598,438	1,375,553	486,696	.354
Polyurethane and diisocyanate resins (excluding foam) and urethane type elastomers ⁹ , total-----	280,602	199,398	153,469	.770
Polyurethane and diisocyanate resins-----	192,552	133,309	74,655	.560
Urethane type elastomers ¹⁰ -----	88,050	66,089	78,814	1.193
Polyether and polyester polyols for urethanes ¹¹ -----	1,112,306	944,956	264,317	.280
Silicone resins-----	17,749	13,327	29,248	2.195
Other thermosetting resins ¹² -----	32,864	18,958	14,089	.743
THERMOPLASTIC RESINS				
Total-----	24,229,315	21,151,644	6,109,344	.289
Acrylic resins ^{13, 14} -----	889,747	675,954	364,013	.539
Cellulosic plastics and resins ^{13, 15} -----	224,469	198,699	140,625	.708
Coumarone-indene resins-----	80,594	...	...	...
Engineering plastics ¹⁶ -----	398,404	331,288	266,550	.805
Petroleum hydrocarbon resins ¹⁷ -----	325,824	310,177	50,376	.162
Polyamide resins, nylon type ^{13, 18} -----	172,586	137,768	130,994	.951
Polyamide resins, non-nylon type-----	47,632	41,052	36,280	.884
Polyester resins, saturated ^{13, 19} -----	106,455	95,471	85,882	.900
Polyethylene and copolymers resins, total-----	8,826,399	7,945,177	1,751,575	.220
Density 0.940 and below ²⁰ -----	6,027,117	5,377,227	1,212,699	.226
Density over 0.940-----	2,799,282	2,567,950	538,876	.210

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Material	Production	Sales		
		Quantity	Value	Unit value ¹
THERMOPLASTIC RESINS--Continued				
Polypropylene resins-----	1,000 pounds dry basis ²	1,000 pounds dry basis ²	1,000 dollars	Per pound
Polyterpene resins-----	2,248,718	1,944,844	460,839	\$0.237
Polytetrafluoroethylene (PTFE)-----	18,326	18,546	9,055	.488
Rosin modifications, total-----	18,370	14,823	44,257	2.986
Rosin and rosin esters, unmodified (ester gums)-----	122,606	109,246	37,808	.346
Rosin and rosin esters, modified-----	31,815	21,136	8,162	.386
Styrene plastics materials, total-----	90,791	88,110	29,646	.336
Acrylonitrile-butadiene-styrene (ABS) resins-----	5,059,578	4,553,865	1,489,633	.327
Styrene-acrylonitrile resins (SAN)-----	898,344	828,700	339,973	.410
Styrene and other styrene copolymer resins-----	110,741	109,199	35,681	.327
Vinyl resins, total ²¹ -----	4,050,493	3,615,966	1,113,979	.308
Polyvinyl chloride and copolymers-----	5,669,163	4,692,329	1,205,185	.257
Polyvinyl acetate ²² -----	4,744,007	3,955,273	907,815	.230
Polyvinyl alcohol ²³ -----	543,009	438,994	138,543	.316
Other vinyl and vinylidene resins ²⁴ -----	141,064	123,035	51,947	.422
All other thermoplastic resins ²⁵ -----	241,083	175,027	106,880	.611
	20,444	82,405	36,272	.440

¹ Calculated from rounded figures.² Dry weight basis unless otherwise specified. Dry weight basis is the total weight of the materials including resin and coloring agents, extenders, fillers, plasticizers, and other additives, but excluding water and other liquid diluents unless they are an integral part of the materials.³ Includes 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.⁴ The total now includes data for styrene alkyl polyesters.⁵ "Alkyd copolymers", "styrene polyesters", and "styrenated alkyds" have been suggested as alternative names by industry sources.⁶ Polyester resins are unsaturated alkyd resins, later to be copolymerized with a monomer (such as styrene or methyl methacrylate); and polyallyl resins (such as diallyl phthalate and diglycol carbonate). Data are on an "as sold" basis, including monomer if part of the resin system.⁷ Includes reactive diluents which are an integral part of the resin. Excludes the weight of hardeners sold in association with the resin as part of a two-component system.⁸ Data 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.⁹ In view of the very large number of producers of both flexible and rigid urethane foams, these data are not collected as such by the U.S. International Trade Commission.¹⁰ Data for urethane type elastomers are now included in this section of the Synthetic Organic Chemicals report; these statistics previously were reported under the elastomers (synthetic rubbers) section. The data on urethane elastomers are believed to be not fully representative of the total urethane market in view of the very large number of urethane elastomer producers.¹¹ In addition to the polyols, the other principal starting materials used in the production of urethane products are the isocyanic acid derivatives, mainly the 80/20 mixture of toluene-2,4- and 2,6-diisocyanate. Statistics for the isocyanic acid derivatives are reported in the cyclic intermediates section of the Synthetic Organic Chemicals report.¹² Includes acetone formaldehyde resins, glyoxal resins, polybutadiene resins, toluenesulfonamide resins, triazone resins, and other thermosetting resins.¹³ Does not include production or sales for fiber use.¹⁴ Includes data for acrylic resins reported to the U.S. International Trade Commission as thermosetting resins.¹⁵ Now includes data on certain cellulosic plastics and resins which were transferred from the miscellaneous acyclic chemicals and chemical products section of the Synthetic Organic Chemicals report.¹⁶ Engineering plastics: Acetals, polycarbonate, polyimide, polyphenylene sulfide (added in 1974), polysulfone, and polyphenylene oxide. Engineering plastics are defined in Whittington's *Dictionary of Plastics*, (First edition, published by Technomic Publishing Co., Inc.), 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 of Plastics* as engineering plastics, ABS resins and nylon resins, are not included in the above.

(Continued)

Footnotes for table 1--Continued

list as they are published separately.

¹⁷ Includes data for petroleum hydrocarbon resins reported to the U.S. International Trade Commission as thermo-setting resins.

¹⁸ Statistics for nylon 6 and nylon 6/6 which are used in plastic applications (e.g., molding etc.) are included here.

¹⁹ Statistics for polyethylene terephthalate which is used in plastics applications (e.g., molding, etc.) are included here.

²⁰ Includes data for ethylene copolymers which were collected in the aggregate and which could not be published separately, these data were combined with statistics for low density polyethylene resins as the copolymers are predominately low density materials.

Ethylene accounts for 50 percent or more (by weight) of these copolymers. The low-density polyethylene copolymers includes those produced from ethylene and other non-hydrocarbon co-monomers (e.g., vinyl acetate, ethyl acetate, and acrylic acid); while the high-density copolymers includes those products from ethylene and other hydrocarbon monomers (e.g., butene or hexene).

²¹ Data are on the basis of dry resin content, excluding the weight of plasticizers, extenders, fillers, coloring agents, stabilizers or impact modifiers, unless otherwise noted.

²² Data for polyvinyl acetate produced and sold in latex form includes the weight of any protective colloids which are used as emulsion stabilizers and form an integral part of the resin system. Production and sales do not include polyvinyl acetate used as a reactive intermediate for polyvinyl alcohol or other vinyl resins.

²³ Production and sales do not include polyvinyl alcohol used as a reactive intermediate for polyvinyl butyral or other vinyl resins.

²⁴ Includes polyvinyl butyral, polyvinyl formal, polyvinylidene chloride and other vinyl resins.

²⁵ Includes coumarone-indene resins (sales only), fluorocarbon resins except PTFE, phenoxy resins, polybutylene type 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 (i.e., SPI) owing to differences in both the reporting instructions (e.g., polyamide resins, nylon type) and in the coverage (e.g., phenolic resins).

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974

[Plastics and resin materials for which separate statistics are given in table 1 are marked below with an asterisk (*) as are the urethane elastomers and certain precursors; 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]

Material	Manufacturers' identification codes (according to list in table 3)
THERMOSETTING RESINS	
Acetone-formaldehyde resins-----	ACY, AMR, MCC, SNW.
*Alkyd resins:	
*Phthalic anhydride type-----	ACY, APT, ASH, AZS, BAL, BEN, BRU, CEL, CGL, CNE, COM, CPV, DAV, DEG, DSO, DUP, EW, FAR, FCD, FLW, FOC, FRE, FSH, GIL, GLD, GRV, HAN, ICF, JOB, JSC, KMC, KMP, KPT, MCC, MID, MNP, NCI, NPV, OBC, PER, PPP, PPG, PRT, RCI, RED, REL, RH, SCN, SED, SEY, SKT, SM, SW, x, x.
*Polybasic acid type-----	ACY, ASH, BEN, COM, DEG, EW, FAR, FCD, FOC, GRV, HAN, ICF, KMC, KMP, MCC, MID, MNP, MOB, PPG, RCI, RED, REL, RH, SCN, SKT, SM, SW.
*Styrene-alkyd polyesters-----	APT, ASH, CEL, CGL, CPV, DSO, EW, FLW, GLD, GRV, HAN, ICF, JOB, MCC, MID, PPG, REL, SM, SW.
*Polyester resins, unsaturated-----	ACS, ACY, APT, ASH, AZS, CGL, CPV, DA, DEG, DOW, DSO, EPC, EW, FAR, FLW, FMP, FOM, FRE, GEI, GLD, GRG, HAN, HKD, ICF, ICI, IPC, KMC, KPT, MCC, MFG, MMM, MRB, MRO, OCF, ORO, POL, PPG, PPL, RCI, RH, SCN, SIC, SM, SW, WLN.
*Amino resins:	
*Melamine-formaldehyde resins-----	ACS, ACY, AMR, BOR, CBD, CEL, CGL, CPV, DAN, DGO, DSO, DUP, ENJ, FOM, GLD, GRV, HAN, ICF, JSC, KPT, MID, MON, MRA, PMC, PPG, PPL, QCP, RCI, REL, RH, SED, SNW, STC, SW, USO, VAL, WRD.
*Urea-formaldehyde resins-----	ACS, ACY, AMR, APX, ASH, BOR, CBD, CEL, CGL, CMP, CPV, DAN, DUP, EFH, GAF, GLD, GOC, GP, GRV, HAN, HNC, HPC, HRT, JSC, KPT, MMM, MON, MRA, NTC, PC, PMC, PPG, PPL, RCI, REL, RH, RPC, SAC, SED, SM, SNW, SOR, SW, UNO, UPL, USO, VAL, x.
*Dicyandiamide resins-----	CGY, ECC, JSC, MRA, RPC, S, SNW, STC, VAL.
Epoxy resins:	
*Unmodified-----	CEL, CGY, DOW, RCI, RSY, SHC, UCC, WLN.
*Modified-----	ACS, ASH, BEN, DSO, EW, GLD, GRV, HAN, HYC, ICF, JOB, MCC, MID, MMM, MRT, NPV, OCF, POL, PPG, RCI, REL, REZ, RSY, SCN, SED, SKT, SM, WLN.
*Furfuryl-type resins-----	ACR, HVG, NTC, PTT, UNO, WRD.
Glyoxal resins-----	USO, VAL.
*Phenolic and other tar acid resins-----	ABS, ACR, ACS, AMR, ASH, BME, BOR, CBD, CBM, CGL, CLK, DSO, ENJ, EW, FAR, FOM, GE, GEI, GIL, GOC, GP, GRG, HER, HKD, HPC, HVG, ICF, INL, IRI, KND, KPT, KYN, MCA, MID, MMM, MON, MRB, NCI, NTC, OCF, PLS, PPG, PPL, PYZ, RAB, RCI, RGC, RH, RPC, SCN, SHA, SIM, SKT, SM, SPL, STC, SW, UCC, UNO, UPL, USR, VSV, WCA, WRD.
*Polyurethane and diisocyanate resins (excluding foam) ⁹ , and urethane type elastomers:	
*Polyurethane and diisocyanate resins-----	APT, ARK, ASH, BAS, CEL, CGL, CPV, DSO, DUP, EW, FAR, FRE, GLD, GPM, ICF, ICI, JOB, KMC, MCC, MID, MNP, MOB, MRT, OMC, PEL, PPP, PPG, PRT, QUN, RCI, REZ, SCN, SKT, SLC, SM, SW, UCC, UPJ, WTC.
*Urethane type elastomers-----	ACY, BAS, BFG, CNI, DA, DNS, DUP, EPI, HMP, INP, MMM, MOB, PPP, PLN, PRC, RUB, TKL, UPJ, USR, WTC.
*Polyether and polyester polyols for urethanes-----	APT, BAS, CPV, DOW, DSO, DUP, ICI, JCC, MOB, OMC, RCI, UCC, UNO, UPJ, WTC, x.
*Silicone resins-----	ASH, CGL, DCC, GLD, ICF, MCC, MID, PPG, SPD, SWS, UCC, VPC, DGO, MON.
Toluenesulfonamide resins-----	USO, VAL.
Triazine resins-----	
All other thermosetting resins-----	CEL, CGY, DSO, EW, MCC, MID, NLC, PPG, S, SHC, SM, SNW, USR, VAL.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Materials	Manufacturers' identification codes (according to list in table 3)
THERMOPLASTIC RESINS	
*Acrylic resins-----	
*Cellulosic plastics and resins-----	ACY, ASH, BAS, CHP, CPV, DSO, DUP, EFH, FLH, GLC, GLD, GNM, GRD, GRV, ICF, IOC, JNS, JOB, JSC, KMC, MID, NPV, PPG, PVI, QUN, RH, RPC, SAR, SCO, SED, SEY, SM, SNW, UBS, VAL, VPC, x.
*Coumarone-indene resins-----	DOW, DUP, EKT, HPC, ICF, DUP, HPC, ICF, NEV, VEL.
*Engineering plastics:	
Acetal resins-----	CEL, DUP.
Polycarbonate resins-----	GE, MOB.
Polyimides and amide-imide polymers-----	ACC, DUP.
Polyphenylene oxide type resins-----	EW, GE.
Polyphenylene sulfide resins-----	PLC.
Polysulfone resins-----	UCC, VPC.
Fluorocarbon resins (except PTFE)-----	ACS, DUP, MMM.
*Petroleum hydrocarbon resins-----	DSO, EKX, ENJ, GYR, HPC, ICF, NEV, NPV, PPG, RCI, SM, VEL, ZGL.
Phenoxy resins-----	UCC, WTC.
Polyamide resins:	
*Nylon type-----	ACS, ALF, BCM, CEL, CTR, DBC, DGO, DUP, FG, GNM, MON, POL, RSN, SKP.
*Non-nylon type-----	AMR, CBY, COO, DSO, EMR, GNM, MCC, MON, SM, SNW.
Polybutylene and polyisobutylene resins-----	ENJ, WTC.
*Polyester resins, saturated-----	CEL, COO, DSO, DUP, EKT, GE, GLD, GNM, ICF, ICI, MID, MRT, REL, RUB, VEL.
*Polyethylene and copolymers resins:	ACS, CBN, CPX, DOW, DUP, EKX, ENJ, GOC, KPP, MON, NWP,
*Density 0.940 and below-----	PLC, RCC, SLT, UCC, USI, UPC.
*Density over 0.940-----	ACC, ACS, CEL, CPX, DOW, DUP, GOC, HPC, KPP, MON, NWP,
*Ethylene copolymers-----	PLC, SLT, UCC, USI.
*Polypropylene resins-----	DUP, EKX, USI, VPC.
*Polyterpene resins-----	ACC, DA, EKX, ENJ, HPC, NVT, PLC, RCC, SBI, SHC.
*Polytetrafluoroethylene (PTFE)-----	CBY, HPC, SCN.
*Rosin modifications:	ACS, DUP, ICI.
*Rosin and rosin esters, unmodified (ester gums)-----	ASH, CBY, DPP, EW, FRP, MCC, NCI, RCI.
*Rosin and rosin esters, modified-----	ASH, CBY, DPP, FAR, FLW, FRP, GRV, ICF, MCC, NCI, RCI,
*Styrene type plastics materials:	SM, STC, SW, ZGL.
*Acrylonitrile-butadiene-styrene (ABS) resins-----	BFG, DOW, FG, FRS, GRD, MCB, MON, RCC,USR.
*Styrene-acrylonitrile resins (SAN)-----	BFG, DOW, MON, SKT, UCC.
*Styrene and styrene copolymer resins other than ABS and SAN.	ACC, AEP, ATR, BAS, BFG, BOR, CEL, CSD, DOW, DSO, DUP,
α -Methylstyrene polymers-----	FG, FIR, GAF, GNT, GOR, GRD, GYR, HLM, HPC, ICF, IOC,
Vinylic resins:	JNS, JSC, KPP, MMM, MON, MRT, PLC, PVI, RCC, RCD, RH,
*Polyvinyl chloride and copolymer resins-----	SHC, SKT, SOL, UBS, UCC, UOC, USR, USS, VEL, x.
*Polyvinyl acetate resins-----	ACC, DOW.
*Polyvinyl alcohol resins-----	AIP, AME, BFG, BOR, CO, DA, FIR, GNT, GP, GRA, GYR,
Polyvinyl butyral resins-----	HN, ICF, KYS, MON, NSC, OMC, PNT, RBT, RUB, SFP, TNA,
Polyvinylidene chloride resins-----	UCC, USR.
All other vinyl resins-----	AIP, DUP, MON.
All other thermoplastic resins-----	DUP, MON, UCC.
BAS, BFG, DOW, GRD, MRT, UBS.	
DSO, DUP, EW, MCC, MON, RH, UCC.	
EKX, ENJ, RPC, WTC.	

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of plastics and resin materials to the U.S. International Trade Commission for 1974 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	DPP	Dixie Pine Products Co., Inc.
ACC	Amoco Chemical Corp.	DSO	DeSoto, Inc.
ACS	Allied Chemical Corp., Specialty Chemical Div.	DUP	E.I. duPont de Nemours & Co., Inc.
ACR	CPC International, Inc., Acme Resin Co. Div.	ECC	Eastern Color & Chemical Co.
ACY	American Cyanamid Co.	EFH	E.F. Houghton & Co.
AEP	A & E Plastics Pak Co., Inc.	EKT	Eastman Kodak Co.:
AIP	Air Products & Chemicals, Inc.	EKX	Tennessee Eastman Co. Division
ALF	Allied Chemical Corp., Fibers Div.	EMR	Texas Eastman Co. Division
AME	Stauffer Chemical Co., Polymer West	ENJ	Emery Industries, Inc.
AMR	Pacific Resins & Chemical Co.	EPC	Exxon Chemical Co. U.S.A.
APT	Whittaker Corp., Whittaker Coatings & Chemical, Mol Rez Resins	EPI	Epoxylite Corp.
APX	Apex Chemical Co., Inc.	EW	Eagle Picher Industries, Inc.,
ARK	Armstrong Cork Co.	FAR	Ohio Rubber Co.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	FCD	Westinghouse Electric Corp., Industrial
ATR	Atlantic Richfield Co.	FG	Plastics Div., Chemical Products Plant
AZS	AZS Corp., AZ Products Co. Div.	FIR	
BAL	Baltimore Paint & Chemical Corp.	FLH	Syncon, Inc., Farnow Div.
BAS	BASF Wyandotte Corp.	FLW	Synres Chemical Corp.
BCM	Belding Chemical Industries	FMP	Foster Grant Co., Inc.
BEN	Bennett's	FOC	Firestone Tire & Rubber Co., Firestone
BFG	B.F. Goodrich Co., B.F. Goodrich Chemical Co. Division	FOM	Plastics Co. Div.
BLS	Dobbs-Life Savers, Inc.	FRE	H.B. Fuller Co.
BME	Bendix Corp., Friction Materials Division	FRP	Fuller-O'Brien Corp.
BOR	Borden Co., Borden Chemical Co. Division	FRS	FMC Corp., Industrial Chemical Div.
BRU	M.A. Bruder & Sons, Inc.	FSH	Handschy Chemical Co., Farac Oil & Chemical Co. Div.
CBD	Chembond Corp.	GAF	Formica Corp.
CBM	Carborundum Co.	GE	Freeman Chemical Corp.
CBN	Cities Service Co., Plastics Div.	GEI	FRP Company
CBY	Crosby Chemicals, Inc.	GIL	Firestone Tire & Rubber Co., Firestone
CEL	Celanese Corp.:	GLC	Synthetic Rubber & Latex Co. Div.
	Celanese Coatings & Specialties Co.	GNM	Insilco Inc., Frisch & Co. Div.
	Celanese Plastics Co.	GNT	
CGL	Cargill, Inc.	GOC	GAF Corp., Chemical Division
CGY	Ciba-Geigy Corp.	GOR	General Electric Co.:
CHP	C.H. Patrick & Co.	GEI	Insulating Materials Dept.
CLK	Clark Chemical Corp.	GIL	Gilman Paint & Varnish Co.
CMP	Commercial Products Co., Inc.	GLD	General Latex & Chemical Corp.
CNE	Conchemco, Inc., Chemical Coatings	GNM	SCM Corp., Glidden-Durkee Division
CNI	Conap, Inc.	GNT	General Mills Chemicals, Inc.
CO	Continental Oil Co.	GOC	General Tire & Rubber Co., Chemical Div.
COM	Commercial Solvents Corp.	GOR	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
COO	Coopers Polymers, Inc.	GP	Carl Gordon Industries, Inc., Gordon Chemical Co. Div.
CPV	Cook Paint & Varnish Co.	GPM	Georgia-Pacific Corp., and Rebecca Chemical
CPX	Chemplex Co.	GRA	Div.
CSD	Cosden Oil & Chemical Co.	GRD	General Plastics Manufacturing Co.
CTR	Customs Resins, Inc.	GRG	Great American Chemical Corp.
DA	Diamond Shamrock Corp.	GRV	W.R. Grace & Co., Polymers Chemicals
DAN	Dan River, Inc.	GYR	Division
DBC	Dow Badische Co.	HAN	P.D. George Co.
DCC	Dow Corning Corp.	HER	Guardsmen Chemical Coatings, Inc.
DEG	Degan Oil & Chemical Co.	HKD	Goodyear Tire & Rubber Co.
DGO	Day-Glo Color Corp.	HLM	
DNS	Dennis Chemical Co.	HMP	Hanna Chemical Coating Corp.
DOW	Dow Chemical Co.	HER	Heresite & Chemical Co.
		HKD	Hooker Chemical Corp., Durez Division
		HLM	U.S. Industries, Inc., E. Helman Co. Div.
		HMP	W.R. Grace & Co., Dewey & Almy Chemical Div.

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1974--CONTINUED

Code	Name of company	Code	Name of company
HN	Tenneco Chemicals, Inc.	PLN	Disogrin Industries Corp.
HNC	H & N Chemical Co.	PLS	Plastics Engineering Co.
HPC	Hercules, Inc. and Picco Div.	PMC	Plastics Manufacturing Co.
HRT	Hart Products Corp.	PNT	Pantasote Co.
HVG	Haveg Industries	POL	Polymer Corp.
HYC	Dexter Corp., Hysol Co. Division	PPG	PPG Industries, Inc.
ICF	Inmont Corp., ABI Div.	PPL	Pioneer Plastics Corp.
ICI	ICI United States Inc. & Specialty Chemicals Div.	PRC	Products Research & Chemical Corp., Chemical & Sealant Div.
INP	INDOPOL	PRT	Pratt & Lambert, Inc.
INL	Inland Steel Co., Inland Steel Container Co. Division	PTT	Petro-Tex Corp.
IOC	Ionac Chemical Co. Div. of Sybron Corp.	PVI	Polyvinyl Chemical Ind. Div. of Beatrice Foods Co.
IPC	Interplastic Corp.	PYZ	Polyrez Co., Inc.
IRI	Ironsides Resins, Inc.	QCP	Quaker Chemical Corp.
JCC	Jefferson Chemical Co.	QUN	K.J. Quinn & Co., Inc.
JNS	S.C. Johnson & Son, Inc.	RAB	Raybestos-Manhattan, Inc., Raybestos Div.
JOB	Jones-Blair Paint Co.	RBT	Robintech, Inc.
JSC	Jersey State Chemical Co.	RCC	Dart Industries, Inc., Rexene Polymers Co. Div.
KMC	Kohler-McLister Paint Co.	RCD	Richardson Co., Polymeric Septems Div.
KMP	Kelly-Moore Paint Co.	RCI	Reichhold Chemicals, Inc.
KND	Knoedler Chemical Co.	RED	Red Spot Paint and Varnish Co., Inc.
KPP	Arco/Polymers, Inc.	REL	Reliance Universal, Inc. & Resin Div.
KPT	Koppers Co., Organic Materials Division	REZ	Hexcel Corp., Rezolin Division
KYN	Kyanize Paints, Inc.	RGC	Rogers Corp.
KYS	Keyvor Chemical Corp.	RH	Rohm & Haas Co.
MCA	Masonite Corp., Alpine Division	RPC	Millmaster Onyx Corp., Refined-Onyx Division
MCB	Borg-Warner Corp., Borg-Warner Chemicals	RSN	Rilsan Corp.
MCC	McCloskey Varnish Co.	RSY	Resyn Corp.
MPG	Rockwell International Corp., Automotive Products Group, Resin Plant	RUB	Hooker Chemical Corp., Ruco Division
MID	Dexter Corp., Midland Division	S	Sandoz, Inc.
MMM	Minnesota Mining & Manufacturing Co.	SAC	Southeastern Adhesives Co.
MNP	The Valspar Corp.	SAR	Sartomer Industries, Inc.
MOB	Mobay Chemical Co.	SBI	Standard Brands Chemical Industries, Inc.
MON	Monsanto Corp.	SCN	Schenectady Chemicals, Inc.
MRA	Crown Metro, Inc.	SCO	Scholler Bros., Inc.
MRB	Marblette Co.	SED	Conchemco, Inc., Colony Paint
MRO	W.R. Grace & Co., Marco Chemical Division	SEY	Seydel-Woolley & Co., Inc.
MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.	SFP	Stauffer Chemical Co., Plastics Div.
NCI	Union Camp Corp., Chemical Division	SH	Stein Hall & Co., Inc.
NEV	Neville Chemical Co.	SHA	Shanco Plastics & Chemicals, Inc.
NLC	Nalco Chemical Co.	SHC	Shell Oil Co., Shell Chemical Co. Div.
NPV	Norris Paint & Varnish Co., Inc.	SIC	Vistron Corp., Silmar Division
NSC	National Starch & Chemical Corp.	SIM	Simpson Timber Co., Chemical Div.
NTC	National Casein Co.	SKP	Shakespeare Co., Monofilament Division
NVT	Novamont Corp., Neal Works	SKT	Textron Inc., Spencer Kellogg Division
NWP	Northern Petrochemical Co.	SIC	Soluol Chemical Co., Inc.
OBC	O'Brien Corp.	SILT	Soltex Polymer Corp.
OCF	Owens-Corning Fiberglas Corp.	SM	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.
OMC	Olin Corp.	SNW	Sun Chemical Corp., Chemicals Division
ORO	Chevron Chemical Co.	SOL	Solar Chemical Corp.
PC	Proctor Chemical Co., Inc.	SOR	Thomason Industries, Inc., Southern Resin Div.
PEL	Pelron Corp.	SPC	Sinclair Paint Co. Div. of Insilco Corp.
PER	Perry & Derrick Co.	SPD	General Electric Co., Silicone Products Dept.
PFP	Midwest Manufacturing Corp.	SPL	Spaulding Fibre Co., Inc.
PLC	Phillips Petroleum Co.		

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1974--CONTINUED

Code	Name of company	Code	Name of company
STC	Sou-Tex Chemical Co., Inc.	USO	U.S. Oil Co.
SW	Sherwin-Williams Co.	USR	Uniroyal, Inc., Chemical Division
SWS	Stauffer Chemical Co., SWS Silicones Division	USS	USS Chemicals Div. of U.S. Steel Corp.
TKL	Thiokol Corp.	VAL	Valchem
TNA	Ethyl Corp.	VEL	Veliscol Chemical Corp.
UBS	A.E. Staley Manufacturing Co., Staley Chemicals Division	VPC	Mobay Chemical Corp., Verona Div.
UCC	Union Carbide Corp.	VSV	Valentine Sugars, Inc.
UNO	United-Erie, Inc.		
UOC	Union Oil Co. of California	WCA	West Coast Adhesives Co.
UPJ	Upjohn Co.	WLN	Wilmington Chemical Corp.
UPL	U.S. Plywood	WRD	Weyerhaeuser Co.
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.	WTC	Witco Chemical Co., Inc.
USI	National Petro Chemical Corp	ZGL	Carolina Processing Corp.

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

RUBBER-PROCESSING CHEMICALS

RUBBER-PROCESSING CHEMICALS

Rubber-processing chemicals are organic compounds that are added to natural and synthetic rubbers 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 1974 are given in table 1.¹

Production of rubber-processing chemicals as a group in 1974 amounted to 384 million pounds, or 4.3 percent less than the 401 million pounds reported for 1973. Sales of rubber-processing chemicals in 1974 amounted to 286 million pounds, valued at \$236 million, compared with 312 million pounds, valued at \$199 million, in 1973. The decreased production of rubber-processing chemicals in 1974 is attributable principally to the decreased production of cyclic accelerators, activators, and vulcanizing agents.

The production of cyclic rubber-processing chemicals in 1974 was 325 million pounds, or about 4.1 percent less than the 338 million pounds reported for 1973. Sales in 1974 were 239 million pounds, valued at \$206 million, compared with 264 million pounds, valued at \$176 million, in 1973. Of the total production of cyclic rubber-processing chemicals in 1974, accelerators, activators, and vulcanizing agents accounted for 29.6 percent and antioxidants, antiozonants, and stabilizers for 64.4 percent. Production of antioxidants, antiozonants, and stabilizers, which amounted to 209.2 million pounds in 1974, included 143.8 million pounds of amino compounds and 65.4 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants, antiozonants, and stabilizers in 1974 were 101.9 million pounds, valued at \$86.5 million; sales of phenolic and phosphite antioxidants, antiozonants, and stabilizers, were 43.1 million pounds, valued at \$34.0 million.

Production of acyclic rubber-processing chemicals in 1974 amounted to 59.2 million pounds, a decrease of 5.3 percent from the 62.6 million pounds reported for 1973. Sales in 1974 totaled 47.6 million pounds, valued at \$29.8 million, compared with 48.1 million pounds, valued at \$23.7 million, in 1973. Accelerators, activators, and vulcanizing agents accounted for 49.6 percent of the production of acyclic rubber-processing chemicals in 1974 and dodecyl mercaptans accounted for 39.0 percent.

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

TABLE 1.--RUBBER-PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1974

[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]

Product	Production	Sales		
		Quantity	Value	Unit value ¹
		1,000 pounds	1,000 pounds	1,000 dollars
Grand total-----	383,858	286,335	236,247	\$0.83
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total-----	324,643	238,732	206,474	.86
Accelerators, activators, and vulcanizing agents, total-----	96,175	76,366	62,426	.82
Aldehyde-amine reaction products-----	...	1,551	2,005	1.29
Dithiocarbamic acid derivatives-----	336	237	652	2.75
Thiazole derivatives, total-----	83,518	65,290	47,600	.73
N-Cyclohexyl-2-benzothiazolesulfenamide-----	4,637	3,429	2,941	.86
2,2'-Dithiobis(benzothiazole)-----	20,696	11,519	7,507	.65
2-Mercaptobenzothiazole-----	6,077	5,305	2,754	.52
All other thiazole derivatives-----	52,108	45,037	34,398	.76
All other accelerators, activators, and vulcanizing agents ² -----	12,321	9,288	12,169	1.31
Antioxidants, antiozonants, and stabilizers, total-----	209,183	145,008	120,437	.83
Amino compounds, total-----	143,794	101,902	86,480	.85
Aldehyde- and acetone-amine reaction products-----	8,727	7,027	4,486	.64
Substituted p-phenylenediamines, total-----	73,965	47,738	51,414	1.08
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	6,058	4,997	3,682	.74
N-(1,3-Dimethyl butyl)-N'-phenyl-p-phenylene-diamine-----	37,459	24,047	24,648	1.02
N,N'-Diphenyl-p-phenylenediamine-----	1,796	1,684	2,086	1.24
All other substituted p-phenylenediamines-----	28,652	17,010	20,998	1.23
N-Phenyl-2-naphthylamine-----	3,009	...	...	...
All other amino compounds ³ -----	58,093	47,137	30,580	.65
Phenolic and phosphite compounds, total-----	65,389	43,106	33,957	.79
Phenolic compounds, total-----	25,663	18,234	21,682	1.19
Polyphenolics (including bisphenols)-----	13,386	11,552	16,742	1.45
Phenol, alkylated-----	7,998	3,727	2,373	.64
Phenol, styrenated-----	2,094	1,159	856	.74
Other-----	2,185	1,796	1,711	.95
Phosphite compounds-----	39,726	24,872	12,275	.49
Peptizers-----	3,685	3,536	2,701	.76
Retarder: N-Nitrosodiphenylamine-----	3,496	2,711	2,425	.89
All other cyclic rubber-processing chemicals ⁴ -----	12,104	11,111	18,485	1.66
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total-----	59,215	47,603	29,773	0.63
Accelerators, activators, and vulcanizing agents, total-----	29,381	22,958	18,572	.81
Dithiocarbamic acid derivatives, total-----	9,501	8,061	8,294	1.03
Dibutylthiocarbamic acid, zinc salt-----	3,849	3,274	3,435	1.05
Diethylthiocarbamic acid, zinc salt-----	1,397	1,305	983	.75
Dimethylthiocarbamic acid, zinc salt-----	2,218	2,451	1,821	.74
All other dithiocarbamic acid derivatives-----	2,037	1,031	2,055	1.99

See footnotes at end of table.

RUBBER-PROCESSING CHEMICALS

137

TABLE 1.--RUBBER-PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Product	Production	Sales		
		Quantity	Value	Unit value ¹
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Accelerators, activators, and vulcanizing agents--Con.				
Bis (dimethylthiocarbamoyl) disulfide-----	12,810	10,217	5,994	\$0.59
Bis (dimethylthiocarbamoyl) sulfide-----	1,926	2,094	2,344	1.12
All other accelerators, activators, and vulcanizing agents ⁶ -----	5,144	2,586	1,940	.75
Polymerization regulators: Dodecyl mercaptans-----	23,065	20,256	8,780	.43
Shortstops: Dimethyldithiocarbamic acid, sodium salt-----	3,364	...	...	...
All other acyclic rubber-processing chemicals ⁷ -----	3,405	4,389	2,421	.55

¹ Calculated from rounded figures.² Includes aldehyde-amine reaction products (production only); guanidines, and other uses not separately shown.³ Includes N-phenyl-2-naphthylamine (sales only).⁴ Includes blowing agents and other uses not separately shown.⁵ Data on dithiocarbamates included in this table are for materials used chiefly in the processing of natural and synthetic rubbers. Data on dithiocarbamates which are used chiefly as fungicides are included in the report "Pesticides and Related Products."⁶ Includes xanthates, disulfides, and other thiurams. Includes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural and synthetic rubbers.⁷ Includes conditioning and lubricating agents, polymerization regulators, other shortstops and physical property improvers.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Rubber-processing 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]

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, CYCLIC	
*Accelerators, activators, and vulcanizing agents:	
*Aldehyde-amine reaction products:	
Acetaldehyde-aniline condensate-----	USR.
n-Butyraldehyde-aniline condensate-----	DUP, RCD, USR.
Heptaldehyde-aniline condensate-----	USR.
Triethyltrimethylenetriamine-----	USR.
*Dithiocarbamic acid derivatives:	
Dibenzylidithiocarbamic acid, sodium salt-----	USR.
Dibenzylidithiocarbamic acid, zinc salt-----	USR.
Dibutylidithiocarbamic acid, N,N-dimethylcyclohexyl- amine salt.	MON.
2,4-Dinitrophenyl dimethyldithiocarbamate-----	USR.
Piperidinecarbodithioic acid, piperidinium-potassium salts, mixed.	DUP.
Guanidines:	
Dicatechol borate, di-o-tolylguanidine salt-----	DUP.
1,3-Diphenylguanidine-----	ACY.
1,3-Di-o-tolylguanidine-----	ACY.
*Thiazole derivatives:	
2-Benzothiazyl N,N-diethylthiocarbamoyl sulfide-----	PAS.
1,3-Bis(2-benzothiazolylmercaptomethyl) urea-----	LAK.
N-tert-Butyl-2-benzothiazolesulfenamide-----	ACY, BFG, USR, x.
*N-Cyclohexyl-2-benzothiazolesulfenamide-----	ACY, BFG, MON, USR.
N,N-Diisopropyl-2-benzothiazolesulfenamide-----	ACY.
*2,2'-Dithiobis(benzothiazole)-----	ACY, BFG, GYR, MON, USR.
*2-Mercaptobenzothiazole-----	ACY, BFG, GYR, MON, USR.
2-Mercaptobenzothiazole, copper salt-----	ACY.
2-Mercaptobenzothiazole, zinc chloride-----	DUP.
2-Mercaptobenzothiazole, zinc salt-----	ACY, BFG, USR.
4-Morpholinyl-2-benzothiazyl disulfide-----	ACY, GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide-----	ACY, BFG.
All other cyclic accelerators, activators, and vulcan- izing agents:	
p-Benzoquinonedioxime-----	ARA.
Bis(p-aminocyclohexyl)methane carbamate-----	DUP.
Bis(morpholinothiocarbonyl) disulfide-----	ACY.
Dibenzoyl-p-quoninedioxime-----	ARA.
Dibenzylamine-----	USR, x.
N,N'-Dicinnamylidene-1,6-hexanediamine-----	DUP.
Di-N,N'-pentamethylenethiuram tetrasulfide-----	DUP, VNC.
4,4'-Dithiodimorpholine-----	VNC, x.
2-Imidazoline-2-thiol(2-Imidazolidinethione)-----	DUP, PAS, RBC.
m-Phenylenebismaleimide-----	DUP.
Poly-p-dinitrosobenzene-----	DUP.
Toluene-2,4-diisocyanate adduct of dimethylethanol- amine.	DUP.
Zinc p-toluene sulfonate-----	USR.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Antioxidants, antiozonants, and stabilizers:	
*Amino compounds:	
*Aldehyde- and acetone-amine reaction products:	
Aldol- α -naphthylamine condensate-----	BFG.
Butyraldehyde-aniline condensate-----	DUP.
Diphenylamine-acetone condensate-----	ACY, BFG, USR.
Phenyl-2-naphthylamine-acetone condensate-----	USR.
*Substituted p-phenylenediamines:	
Antidegradant 64-----	x.
Antidegradant 66-----	x.
Antidegradant 67-----	x.
*N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	EKT, USR, x, x.
N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylene- diamine.	x.
N,N'-Bis(1-methylheptyl)-p-phenylenediamine-----	BFG, x.
N-sec-Butyl-N'-phenyl-p-phenylenediamine-----	USR.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine-----	USR, x.
Diarylarylenediamines, mixed-----	GYR.
Diaryl-p-phenylenediamine-----	DUP.
N,N'-Dicyclohexyl-p-phenylenediamine-----	x.
*N-(1,3-Dimethyl butyl)-N'-phenyl-p-phenylene- diamine.	GYR, USR, x, x.
N,N'-Di-2-naphthyl-p-phenylenediamine-----	BFG.
*N,N'-Diphenyl-p-phenylenediamine-----	BFG, DUP, SDC, USR.
N-Isopropyl-N'-phenyl-p-phenylenediamine-----	USR.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine-----	x.
N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine-----	USR.
Nitroso-n-phenyl-p-phenylenediamine-----	USR.
All other substituted p-phenylenediamine-----	x.
Other amino compounds:	
p-Anilinophenol-----	BFG.
1,2-Dihydro-6-dodecyl-2,2,4-trimethylquinoline-----	x.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline-----	x.
1,2-Dihydro-2,2,4-trimethylquinoline-----	BFG, x.
4,4'-Dimethoxydiphenylamine-----	DUP.
N,N'-Diphenylethylenediamine-----	ACY, DA, RCI.
N,N'-Diphenyl-1,3-propanediamine-----	RCI.
N,N'-Di-o-tolylethylenediamine-----	RCI.
p-Hydroxydiphenylamine-----	USR.
4-Isopropoxydiphenylamine-----	BFG.
4,4'-Methylenedianiline-----	USR.
Nonyldiphenylamine mixture (mono-, di-, and tri-)-----	USR.
Octyldiphenylamine-----	ACY, USR.
Octyldiphenylamine, alkylated-----	BFG.
Octyldiphenylamine mixture (mono-, nonyl- and di-).	DUP.
N-Phenyl-1-naphthylamine-----	DUP, UCC.
*N-Phenyl-2-naphthylamine-----	BFG, DUP, USR.
p-(p-Toluenesulfonamidol)diphenylamine-----	USR.
All other-----	USR.
*Phenolic and phosphite compounds:	
*Phenolic compounds:	
*Polyphenolics (including bisphenols):	
Bisphenol, hindered-----	GYR, USR.
4,4'-Butyridenebis(6-tert-butyl-m-cresol)-----	MON.
2,5-Di-sec-butyldecyldydroquinone-----	USR.
2,5-Di-(1,1-dimethylpropyl)hydroquinone-----	x.
3,7-Dioctylphenothiazine-----	USR.
2,2'-Methylenebis(6-tert-butyl-p-cresol)-----	ACY, ASH.
2,2'-Methylenebis(6-tert-butyl-4-ethyl-phenol)---	ACY.
2,2'-Methylenebis[6-(1-methylcyclohexyl)-p- cresol].	ICI.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Antioxidants, antiozonants, and stabilizers--Continued	
*Phenolic and phosphite compounds--Continued	
*Phenolic compounds--Continued	
*Polyphenolics (including bisphenols)--Continued	
2,2'-Methylenebis(6-tert-octyl-p-cresol)-----	ACY.
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.
Tris(3,5-di-t-butyl-4-hydroxybenzyl)isocyanurate.	BFG.
Other phenolic compounds:	
o-Cresol, alkylated-----	PIT.
*Phenol, alkylated-----	ACY, BFG, GYR, NEV, RCI.
Phenol, hindered-----	DUP, GYR, USR.
*Phenol, styrenated-----	BFG, GYR, NEV, USR.
N-Stearoyl-p-aminophenol-----	DA, x.
*Phosphite compounds:	
Alkylaryl phosphites, mixed-----	MCB.
Nonyl phenyl phosphites, mixed-----	NPI, USR.
Polymeric phosphite-----	NPI.
Polyphenolic phosphite, polyalkylated-----	BFG.
Triaryl phosphites-----	MCB.
Blowing agents:	
4,4' Biphenyl disulfone chloride-----	USR.
4,4' Biphenyl disulfonylhydrazide-----	USR.
N,N'-Dimethyl-N,N'-dinitrosoterephthalamide-----	DUP.
Dinitrosopentamethylenetetramine-----	NPI.
p,p'-Oxybis(benzenesulfonylhydrazide)-----	USR.
p-Toluenesulfonylhydrazide-----	USR.
p-Toluenesulfonylsemicarbazide-----	USR.
*Peptizers:	
2-Benzamidothiophene, zinc salt-----	ACY.
2',2'''-Dithiobis(benzanilide)-----	ACY.
Dixylyl disulfides, mixed-----	PIT.
Pentachlorobenzenethiol and zinc salt-----	SDC.
Xylenemethiol-----	DUP.
*Retarders: N-Nitrosodiphenylamine-----	ACY, ARA, BFG, GYR, NPI, USR.
Other cyclic rubber-processing chemicals:	
p-tert-Amyl phenol sulfide (tackifier)-----	PAS.
4-Chloro-2,6-bis(2,4-dihydroxybenzyl)phenol-----	ICI.
N-(Cyclohexyl thio)phthalimide-----	x.
Diphenyl-4,4'-diphenyl-methylene dicarbamate-----	USR.
N-(2-Methyl-2-nitropropyl)-4-nitroso aniline-----	x.
Phenol cyanurate complex-----	ICI.
All other-----	DUP, RCI.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators, activators, and vulcanizing agents:	
*Dithiocarbamic acid derivatives:	
Diethylidithiocarbamic acid, nickel salt-----	USR.
Diethylidithiocarbamic acid, potassium salt-----	VNC.
Diethylidithiocarbamic acid, sodium salt-----	ALC, DUP, USR, VNC.
*Dibutylidithiocarbamic acid, zinc salt-----	ALC, DUP, PAS, USR, VNC.
Diethylidithiocarbamic acid, cadmium salt and bis(diethylthiocarbamoyl) disulfide, mixture.	VNC.
Diethylidithiocarbamic acid, selenium salt-----	VNC.
Diethylidithiocarbamic acid, sodium salt-----	PAS.
Diethylidithiocarbamic acid, tellurium salt-----	VNC.
*Dietylidithiocarbamic acid, zinc salt-----	ALC, GYR, PAS, USR, VNC.
Dimethylammonium-dimethylidithiocarbamate-----	USR.
Dimethylidithiocarbamic acid, bismuth salt-----	VNC.
Dimethylidithiocarbamic acid, copper salt-----	VNC.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued	
*Accelerators, activators, and vulcanizing agents--Con.	
*Dithiocarbamic acid derivatives--Continued	
Dimethylidithiocarbamic acid, lead salt-----	VNC.
Dimethylidithiocarbamic acid, selenium salt-----	VNC.
Dimethylidithiocarbamic acid, sodium salt and sodium polysulfide.	BFG.
*Dimethylidithiocarbamic acid, zinc salt-----	ALC, DUP, FMN, GYR, PAS, USR, VNC.
All other-----	PAS.
Thiurams:	
Bis(diethylthiocarbamoyl) disulfide-----	DUP, GYR, PAS.
*Bis(dimethylthiocarbamoyl) disulfide-----	DUP, GYR, PAS, VNC.
*Bis(dimethylthiocarbamoyl) sulfide-----	DUP, GYR, USR.
All other-----	PAS.
Xanthates and sulfides:	
Bis(diisopropoxythiophosphoryl) disulfide-----	DUP.
Di-n-butylxantho disulfide-----	USR.
Diisopropylxantho disulfide-----	BFG.
Zinc disopropyl xanthate-----	VNC.
All other acyclic accelerators, activators, and vulcanizing agents:	
n-Butyraldehyde-butylamine condensate-----	DUP.
Di-n-butylammonium oleate-----	DUP.
3-Ethyl-1,1-dimethyl-2-thiourea-----	VNC.
Ethylenediamine carbamate-----	DUP.
Methacrylic acid, monobasic zinc salt-----	USR.
1,1,3-Trimethyl-2-thiourea-----	RBC, VNC.
Zinc o,o-di-N-butylphosphorodithioate-----	X.
Urea, modified-----	DUP.
All other-----	MON.
Conditioning and lubricating agents:	
Alkyl alcohols, mixed-----	DUP.
Methyl stearyl-10-sulfonic acid, sodium salt-----	DUP.
Mono- and dialkyl acid phosphates, mixed-----	DUP.
Mono- and dialkyl phosphate ammonium salts, mixed-----	DUP.
Polymerization regulators:	
Alkyl mercaptans, mixed-----	PLC.
*Dodecyl mercaptans-----	HK, PAS, PLC.
t-Hexadecyl mercaptan-----	PLC.
n-Octyl mercaptan-----	PAS.
tert-Octyl mercaptan-----	PAS.
Tetradecyl mercaptan-----	PAS, PLC.
Tridecyl mercaptan-----	PAS, PLC.
Shortstops:	
Dimethylidithiocarbamic acid, potassium salt-----	USR.
*Dimethylidithiocarbamic acid, sodium salt-----	ALC, DUP, GYR, PAS, USR.
Other acyclic rubber-processing chemicals:	
Zinc laurate (activator, physical-property improver and processing auxiliary).	USR.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--RUBBER-PROCESSING CHEMICALS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of rubber-processing chemical manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 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	Lakeway Chemicals, Inc.
ALC	Alco Chemical Corp.		
ARA	Arapahoe Chemicals, Inc.		
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	MCB	Borg-Warner Corp., Borg-Warner Chemicals Div.
		MON	Monsanto Co.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	NEV	Neville Chemical Co.
		NPI	Stepan Chemical Co., Polychem Dept.
DA	Diamond Shamrock Corp.	PAS	Pennwalt Chemicals Corp.
DUP	E. I. duPont de Nemours & Co., Inc.	PIT	Pitt-Consol Chemical Co.
		PLC	Phillips Petroleum Co.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	RBC	Fiske Chemicals, Inc.
		RCD	Richardson Co.
FMN	FMC Corp., Agricultural Chemical Div.	RCI	Reichhold Chemicals, Inc.
		SDC	Martin-Marietta Corp., Sodyeco Div.
GYR	Goodyear Tire & Rubber Co.		
HK	Hooker Chemicals & Plastics Corp.	UCC	Union Carbide Corp.
		USR	Uniroyal, Inc., Chemical Div.
ICI	ICI America, Inc.	VNC	Vanderbilt Chemical Corp.

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

ELASTOMERS

Elastomers (synthetic rubbers) 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 1974 are shown in table 1.¹

Total U.S. production² of synthetic rubber in 1974 amounted to 5,654 million pounds, a decrease of 4 percent from that produced in 1973. Total sales² of elastomers in 1974 amounted to 4,601 million pounds, a decrease of 10 percent from that produced in 1973.

Styrene-butadiene rubber (SBR, or S-type rubber) in 1974 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 34 million pounds of its vinylpyridine sub-type, amounted to 3,169 million pounds in 1974, a decrease of 5 percent from that reported for 1973. Solution polymerized butadiene rubber, a stereo type elastomer, was produced domestically in 1974 in the next largest amount--793 million pounds; production of isoprene and ethylene-propylene rubbers, the other stereo types, amounted to 188 million and 279 million pounds, respectively. Total U.S. production of these stereo type elastomers amounted to 1,260 million pounds in 1974--a decrease of 4 percent from 1973. Other principal types of synthetic elastomers for which U.S. production data are reported separately are isobutylene-isoprene (butyl) rubber, production of which was 354 million pounds in 1974, and acrylonitrile-butadiene (N-type) rubber, production of which was 206 million pounds.

Sales of S-type rubber by U.S. producers in 1974 (including its vinylpyridine sub-type) amounted to 2,512 million pounds, a decrease of 12 percent from sales reported for 1973. Sales of solution polymerized butadiene rubber amounted to 561 million pounds, and those of ethylene-propylene rubber to 241 million pounds. Sales of N-type rubber in 1974 amounted to 171 million pounds. The increase in 1974 sales over those of 1973 for the stereo- and N-type rubbers ranged from 3 percent for N-type to 9 percent for the butadiene type; the increase for the ethylene-propylene type was 6 percent.

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

² No longer includes urethane type elastomers; for comparison purposes, 1973 totals were adjusted to exclude the urethane types.

TABLE 1.--ELASTOMERS (SYNTHETIC RUBBERS):¹ U.S. PRODUCTION AND SALES, 1974

[Listed below are all elastomers (synthetic rubbers) 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]

Product	Production ²	Sales		
		Quantity ²	Value	Unit value ³
Grand total-----	1,000 pounds 5,653,845	1,000 pounds 4,600,554	1,000 dollars 1,528,988	Per pound \$0.33
Cyclic-----	3,209,876	2,558,478	641,507	.25
Acyclic-----	2,443,969	2,042,076	887,481	.43
Acrylonitrile-butadiene type (N-type)-----	206,401	170,596	84,607	.50
Isobutylene-isoprene type (Butyl)-----	353,854	...	...	...
Silicone type-----	44,322	39,026	96,858	2.48
Stereo elastomers, total-----	1,260,237	...	...	...
Butadiene (solution polymerized) type-----	792,886	561,129	150,258	.27
Ethylene-propylene type-----	279,451	241,141	81,824	.34
Isoprene type-----	187,900	...	...	...
Styrene-butadiene type (S-type)-----	3,134,707	2,491,134	609,282	.24
Styrene-butadiene-vinylpyridine type-----	34,266	20,507	13,090	.64
Urethane type-----	(⁴)	(⁴)	(⁴)	(⁴)
All other elastomers ⁵ -----	620,058	1,077,021	493,069	.46

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

² Includes oil content of oil-extended elastomers.

³ Calculated from rounded figures.

⁴ The data on production and sales of urethane elastomers are reported in the section Plastics and Resin Materials with urethane plastics and polyols.

⁵ Includes production and sales data for acrylic ester, polysulfide, chloroprene, epichlorohydrin, isobutylene, and butadiene emulsion elastomers, certain solution elastomers, carboxylated SBR latex, chlorosulfonated polyethylene, fluorinated elastomers, thermoplastic rubber, miscellaneous elastomers, and sales data for the isobutylene-isoprene type and the isoprene type elastomers.

TABLE 2.--ELASTOMERS (SYNTHETIC RUBBERS) FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974

[Elastomers (synthetic rubbers) for which separate statistics are given in table 1 are marked with an asterisk (*); products 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]

Product	Manufacturers' identification codes (according to list in table 3)
Acrylic ester type-----	ACY, BGF, DA, TKL.
*Acrylonitrile-butadiene type (N-type)-----	BFG, CPY, FRS, GYR, SBI, USR.
Butadiene (emulsion polymerized) type-----	BFG, FRS, GYR, TKL, TUS.
Chloroprene type (Neoprene)-----	DUP, PTT.
Chlorosulfonated polyethylene-----	DUP.
*Isobutylene-isoprene type (Butyl)-----	CBN, ENJ.
Polyisobutylene-----	ENJ.
Polysulfide type-----	TKL.
Reaction products of natural rubber-----	GYR, ICI, x.
*Silicone type-----	DCC, SPD, SWS, UCC.
*Stereo elastomers:	
*Butadiene (solution polymerized) type-----	ASY, ATR, BFG, FRS, GNT, GYR, PLC, TUS.
*Ethylene-propylene type-----	BFG, CPY, DUP, ENJ, USR.
*Isoprene type-----	BFG, GYR, SHC.
*Styrene-butadiene type (S-type)-----	ASH, ASY, BFG, CPY, FIR, FRS, GNT, GRD, GYR, PLC, SBI, TUS, USR.
*Styrene-butadiene-vinylpyridine type-----	BFG, FIR, FRS, GNT, GYR, USR.
All other elastomers-----	ASY, BFG, DUP, HDM, MM, PLC, PRC, SHC, UCC, WAY.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--ELASTOMERS (SYNTHETIC RUBBERS): DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of elastomers manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 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.	ICI	ICI United States, Inc., Specialty Chemicals Group
ASH	Ashland Oil Co., Inc.	MMM	Minnesota Mining and Manufacturing Co.
ASY	American Synthetic Rubber Corp.		
ATR	Atlantic Richfield Co.		
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	PLC	Phillips Petroleum Co.
CBN	Cities Service Co., Columbian Group	PRC	Products Research & Chemical Corp.
CPY	Copolymer Rubber & Chemical Corp.	PTT	Chemical and Sealant Div. Petro-Tex Chemical Corp.
DA	Diamond Shamrock Corp.	SBI	Standard Brands Chemical Industries, Inc.
DCC	Dow Corning Corp.	SHC	Shell Oil Co., Shell Chemical Co. Div.
DUP	E. I. duPont de Nemours & Co., Inc.	SPD	General Electric Co., Silicone Products Dept.
ENJ	Exxon Chemical Co., U.S.A.	SWS	Stauffer Chemical Co., SWS Silicones Div.
FIR	Firestone Tire & Rubber Co.: Firestone Plastics Co. Div.	TKL	Thiokol Chemical Corp.
FRS	Firestone Synthetic Rubber & Latex Co. Div.	TUS	Texas-U.S. Chemical Co.
GNT	General Tire & Rubber Co., Chemical Div.	UCC	Union Carbide Corp.
GRD	W. R. Grace & Co., Polymers & Chemicals Div.	USR	Uniroyal, Inc., Chemical Div.
GYR	Goodyear Tire and Rubber	WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.
HDM	Hardman, Inc.		

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

PLASTICIZERS

Plasticizers are organic chemicals that are added to synthetic plastics and resin materials to (1) improve workability during fabrication, (2) extend or modify the natural properties of these materials, or (3) develop new 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.¹

U.S. production of plasticizers totaled 1,892 million pounds in 1974, an increase of 1.0 percent from the 1,873 million pounds reported for 1973. Sales of plasticizers totaled 1,707 million pounds, valued at \$535 million, in 1974, compared with 1,708 million pounds, valued at \$341 million, in 1973.

Production of cyclic plasticizers in 1974, which consisted chiefly of the esters of phthalic anhydride, phosphoric acid, and trimellitic acid, amounted to 1,411 million pounds, an increase of 1.9 percent from the 1,385 million pounds reported for 1973. Sales of cyclic plasticizers in 1974 totaled 1,306 million pounds, valued at \$338 million, compared with 1,290 million pounds, valued at \$205 million, in 1973. The most important cyclic plasticizer was di(2-ethylhexyl) phthalate, with production of 390 million pounds, in 1974.

Production of acyclic plasticizers in 1974 totaled 480 million pounds, a decrease of 1.6 percent from the 488 million pounds reported for 1973. Sales of acyclic plasticizers totaled 401 million pounds, valued at \$197 million, in 1974, compared with 419 million pounds, valued at \$136 million, in 1973. Epoxidized soya oils were the most important acyclic plasticizer in 1974, with production of 127 million pounds.

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

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1974

[Listed below are plasticizers for which any reported data on production and/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 plasticizers chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value ²
Grand total-----	1,000 pounds 1,891,685	1,000 pounds 1,707,125	1,000 dollars 535,247	Per pound \$0.314
Benzzenoid ³ -----	1,509,779	1,389,650	376,968	.271
Nonbenzenoid-----	381,906	317,475	158,279	.499
PLASTICIZERS, CYCLIC				
Total-----	1,411,437	1,305,983	338,356	.259
Phosphoric acid esters, total-----	94,762	87,516	40,351	.461
Cresyl diphenyl phosphate-----	11,084	...	...	...
All other phosphoric acid esters ⁴ -----	83,678	87,516	40,351	.461
Phthalic anhydride esters, total-----	1,207,331	1,124,385	266,911	.237
Dibutyl phthalate-----	35,490	37,850	12,430	.328
Diethyl phthalate-----	19,655	14,350	4,730	.330
Diisodecyl phthalate-----	146,662	141,678	32,265	.228
Dimethyl phthalate-----	9,961	8,931	2,460	.275
Diocyl phthalates, total-----	395,161	391,826	86,579	.221
Di(2-ethylhexyl) phthalate-----	389,690	386,338	84,999	.220
Other diocyl phthalates-----	5,471	5,488	1,580	.288
Di-tridecyl phthalate-----	27,154	17,581	5,671	.323
n-Hexyl n-decyl phthalate-----	10,172	2,557	550	.215
All other phthalic anhydride esters-----	563,076	509,612	122,226	.240
Trimellitic acid esters, total-----	26,250	20,904	8,816	.422
Tri-n-octyl trimellitate-----	10,640	8,345	3,507	.420
All other trimellitic acid esters-----	15,610	12,559	5,309	.423
All other cyclic plasticizers ⁵ -----	83,094	73,178	22,278	.304
PLASTICIZERS, ACYCLIC				
Total-----	480,248	401,142	196,891	.491
Adipic acid esters, total-----	64,177	57,807	23,928	.414
Di(2-ethylhexyl) adipate-----	40,642	35,558	13,698	.385
Diisodecyl adipate-----	2,751	2,880	1,118	.388
All other adipic acid esters-----	20,784	19,369	9,112	.470
Complex linear polyesters and polymeric plasticizers ⁶ -----	63,084	52,544	30,683	.584
Epoxidized esters, total-----	153,923	123,184	55,665	.452
Epoxidized linseed oil-----	5,504	...	...	...
Epoxidized soya oils-----	126,946	101,486	45,453	.448
Octyl epoxytalliates (including 2-ethylhexyl epoxy-talliates)-----	14,937	14,117	5,694	.403
All other epoxidized esters-----	6,536	7,581	4,518	.596
Glyceryl monoricinoleate-----	108	95	85	.895
Isopropyl myristate-----	4,997	7,001	5,241	.749
Isopropyl palmitate-----	7,444	5,380	3,650	.678

See footnotes at end of table.

PLASTICIZERS

149

TABLE 1.--PLASTICIZERS:¹ U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value ²
PLASTICIZERS, ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Oleic acid esters, total-----	12,628	10,033	5,067	\$0.505
Butyl oleate-----	3,057	2,865	1,540	.538
Methyl oleate-----	2,861	2,316	1,039	.449
Propyl oleates (including n-propyl oleate and isopropyl oleate)-----	899	431	203	.471
All other oleic acid esters-----	5,811	4,421	2,285	.517
Phosphoric acid esters-----	28,475	22,069	12,028	.545
Sebacic acid esters-----	7,665
Stearic acid esters, total-----	15,164	13,152	6,675	.508
n-Butyl stearate-----	7,769	6,884	3,057	.444
All other stearic acid esters-----	7,395	6,268	3,618	.577
Triethylene glycol di(caprylate-caprate)-----	...	2,028	1,506	.743
All other acyclic plasticizers ⁷ -----	122,583	107,849	52,363	.486

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

² Calculated from rounded figures.

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

⁴ Includes sales data for cresyl diphenyl phosphate, among other phosphate esters.

⁵ Includes data for alkylated naphthalene, glycol dibenzoates, hydrogenated terphenyls, isopropylidenediphenoxypopropanol, toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

⁶ Adipic acid polyesters accounted for most of the production of complex linear polyesters and polymeric plasticizers.

⁷ Includes data for azelaic, citric and acetylcitric, lauric, myristic, palmitic, pelargonic, ricinoleic, and sebacic acid esters (sales only), glyceryl and glycol esters, and other acyclic plasticizers, not separately shown.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974

[Plasticizers for which separate statistics are given in table 1 are marked below with an asterisk (*); products 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]

Chemical	Manufacturers' identification code (according to list in table 3)
PLASTICIZERS, CYCLIC	
Coumarone-indene plasticizers-----	NEV.
N-Cyclohexyl-p-toluenesulfonamide-----	x.
Dibenzyl azelate-----	HAL.
Dibenzyl sebacate-----	WTH.
Diethylene glycol dibenzoate-----	VEL.
Di-tert-octylphenyl ether-----	DOW.
Dipropanediol dibenzoate-----	VEL.
N-Ethyl-p-toluenesulfonamide-----	MON.
Hydrogenated terphenyls-----	MON.
Isopropylidenediphenoxypyropanol-----	DOW.
Naphthalene, alkylated-----	ACC.
Petroleum hydrocarbon-----	MON.
*Phosphoric acid esters:	
*Cresyl diphenyl phosphate-----	FMP, MON, MTR, SFS.
Dibutyl phenyl phosphate-----	MON, ORO.
Diphenyl octyl phosphate-----	MON.
Tricresyl phosphate-----	FMP, MON, MTR, SFS.
Triphenyl phosphate-----	EK, MON.
*Phthalic anhydride esters:	
Butyl benzyl phthalate-----	MON.
Butyl cyclohexyl phthalate-----	CPS.
n-Butyl n-octyl phthalate-----	RCI, USS.
Di(2-butoxyethyl) phthalate-----	ARC, HAL.
*Dibutyl phthalate-----	COM, EKT, GRH, MON, RUB, SW, UCC, USS.
Dicyclohexyl 2-ethylhexyl phthalate-----	GRH.
Dicyclohexyl isodecyl phthalate-----	MON, PFZ.
Dicyclohexyl phthalate-----	x.
Diethyl isophthalate-----	EKT, KF, MON, PFZ.
*Diethyl phthalate-----	MON.
Di(heptyl, nonyl) phthalate-----	MON.
Di(heptyl, nonyl, undecyl) phthalate-----	USS.
Dihexyl phthalate-----	CO, EKT, ENJ, GRH, HN, MON, RCI, RUB, TEK, UCC, USS.
*Diisodecyl phthalate-----	ENJ.
Diisohexyl phthalate-----	ENJ, PFZ.
Diisonylon phthalate-----	EKT.
Di(2-methoxyethyl) phthalate-----	PFZ.
Dimethyl isophthalate-----	EKT, KF, MON, PFZ, TCC.
*Dimethyl phthalate-----	RCI.
Dinonyl phthalate-----	WTH.
*Dioctyl phthalates:	
Dicapryl phthalate-----	UCC.
Di(2-ethylhexyl) isophthalate-----	BAS, BFG, CHP, CO, EKT, ENJ, GRH, HN, MON, PPL, RCI, TEK, UCC, USS.
*Di(2-ethylhexyl) phthalate-----	CO, ENJ, GRH, RCI, RUB, TEK, UCC, USS.
Diiso-octyl phthalate-----	EK.
Di-n-octyl phthalate-----	MON.
Diphenyl phthalate-----	ENJ, GRH, HN, RCI, RUB, TEK, UCC, USS.
*Di-tridecyl phthalate-----	MON, TEK.
Diundecyl phthalate-----	MON.
Glycol phthalate esters:	
Butyl phthalyl butyl glycolate-----	MON.
Ethyl phthalyl ethyl glycolate-----	MON.
Methyl phthalyl ethyl glycolate-----	MON.
Polyester of triethylene glycol (Phthalic anhydride).-----	UCC.
All other glycol phthalate esters-----	HPC.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, CYCLIC--Continued	
*Phthalic anhydride esters--Continued	
n-Hexyl n-decyl phthalate-----	CO, HN, TEK, UCC.
Hexyl iso-octyl phthalate-----	PFZ.
Isobutyl cyclohexyl phthalate-----	MON.
n-Octyl n-decyl phthalate-----	RCI, TEK, UCC, USS.
All other phthalic anhydride esters-----	EKT, HN, MON, RUB, UCC, USS.
Polyethylene glycol dibenzoate-----	VEL.
Tetrahydrofurfuryl oleate-----	EMR.
Toluenesulfonamide o-, p- mixtures-----	MON.
*Trimellitic acid esters:	
Tri(2-ethylhexyl) trimellitate-----	GRH, PFZ, RCI.
Tri-n-heptyl n-nonyl trimellitate-----	MON.
Tri-n-hexyl n-decyl trimellitate-----	TEK.
Tri-n-hexyl trimellitate-----	CO.
Tri-n-hexyl n-decyl trimellitate-----	TEK.
Triisodecyl trimellitate-----	PFZ.
Triisononyl trimellitate-----	ENJ.
Triiso-octyl trimellitate-----	RCI, RUB, USS.
Tri-n-octyl n-decyl trimellitate-----	GRH, RCI, RUB.
*Tri-octyl trimellitate-----	EKT, HN, RUB, USS.
All other trimellitic acid esters-----	WTH, x.
Trimethylpentanediol dibenzoate-----	VEL.
All other cyclic plasticizers-----	HN.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
Di[2-(butoxyethoxy)ethyl] adipate-----	RCI, TKL.
Di(butoxyethyl) adipate-----	HAL.
Dicapryl adipate-----	WTH.
*Di(2-ethylhexyl) adipate-----	CO, DA, EKT, GRH, HN, MON, PFZ, PPL, RCI, RH, RUB, TEK, UCC, USS, WTH.
Dihexyl adipate-----	MON.
Diisobutyl adipate-----	GRH, HAL.
*Diisodecyl adipate-----	GRH, HN, PFZ, RCI, RH, RUB, UCC, USS.
Diisooctyl adipate-----	ENJ.
Diisopropyl adipate-----	VND, WTH.
Dinonyl adipate-----	WTH.
Diiso-octyl adipate-----	HN, RCI, RH.
Dipropyl adipate-----	GRH.
Di-tridecyl adipate-----	GRH.
2-(Ethylhexyl) butoxyethyl adipate-----	HAL.
n-Hexyl n-decyl adipate-----	TEK, USS.
n-Hexyl isodecyl adipate-----	GRH.
Iso-octyl isodecyl adipate-----	GRH.
n-Octyl n-decyl adipate-----	GRH, MON, RCI, RH, RUB, USS.
All other adipic acid esters-----	EKT.
Azelaic acid esters:	
Di(2-ethylhexyl) azelate-----	EKT, EMR, PFZ, UCC.
Di-n-hexyl azelate-----	EMR.
Diiso-octyl azelate-----	EMR.
All other azelaic acid esters-----	EMR.
Castor oil maleate-----	RH.
Citric and acetylcitric acid esters:	
Trityl acetylcitrate-----	PFZ.
Triethyl acetylcitrate-----	PFZ.
Triethyl citrate-----	PFZ.
Tristearyl citrate-----	ICI.
Other citric and acetylcitric acid esters-----	PPZ.
*Complex linear polyesters and polymeric plasticizers-----	ASH, EKT, EKK, EMR, GRH, HAL, HN, MON, PFZ, RCI, RH, RUB, SCP, TEK, UCC, WTC, WTH.
Di[(butoxyethoxy)ethoxy]methane-----	TKL.
Diethyl tartrate-----	ARC.
Diethylene glycol dipelargonate (Dinonanoate)-----	EMR.
Diiso-octyl diglycolate-----	CCA.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, ACYCLIC--Continued	
*Epoxidized esters:	
*Epoxidized linseed oils-----	ASH, SWT, VIK.
*Epoxidized soya oils-----	ASH, FMP, NTL, RH, UCC, VIK, WTC.
Epoxidized tall oils-----	RH.
*Octyl epoxytallates:	
2-Ethylhexyl epoxytallates-----	UCC.
n-Octyl epoxytallates-----	RH, WTC.
Octyl epoxystearates-----	WTC.
All other epoxidized esters-----	NTL, UCC.
Glyceryl tributyrate and tripentanoate-----	EKT.
Glycol pelargonate-----	EMR, HAL.
Isodecyl nonanoate (Isodecyl pelargonate)-----	EMR.
Myristic acid esters:	
*Isopropyl myristate-----	ARC, TCH, WM, WTH.
All other myristic acid esters-----	SBC, SCP, WTH.
*Oleic acid esters:	
2-Butoxyethyl oleate-----	ARC, HAL.
*Butyl oleate-----	ARC, EMR, GRO, HAL, WM, WTH.
Decyl oleate-----	SCP, VND.
Glyceryl trioleate (Triolein)-----	CHL, EMR, GLY, GRO, HAL.
Isobutyl oleate-----	DA.
*Methyl oleate-----	DA, EFH, EMR, GRO, HUM.
*Propyl oleates:	
n-propyl oleate-----	CHL, EMR, GRO, WM.
Isopropyl oleate-----	EMR, WM.
Palmitic acid esters:	
2-Ethylhexyl palmitate-----	VND, WTH.
Isobutyl palmitate-----	ARC.
Isohexyl palmitate-----	SBC.
*Isopropyl palmitate-----	ARC, TCH, WM, WTH.
Pentaerythritol diisopentanoate-----	SM.
*Phosphoric acid esters:	
Tri(2-butoxyethyl) phosphate-----	FMP.
Tri(2-chloroethyl) phosphate-----	SFS.
Tri(2-chloropropyl) phosphate-----	SFS.
Triethyl phosphate-----	EKT.
Trioctyl phosphate-----	HN, UCC.
All other phosphoric acid esters-----	SFS, UCC.
Ricinoleic and acetylricinoleic acid esters:	
n-Butyl acetylricinoleate-----	NTL.
Butyl ricinoleate-----	NTL.
*Glyceryl monoricinoleate-----	DA, GLY, HAL, NTL.
Glyceryl tri(12-acetoxystearate)-----	NTL.
Glyceryl tri(acetylricinoleate)-----	NTL.
Methyl acetylricinoleate-----	NTL.
Methyl ricinoleate-----	NTL.
All other ricinoleic and acetylricinoleic acid esters-----	NTL.
*Sebacic acid esters:	
Dibutoxyethyl sebacate-----	HAL, RCI.
Dibutyl sebacate-----	EKT, GRH, RH, USS, WTH.
Di(2-ethylhexyl) sebacate-----	GRH, RCI, RH, WTH.
Diiso-octyl sebacate-----	DA, HAL.
Diisopropyl sebacate-----	WTH.
Dimethyl sebacate-----	WTH.
*Stearic acid esters:	
Butoxyethyl stearate-----	ARC.
*n-Butyl stearate-----	ARC, ASH, CHL, DA, EMR, GRO, SCP, TCH, WM, WTH.
Dimethylammonium stearate-----	RH.
Dodecyl (lauryl) stearate-----	RCI.
2-Ethylhexyl stearate-----	HAL, SCP.
Hexadecyl stearate-----	SCP.
2-Hydroxypropyl stearate-----	WTH.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, ACYCLIC--Continued	
*Stearic acid esters--Continued	
Isobutyl stearate-----	ARC, DA, WM.
Isopropyl isostearate-----	TCH.
Isopropyl stearate-----	WTH.
Methyl pentachlorostearate-----	WK.
Methyl stearate-----	CHL.
All other stearic acid esters-----	DA, SBC, SCP, WM, x.
Sucrose acetate isobutyrate-----	ARC, EKT.
Tetraethylene glycol di(2-ethylhexanoate)-----	UCC.
*Triethylene glycol di(caprylate-caprate)-----	HAL, PVO, RUB, WM.
Triethylene glycol di(2-ethylbutyrate)-----	UCC.
Triethylene glycol di(2-ethylhexanoate)-----	UCC.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate-----	EKX.
All other acyclic plasticizers-----	ARC, EMR, HPC, RH, SBC, SM.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of plasticizers manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of Company
ACC	Amoco Chemicals Corp.	NEV	Neville Chemical Co.
ARC	Armak Co.	NTL	NL Industries, Inc.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	ORO	Chevron Chemical Co.
BAS	BASF Wyandotte Corp.	PFZ	Pfizer, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	PPL	Pioneer Plastics Corp.
		PVO	PVO International, Inc.
CCA	Interstab Chemical, Inc.	RCI	Reichhold Chemicals, Inc.
CHL	Chemol, Inc.	RH	Rohm & Haas Co.
CHP	C.H. Patrick & Co., Inc.	RUB	Hooker Chemical Corp., Ruco Div.
CO	Continental Oil Co.	SBC	Scher Brothers, Inc.
COM	Commercial Solvents Corp.	SCP	Henkel, Inc.
CPS	Chemical & Pollution Sciences, Inc.	SFS	Stauffer Chemical Co., Specialty Chemical Div.
DA	Diamond Shamrock Corp.	SM	Mobil Oil Corp., Mobil Chemical Co. Div., Chemical Coatings Div.
DOW	Dow Chemical Co.	SW	Sherwin-Williams Co.
EFH	E. F. Houghton & Co.	SWT	Swift Specialty Chemicals, Products of Unitech Chemical, Inc.
EK	Eastman Kodak Co.	TCC	Tanatex Chemical Corp.
EKT	Tennessee Eastman Co. Div.	TCH	Emory Industries, Inc., Trylon Chemicals Div.
EKK	Texas Eastman Co. Div.	TEK	Teknor Apex Co.
EMR	Emery Industries, Inc.	TKL	Thiokol Chemical Corp.
ENJ	Exxon Chemical Co.	UCC	Union Carbide Corp.
FMP	FMC Corp., Industrial Chemical Div.	USS	USS Chemicals Div. of U.S. Steel Corp.
GLY	Glyco Chemicals, Inc.	VEL	Velsicol Chemical Corp.
GRH	W. R. Grace & Co., Hatco Chemical Div.	VIK	Viking Chemical Co.
GRO	Millmaster Onyx Corp., A. Gross & Co., Div.	VND	Van Dyk & Co., Inc.
HAL	C. P. Hall Co. of Illinois	WM	Inolex Corp.
HK	Hooker Chemicals & Plastic Corp.	WTC	Witco Chemical Co., Inc.
HN	Tenneco Chemicals, Inc.	WTH	Union Camp Corp., Harchem Div.
HPC	Hercules, Inc.		
HUM	Kraftco Corp., Humko Plastics Div.		
ICI	ICI United States, Inc., Specialty Chemicals Group		
KF	Kay-Fries Chemicals, Inc.		
MON	Monsanto Co.		
MTR	Sobin Chemicals, Inc., Montrose Chemical Div.		

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

SURFACE-ACTIVE AGENTS

The surface-active agents included in this report are organic chemicals that reduce the surface tension of water or other solvents and are used chiefly as detergents, dispersing agents, emulsifiers, foaming agents, or wetting agents in either aqueous or nonaqueous systems. Waxes and products used chiefly as plasticizers are excluded. Surface-active agents are produced from natural fats and oils; from silvichemicals such as lignin, rosin, and tall oil; and from chemical intermediates derived from coal tar and petroleum. A major part of the output of the bulk chemicals shown in this report is consumed in the form of packaged soaps and detergents for household and industrial use. The remainder is used in the processing of textiles and leather, in ore flotation and oil-drilling operations and in the manufacture of agricultural sprays, cosmetics, elastomers, foods lubricants, paints, 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 1974 amounted to 4,696 million pounds, or 7.4 percent more than the 4,372 million pounds reported for 1973. Sales of bulk surface-active agents in 1974 amounted to 2,502 million pounds, valued at \$746 million, compared with sales in 1973 of 2,580 million pounds, valued at \$532 million. In terms of quantity, sales in 1974 were thus 3.0 percent smaller than in 1973; in terms of value sales in 1974 were 40.3 percent larger than in 1973.

Production of anionic surface-active agents in 1974 amounted to 3,176 million pounds, or 67.6 percent of the total output reported for 1974 and 7.0 percent greater than the anionic output reported for 1973. Sales of anionics in 1974 amounted to 1,452 million pounds, valued at \$289 million. Of the total anionic output, 820 million pounds consisted of potassium and sodium salts of fatty, rosin, and tall oil acids; 693 million pounds consisted of alkylbenzenesulfonates; 994 million pounds consisted of ligninsulfonates; and 234 million pounds consisted of sulfated ethers.

Production of nonionic surface-active agents in 1974 amounted to 1,218 million pounds, or 25.9 percent of the total output reported for 1974 and 8.4 percent more than the nonionic output reported for 1973. Sales of nonionics in 1974 amounted to 833 million pounds valued at \$315 million. Of the total nonionic output, 261 million pounds consisted of benzenoid ethers; 606 million pounds consisted of alcohol ethoxylates and other non-benzenoid ethers; and 108 million pounds consisted of glycerol esters.

SYNTHETIC ORGANIC CHEMICALS, 1974

Production of cationic surface-active agents in 1974 amounted to 284 million pounds, or 6.0 percent of the total output reported for 1974 and 9.0 percent greater than the cationic output reported for 1973. Sales of cationics in 1974 amounted to 198 million pounds, valued at \$124 million. Of the total cationic output, 86 million pounds consisted of quaternary ammonium salts not containing oxygen, and 113 million pounds consisted of amines not containing oxygen.

Production of amphoteric surface-active agents in 1974 amounted to 19.4 million pounds, or 0.4 percent of the total output reported for 1974 and 8.1 percent smaller than the amphoteric output reported for 1973. Sales of amphotericics in 1974 amounted to 19.2 million pounds, valued at \$17.4 million.

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, 1974

[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]

Chemical	Production ¹	Sales ²		
		Quantity ¹	Value	Unit value ³
Grand total-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
	4,696,500	2,501,672	746,398	\$0.30
Benzoid ⁴ -----	1,080,767	625,768	180,158	.29
Nonbenzenoid ⁵ -----	3,615,733	1,875,904	566,240	.30
<i>Amphoteric Surface-Active Agents</i>				
Total-----	19,439	19,162	17,350	.91
<i>Anionic Surface-Active Agents</i>				
Total-----	3,175,508	1,452,319	289,569	.20
Carboxylic acids (and salts thereof), total-----	838,655	177,384	65,584	.37
Carboxylic acids having amide, ester, or ether linkages-----	18,965	13,926	11,334	.81
Potassium and sodium salts of fatty, rosin, and tall acids, total-----	819,690	163,458	54,250	.33
Castor oil acids, potassium salt-----	130	126	26	.21
Castor oil acid, sodium salt-----	55	...	...	...
Coconut oil acid, potassium salt-----	9,851	1,743	1,245	.71
Coconut oil acid, sodium salt-----	127,277	803	443	.55
Corn oil acid, potassium salt-----	246	246	127	.52
Mixed vegetable oil acids, potassium salt-----	3,893	3,221	3,140	.98
Oleic acid, potassium salt-----	...	286	158	.54
Oleic acid, sodium salt-----	1,056	396	207	.52
Stearic acid, potassium salt-----	690	435	204	.47
Tall oil acids, potassium and sodium salts-----	18,426	7,514	2,944	.39
Tallow acids, sodium salt-----	367,248	...	...	...
All other-----	290,818	148,688	45,756	.31
Phosphoric and polyphosphoric acid esters (and salts thereof), total-----	30,642	23,812	13,935	.59
Alcohols and phenol, ethoxylated and phosphated, total-----	21,266	16,550	9,551	.58
Mixed linear alcohols, ethoxylated and phosphated-----	4,947	4,660	2,703	.58
Nonylphenol, ethoxylated and phosphated-----	7,443	5,300	3,022	.57
Tridecyl alcohol, ethoxylated and phosphated-----	774	666	333	.50
All other-----	8,102	5,924	3,493	.59
Alcohols, phosphated or polyphosphated, total-----	9,376	7,262	4,384	.60
2-Ethylhexyl phosphate, sodium salt-----	182	161	103	.64
All other-----	9,194	7,101	4,281	.60
Sulfonic acids (and salts thereof), total-----	1,831,610	1,038,636	131,687	.13
Alkybenzenesulfonates, total-----	692,779	207,165	55,519	.27
Dodecylbenzenesulfonic acid-----	165,179	76,051	17,117	.22
Dodecylbenzenesulfonic acid, calcium salt-----	11,006	10,472	6,661	.64
Dodecylbenzenesulfonic acid, isopropylamine salt-----	4,249	5,361	2,294	.43
Dodecylbenzenesulfonic acid, sodium salt-----	367,385	96,504	24,779	.26
Dodecylbenzenesulfonic acid, triethanolamine salt-----	10,701	11,504	2,540	.22
All other-----	134,259	7,273	2,128	.29

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production ¹	Sales ²		
		Quantity ¹	Value	Unit value ³
<i>Anionic Surface-Active Agents--Continued</i>				
Sulfonic acids (and salts thereof)--Continued				
Benzene-, cumene-, toluene-, and xylenesulfonates, total	70,860	57,153	10,778	\$0.19
Toluenesulfonic acid, potassium and sodium salts	16,129	16,032	2,770	.17
Xylenesulfonic acid, ammonium salt	15,107	15,142	2,618	.17
Xylenesulfonic acid, sodium salt	37,185	23,626	4,783	.20
All other	2,439	2,353	607	.26
Ligninsulfonates, total	993,829	732,351	31,824	.04
Ligninsulfonic acid, calcium salt	500,165	470,914	12,054	.03
All other	493,664	261,437	19,770	.08
Naphthalenesulfonates	7,036	6,138	3,202	.52
Sulfonic acids having amide linkages, total	7,046	3,816	3,972	1.04
Sulfosuccinic acid derivatives	1,989	1,666	1,595	.96
Taurine derivatives	5,057	2,150	2,377	1.11
Sulfonic acids having ester or ether linkages, total	48,357	26,921	24,340	.90
Sulfosuccinic acid esters, total	17,117	12,429	10,461	.84
Sulfosuccinic acid, bis (2,6-dimethyl-4-heptyl) ester, sodium salt	623	510	505	.99
Sulfosuccinic acid, bis(2-ethylhexyl)ester, sodium salt	14,374	9,996	8,688	.87
All other	2,120	1,923	1,268	.66
Other sulfonic acids having ester or ether linkages	31,240	14,492	13,879	.96
All other sulfonic acids	11,703	5,092	2,052	.40
Sulfuric acid esters (and salts thereof), total	...	212,487	78,363	.37
Acids, amides, and esters, sulfated, total	...	13,881	5,658	.41
Esters of sulfated oleic acid, total	5,121	4,995	2,348	.47
Butyl oleate, sulfated, sodium salt	1,436	1,296	479	.37
Isopropyl oleate, sulfated, sodium salt	213	160	98	.61
Propyl oleate, sulfated, sodium salt	789	794	356	.45
All other	2,683	2,745	1,415	.52
Tall oil, sulfated, sodium salt	1,828	1,026	332	.32
Other acids, amides, and esters, sulfated	...	7,860	2,978	.38
Alcohols, sulfated, total	...	45,103	30,012	.67
Decyl sulfate, sodium salt	371	360	241	.67
Dodecyl sulfate salts, total	53,989	34,952	24,173	.69
Dodecyl sulfate, ammonium salt	...	5,771	4,353	.75
Dodecyl sulfate, sodium salt	20,234	18,917	12,539	.66
Dodecyl sulfate, triethanolamine salt	7,732	7,656	4,878	.64
All other	26,023	2,608	2,403	.92
Mixed linear alcohols, sulfated, ammonium salt	2,083	1,577	681	.43
Mixed linear alcohols, sulfated, sodium salt	12,863	...	...	...
Octyl sulfate, sodium salt	...	377	374	.99
Other alcohols, sulfated	...	7,837	4,543	.58
Ethers, sulfated, total	233,850	123,944	33,295	.27
Alkylphenols, ethoxylated and sulfated	3,658	3,523	1,809	.51
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	2,207	2,195	615	.28
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	11,250	11,232	6,793	.60
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	98,353	...	...	...
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	...	18,366	5,136	.28
All other	118,382	88,628	18,942	.21

See footnotes at end of table.

SURFACE-ACTIVE AGENTS

159

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production ¹	Sales ²		
		Quantity ¹	Value	Unit value ³
<i>Anionic Surface-Active Agents--Continued</i>				
Sulfuric acid esters (and salts thereof)--Continued				
Natural fats and oils, sulfated, total-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Castor oil, sulfated, sodium salt-----	31,584	29,559	9,398	\$0.32
Cod oil, sulfated, sodium salt-----	5,926	5,278	2,637	.50
Neat's-foot oil, sulfated, sodium salt-----	2,225	...	...	...
Sperm oil, sulfated, sodium salt-----	1,858	1,451	472	.32
Tallow, sulfated, sodium salt-----	1,327	1,319	459	.35
All other-----	4,948	4,653	1,127	.24
	15,300	16,858	4,703	.28
Other anionic surface-active agents ⁶ -----	132,912	...	...	...
<i>Cationic Surface-Active Agents</i>				
Total-----	283,834	197,515	124,335	.63
Amine oxides and oxygen-containing amines (except those having amide linkages), total-----				
Acyclic, total-----	47,234	21,369	18,984	.89
(Coconut oil alkyl)amine, ethoxylated-----	40,886	15,923	15,551	.98
(Tallow alkyl)amine, ethoxylated-----	3,704	3,086	2,052	.66
All other-----	1,579	1,550	996	.64
Cyclic (including imidazoline and oxazoline derivatives), total-----	35,603	11,287	12,503	1.11
1-(2-Hydroxyethyl)-2-(8-heptadecenyl)-2-imidazoline-----	6,348	5,446	3,433	.63
1-(2-Hydroxyethyl)-2-heptadecyl-2-imidazoline-----	767	767	588	.77
1-(2-Hydroxyethyl)-2-nor(tallow oil alkyl)-2-imidazoline-----	369	348	261	.75
All other-----	1,197	544	505	.93
	4,015	3,787	2,079	.55
Amines and amine oxides having amide linkages, total-----	24,799	21,885	11,624	.53
Carboxylic acid - diamine and polyamine condensates, total-----	24,680	21,812	11,565	.53
Tall oil acids - diethylenetriamine and polyalkylenepolyamine condensate-----	14,438	13,594	4,754	.35
All other-----	10,242	8,218	6,811	.83
Other amines and amine oxides having amide linkages-----	119	73	59	.81
Amines, not containing oxygen (and salts thereof), total-----	113,079	66,877	43,113	.64
Diamines and polyamines, total-----	22,088	18,164	9,433	.52
Imidazoline derivatives-----	2,530	1,487	616	.41
N-(Mixed alkyl)polyethylenopolyamine-----	4,494	4,308	1,341	.31
N-(9-Octadecenyl)trimethylenediamine-----	3,243	2,733	1,603	.59
N-(Tallow alkyl)trimethylenediamine-----	7,444	...	...	...
All other-----	4,377	9,636	5,873	.61
Primary monoamines, total-----	51,287	34,659	21,795	.63
9-Octadecenylamine-----	6,894	5,932	3,343	.56
(Tallow alkyl)amine-----	7,534	4,354	2,495	.57
All other-----	36,859	24,373	15,957	.66
Secondary and tertiary monoamines, total-----	39,704	14,054	11,885	.85
N,N-Dimethyl(hydrogenated tallow alkyl)amine-----	4,848	...	...	...
N,N-Dimethyl(mixed alkyl)amine-----	1,749	1,749	1,569	.90
N,N-Dimethyltetradecylamine-----	1,012	...	...	...
N-Methylbis(hydrogenated tallow alkyl)amine-----	...	653	370	.57
All other-----	32,095	11,652	9,946	.86

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production ¹	Sales ²		
		Quantity ¹	Value	Unit value ³
<i>Cationic Surface-Active Agents--Continued</i>				
Oxygen-containing quaternary ammonium salts-----	13,199	12,088	6,657	\$0.55
Quaternary ammonium salts, not containing oxygen, total-----	85,523	75,296	43,957	.58
Acyclic, total-----	68,533	60,509	27,255	.45
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	36,992	31,960	11,816	.37
All other-----	31,541	28,549	15,439	.54
Benzenoid, total-----	16,990	14,787	16,702	1.13
Benzyl (coconut oil alkyl)dimethylammonium chloride-----	121	113	136	1.20
Benzylidimethyl(mixed alkyl)ammonium chloride-----	9,344	9,300	11,557	1.24
Benzylidimethyloctadecylammonium chloride-----	1,665	528	165	1.45
All other-----	5,860	4,846	4,844	1.00
<i>Nonionic Surface-Active Agents</i>				
Total-----	1,217,719	832,676	315,144	.38
Carboxylic acid amides, total-----	89,124	55,537	36,164	.65
Diethanolamine condensates (amine/acid ratio=2/1), total-----	25,883	19,398	12,208	.63
Coconut oil acids-----	10,628	9,171	5,932	.65
Coconut oil and tallow acids-----	3,869	2,244	948	.42
Lauric acid-----	...	707	616	.87
Linoleic acid-----	50	50	31	.62
Oleic acid-----	696	638	336	.53
Stearic acid-----	608	397	231	.58
Tall oil acids-----	1,169	432	197	.46
All other-----	8,863	5,759	3,917	.68
Diethanolamine condensates (other amine/acid ratios), total-----	41,490	30,463	20,718	.68
Coconut oil acids (amine/acid ratio=1/1)-----	21,443	20,589	13,034	.63
Lauric acid (amine/acid ratio=1/1)-----	8,274	5,041	4,471	.89
Lauric and myristic acids (amine/acid ratio=1/1)-----	...	3,199	2,123	.66
Oleic acid (amine/acid ratio=1/1)-----	558	...	...	...
All other-----	11,215	1,634	1,090	.67
All other carboxylic acid amides-----	21,751	5,676	3,238	.57
Carboxylic acid esters, total-----	262,153	209,523	108,323	.52
Anhydrosorbitol esters-----	33,102	19,681	11,911	.60
Diethylene glycol esters, total-----	1,639	1,634	862	.53
Diethylene glycol distearate-----	...	555	294	.53
Diethylene glycol monostearate-----	357	341	164	.48
All other-----	1,282	738	404	.54
Ethoxylated anhydrosorbitol esters, total-----	30,168	26,365	14,933	.57
Ethoxylated anhydrosorbitol mono-oleate-----	6,743	...	...	...
Ethoxylated anhydrosorbitol monostearate-----	7,075	4,626	2,981	.64
All other-----	16,350	21,739	11,952	.55
Ethyleneglycol esters-----	4,196	3,975	2,082	.52
Glycerol esters, total-----	107,660	92,913	47,603	.51
Complex glycerol esters-----	6,994	6,073	4,013	.66
Glycerol esters of chemically defined acids, total-----	32,119	24,489	13,260	.54
Glycerol mono-oleate-----	4,925	3,705	2,316	.62
Glycerol monostearate-----	25,676	19,330	9,642	.50
All other-----	1,518	1,454	1,302	.90

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production ¹	Sales ²		
		Quantity ¹	Value	Unit value ³
<i>Nonionic Surface-Active Agents--Continued</i>				
Carboxylic acid esters--Continued		1,000 pounds	1,000 pounds	1,000 dollars
Glycerol esters--Continued				Per pound
Glycerol esters of mixed acids, total-----	68,547	62,351	30,330	\$0.49
Glycerol monoester of hydrogenated cottonseed oil acids-----	3,514	...	...	...
Glycerol monoester of hydrogenated soybean oil acids-----	10,868	11,492	6,322	.55
Glycerol monoester of lard acids-----	...	5,897	4,313	.73
All other-----	54,165	44,962	19,695	.44
Natural fats and oils, alkoxylated, total-----	14,773	13,637	5,840	.43
Castor oil, ethoxylated-----	6,807	6,219	3,101	.50
Hydrogenated castor oil, ethoxylated-----	5,045	4,929	1,898	.38
Lanolin, ethoxylated-----	935	899	381	.42
All other-----	1,986	1,590	460	.29
Polyethylene glycol esters, total-----	34,898	26,093	14,725	.56
Polyethylene glycol esters of chemically defined acids, total-----	27,988	21,026	12,387	.59
Polyethylene glycol dilaurate-----	1,375	1,210	999	.83
Polyethylene glycol dioleate-----	6,267	3,117	1,552	.50
Polyethylene glycol monolaurate-----	4,460	3,767	2,576	.68
Polyethylene glycol mono-oleate-----	3,073	2,840	1,580	.56
Polyethylene glycol monostearate-----	7,083	5,894	3,282	.56
All other-----	5,730	4,198	2,398	.57
Polyethylene glycol esters of mixed acids, total-----	6,910	5,067	2,338	.46
Polyethylene glycol sesquister of coconut oil acids-----	356	260	209	.80
Polyethylene glycol sesquister of tall oil acids-----	2,602	2,476	1,046	.42
All other-----	3,952	2,331	1,083	.46
Propanediol esters, total-----	7,661	4,461	2,601	.58
1,2-Propanediol monolaurate-----	158	...	...	...
1,2-Propanediol monostearate-----	5,534	3,634	2,094	.58
All other-----	1,969	827	507	.61
Other carboxylic acid esters ⁷ -----	28,056	20,764	7,766	.35
Ethers, total-----	866,442	567,616	170,657	.30
Benzoid ethers, total-----	260,838	216,939	75,952	.35
Dodecylphenol, ethoxylated-----	11,382	10,702	2,714	.25
Nonylphenol, ethoxylated-----	143,978	126,462	40,324	.32
Phenol, ethoxylated-----	4,678	...	...	...
All other-----	100,800	79,775	32,914	.41
Nonbenzenoid ethers, total-----	605,604	350,677	94,705	.27
Linear alcohols, alkoxylated, total-----	535,874	291,228	71,865	.25
Decyl alcohol, ethoxylated-----	2,060	...	...	...
Dodecyl alcohol, ethoxylated-----	5,718	4,702	2,364	.50
Mixed linear alcohols, ethoxylated-----	492,205	263,694	60,208	.29
Mixed linear alcohols, ethoxylated and propoxylated-----	15,489	16,209	4,990	.31
9-Octadecenyl alcohol, ethoxylated-----	2,401	2,261	1,675	.74
Octadecyl alcohol, ethoxylated-----	1,164	546	283	.52
All other-----	16,837	3,816	2,345	.62
Other ethers and thioethers, total-----	69,730	59,449	22,840	.38
Tridecyl alcohol, ethoxylated-----	9,221	8,272	3,273	.40
All other ⁸ -----	60,509	51,177	19,567	.38

¹ All quantities are given in terms of 100 percent organic surface-active ingredient.² Sales include products sold as bulk surface-active agents only.³ Calculated from rounded figures.⁴ The term "benzenoid," used in this report, describes any surface-active agent, except lignin derivatives, whose molecular structure includes 1 or more 6-membered carbocyclic or heterocyclic rings with conjugated double bonds (e.g., the benzene ring or the pyridine ring).

(Continued)

SYNTHETIC ORGANIC CHEMICALS, 1974

Footnotes for table 1--Continued

- ⁵ Includes ligninsulfonates.
- ⁶ Includes production of "all other" sulfated alcohols and other acids, amides, and esters, sulfated.
- ⁷ Includes ethoxylated sorbitol esters, polyglycerol esters, and miscellaneous esters.
- ⁸ Includes "other" nonionic surface-active agents.

SURFACE-ACTIVE AGENTS

163

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Surface-active agents for which separate statistics are given in table 1 are marked with an asterisk (*); products 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]

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Amphoteric Surface-Active Agents</i>	
Acyclic:	
Alkylbetaine-----	DUP.
(1-Carboxyheptadecyl)trimethylammonium hydroxide, inner salt.	DUP.
N-[2-(Carboxymethylamino)ethyl]-N-(2-hydroxyethyl)-coconut oil amide, sodium salt.	WM.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, ammonium salt.	x.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, sodium salt.	x.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt.	TCH.
(1-Carboxytridecyl)trimethylammonium hydroxide, inner salt.	SNW.
(1-Carboxyundecyl)trimethylammonium hydroxide, inner salt.	DUP.
N-(Coconut oil alkyl)-β-alanine, partial sodium salt-----	GNM.
N-(Coconut oil alkyl)-β-alanine, sodium salt-----	GNM.
3-[(Coconut oil alkyl)amino]butyric acid, sodium salt.	ARC.
N-(Dodecyl and tetradecyl)-β-alanine-----	GNM.
N-(Dodecyl and tetradecyl)-β-alanine, triethanolamine salt.	GNM.
N-Dodecyl-3-iminodipropionic acid-----	GNM.
N-Dodecyl-3-iminodipropionic acid, disodium salt-----	GNM.
Mixed acyclic primary amines, ethoxylated and sulfated, sodium salt.	RH.
Mixed fatty betaines-----	TXT.
Oleic acid - ethylenediamine condensate, propoxylated and sulfated, sodium salt.	S.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt.	GNM.
All other acyclic-----	SNW, x.
Cyclic:	
1,1-Bis(carboxymethyl)-2-(coconut oil alkyl)-2-imidazolinium chloride, disodium salt.	SCP.
1,1-Bis(carboxymethyl)-2-oleyl-2-imidazolinium chloride, disodium salt.	SCP.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium chloride, disodium salt.	SCP.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt.	BRD, MIR.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIP.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-dodecyl-2-imidazolinium hydroxide, sodium salt.	TCH.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	GAF, MIR.
Heptadecylmethylbenzimidazolinesulfonic acid, sodium salt.	CGY.
1-Hydroxyethyl-2-heptyl-3-carboxyethylimidazoline, sodium salt.	MOA.
1-Hydroxyethyl-2-undecyl-3-carboxyethylimidazoline, sodium salt.	MOA.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents</i>	
*Carboxylic acids (and salts thereof):	
Amine salts of fatty, rosin, and tall oil acids:	
Coconut oil acids, mono-ethanolamine salt-----	SBP.
Lauric, myristic, and stearic acids, mono-ethanolamine salt.	SBP.
Oleic acid, n-butylamine salt-----	DYS.
Oleic acid, diethylamine salt-----	WTC.
Oleic acid, triethanolamine salt-----	DA, SNW.
Rosin acid, triethanolamine salt-----	ONX.
Stearic acid, dimethylpropylamine salt-----	WM.
Stearic acid, N,N,N'-tetrakis(2-hydroxyethyl)-ethylenediamine salt.	ICI.
Stearic acid, triethanolamine salt-----	GLY.
Tall oil acids, diethanolamine salt-----	SOP.
Tallow acids, mono-ethanolamine salt-----	SBP.
Tallow acids, triethanolamine salt-----	SBP.
*Carboxylic acids having amide, ester, or ether linkages:	
N-(Coconut oil acyl)polypeptide, potassium salt-----	x.
N-(Coconut oil acyl)polypeptide, sodium salt-----	x.
N-(Coconut oil acyl)polypeptide, triethanolamine salt.	x.
N-(Coconut oil acyl)sarcosine, sodium salt-----	HMP.
Diisobutylene - maleic anhydride copolymer, ammonium and sodium salts (Diisobutylene maleate).	RH.
Epoxidized oleic acid, ammonium salt-----	SCP.
N-Lauroylsarcosine, sodium salt-----	CP, HMP, ONX.
Lauryl(ethyleneoxy)propionic acid, sodium salt-----	SEY.
N-(Mixed alkylsulfonyl)glycine, sodium salt-----	GAF.
N-Oleoylpolyamide, sodium salt-----	LMI, x.
N-Oleoylsarcosine, sodium salt-----	GAF.
N-(Undecylenic oil acyl)polyamide, potassium salt-----	x.
Tridecyloxy poly(ethyleneoxy)acetic acid, sodium salt.	MIL, STC.
Unspecified sarcosine derivatives-----	HMP.
All other-----	CHP, BRD.
*Potassium and sodium salts of fatty, rosin, and tall oil acids:	
Animal grease, sodium salt-----	NMC.
*Castor oil acids, potassium salt-----	MCP, NTL, PEK, SEA.
*Castor oil acid, sodium salt-----	HEW, NTL.
*Coconut oil acids, potassium salt-----	AES, CON, DA, DYS, ESS, GRC, GRL, HEW, HNT, JRG, NMC, PCH, PEK, PG, PNX, SOP, VAL.
*Coconut oil acids, sodium salt-----	AGP, CON, CP, GRC, HEW, JRG, LEV, NMC, NPR, PG.
Coconut oil and tallow acids, sodium salt-----	BSW.
*Corn oil acids, potassium salt-----	GRC, HNT, NMC.
Corn oil acids, sodium salt-----	GRC, NMC.
Lauric acid, potassium salt-----	GAF, USR.
*Mixed vegetable oil acids, potassium salt-----	AES, DYS, GRC, GRL, GYR, LUR, PCH, PEK.
*Oleic acid, potassium salt-----	AES, ARL, DA, DAN, GYR, HNT, SCP, SNW, USR, WBG.
*Oleic acid, sodium salt-----	BSW, DA, LUR, MRV, NMC, USR, WBG, WTC.
Olive oil acids, sodium salt-----	HEW, HNT, LUR.
Palm oil acids, sodium salt-----	HEW, LUR, NMC, PRX.
Peanut oil acids, potassium salt-----	KAL, SLC.
Rosin acids, potassium salt-----	ASY, GYR, SNW, x.
Rosin acids, sodium salt-----	ASY, CRT, GYR, HRT, PRX, SLM, USR, x.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents--Continued</i>	
*Carboxylic acids (and salts thereof)--Continued	
*Potassium and sodium salts of fatty, rosin, and tall oil acids--Continued	DYS, PCH, PEK.
Soybean oil acids, potassium salt-----	HEW, NMC.
Soybean oil acids, sodium salt-----	CON, DA, DYS, HEW, SCO, USP, WTC.
*Stearic acid, potassium salt-----	DA, HEW, JRG, WTC.
Stearic acid, sodium salt-----	
*Tall oil acids, potassium and sodium salts:	
Tall oil acids, potassium salt-----	AES, ASY, CON, DAN, DYS, ESS, GAF, GRC, GYR, HNT, NMC, PEK, PNX, SOP, VAL, x.
Tall oil acids, sodium salt-----	CON, GRC, GYR, MRV, PRX, SOP, UNP, x.
Tallow acids, potassium salt-----	AES, AGP, ASY, GYR, PG, USR.
Tallow acids, sodium salt-----	ASY, BSW, CON, CP, GRC, GYR, HEW, JRG, LEV, LUR, NMC, NPR, PG, PRX, USR.
All other-----	USR.
*Phosphoric and polyphosphoric acid esters (and salts thereof):	
*Alcohols and phenols, ethoxylated and phosphated:	GAF.
Butyl alcohol, ethoxylated and phosphated-----	TCH.
Decyl alcohol, ethoxylated and phosphated-----	ARL, GAF, MOA, TCH.
Dinonylphenol, ethoxylated and phosphated-----	GAF.
Dodecyl alcohol, ethoxylated and phosphated-----	GAF.
Dodecylphenol, ethoxylated and phosphated-----	SCP, WAY.
2-Ethylhexanol, ethoxylated and phosphated-----	CRT.
Hexylphenol, ethoxylated and phosphated-----	GAF.
Isopentyl alcohol, ethoxylated and phosphated-----	BAS, CEL, CHP, CRT, CST, GAF, SEY, SNW, TCH, TXT, WTC.
Mixed linear alcohols, ethoxylated and phosphated-----	ARL, CHP, DEX, GAF, HDG, MOA, NLC, SCP, SEY, SOP, TCC, TXN, TXT, WAY, WTC.
Nonylphenol, ethoxylated and phosphated-----	GAF.
9-Octadecenyl alcohol, ethoxylated and phosphated-----	ARL, MOA, RH, WAY.
Octylphenol, ethoxylated and phosphated-----	x.
Octylphenol, ethoxylated and phosphated, magnesium salt.	GAF, MOA, WTC, x.
Phenol, ethoxylated and phosphated-----	BAS.
Polyalkylene glycol, phosphated-----	NLC.
Polyhydric alcohol, ethoxylated and phosphated-----	LUR.
Propylene glycol, phosphated-----	ARL, GAF, SNW, TCC, WTC.
Tridecyl alcohol, ethoxylated and phosphated-----	TXT, WTC.
All other-----	DUP.
*Alcohols, phosphated or polyphosphated:	DUP.
Butyl phosphate, potassium salt-----	CHP, MRA, SEY, UCC.
Decyl, dodecyl, and octyl phosphate, morpholine salt.	MIL.
2-Ethylhexyl phosphate, sodium salt-----	x.
2-Ethylhexyl phosphate, triethanolamine salt-----	x.
2-Ethylhexyl polyphosphate-----	ICI.
2-Ethylhexyl polyphosphate, sodium salt-----	ICI.
Hexyl phosphate-----	DEX.
Hexyl phosphate, potassium salt-----	GAF.
Hexyl polyphosphate, potassium salt-----	DUP, SFS, TCC, WTC.
Isooctyl phosphate-----	DUP.
Mixed alkyl phosphate-----	x.
Mixed alkyl phosphate, diethanolamine salt-----	x.
9-Octadecenyl phosphate-----	
Octadecyl phosphate-----	

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents--Continued</i>	
*Phosphoric and polyphosphoric acid esters (and salts thereof)--Continued	
*Alcohols, phosphated or polyphosphated--Continued	
Octyl phosphate-----	TXT, WTC.
Octyl phosphate, alkylamine salt-----	DUP, NLC, TXN, TXT.
Octyl phosphate, potassium salt-----	DUP.
Octyl polyphosphate-----	DEX.
Octyl polyphosphate, potassium salt-----	x.
Oleyl phosphate-----	DUP.
All other-----	BRD, QCP, WTC, x.
*Sulfonic acids (and salts thereof):	
*Alkylbenzenesulfonates:	
*Dodecylbenzenesulfonates:	
*Dodecylbenzenesulfonic acid-----	ATR, BLA, CO, CRT, CTL, EMK, LAK, LEV, MON, PIL, PLX, PRX, RCD, STP, TCI, TEN, WTC.
Dodecylbenzenesulfonic acid, ammonium salt-----	ARL, HLT, STC.
Dodecylbenzenesulfonic acid, butylamine salt-----	WTC.
*Dodecylbenzenesulfonic acid, calcium salt-----	ICI, NLC, RCD, RH, STP, TMH, WTC.
Dodecylbenzenesulfonic acid, dimethylamine salt-----	PIL.
Dodecylbenzenesulfonic acid, isopropanolamine salt.	CTL, SNW.
*Dodecylbenzenesulfonic acid, isopropylamine salt---	CHP, CIN, CTL, ICI, RCD, STP, TCH, WTC.
Dodecylbenzenesulfonic acid, (mixed alkyl)amine salt.	ECC, NLC.
Dodecylbenzenesulfonic acid, potassium salt-----	STP, VAL.
*Dodecylbenzenesulfonic acid, sodium salt-----	AAC, ARD, ARL, ATR, BLA, CEL, CO, CP, CRT, CTL, DA, DEP, ECC, HLI, LEV, NMC, PG, PIL, PLX, PRX, QCP, RCD, SEY, SOP, STP, TEN, UCC, WTC.
*Dodecylbenzenesulfonic acid, triethanolamine salt.	AAC, ARD, ARL, ATR, CTL, ECC, ESS, HLI, PEK, PIL, RCD, SOP, SOS, STP, WTC.
*Other alkylbenzenesulfonates:	
Didodecylbenzenesulfonic acid-----	CO, WTC.
Didodecylbenzenesulfonic acid, sodium salt-----	ATR.
Pentadecylbenzenesulfonic acid, potassium salt-----	STP.
Tridecylbenzenesulfonic acid-----	CO, RCD, TXT, WTC.
Tridecylbenzenesulfonic acid, ammonium salt-----	TXT.
Tridecylbenzenesulfonic acid, calcium salt-----	WTC.
Tridecylbenzenesulfonic acid, sodium salt-----	BLA, CP, NPR, PG, RCD, WTC.
Undecylbenzenesulfonic acid-----	TXT.
Undecylbenzenesulfonic acid, ammonium salt-----	TXN, TXT.
Undecylbenzenesulfonic acid, isopropylamine salt-----	TXT.
Undecylbenzenesulfonic acid, sodium salt-----	TXN, TXT.
Undecylbenzenesulfonic acid, triethanolamine salt.	TXN, TXT.
All other-----	TXT, USR.
*Benzene-, cumene-, toluene-, and xylenesulfonates:	
Allylsulfonic acid, sodium salt-----	x.
Cumenesulfonic acid, ammonium salt-----	NES, PRX, STP, WTC.
Cumenesulfonic acid, sodium salt-----	NES.
*Toluenesulfonic acid, potassium and sodium salts:	
Potassium salt-----	NES, STP, TXN, WTC.
Sodium salt-----	CO, NES, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents--Continued</i>	
*Sulfonic acids (and salts thereof)--Continued	
*Benzene-, cumene-, toluene-, and xylenesulfonates--	
Continued	
*Xylenesulfonic acid, ammonium salt-----	CO, NES, STP, TXN, WTC.
*Xylenesulfonic acid, sodium salt-----	CO, ICI, NES, PIL, PRX, SDC, STP, TXN, WTC.
*Ligninsulfonates:	
Ligninsulfonic acid, ammonium salt-----	CPP, CRZ, SPA.
Ligninsulfonic acid, calcium salt-----	CRZ, CWP, LKY, MAR, PSP.
Ligninsulfonic acid, chromium salt-----	MAR, PSP, RAY.
Ligninsulfonic acid, iron salt-----	CRZ, PSP.
Ligninsulfonic acid, magnesium salt-----	MAR, SPA.
Ligninsulfonic acid, mixed salts-----	MAR, SPA.
Ligninsulfonic acid, potassium salt-----	SPA.
Ligninsulfonic acid, sodium salt-----	CRZ, MAR, PSP, RAY, SPA, WVA.
Ligninsulfonic acid, zinc salt-----	PSP.
*Naphthalenesulfonates:	
Butylnaphthalenesulfonic acid-----	DA, ECC.
Butylnaphthalenesulfonic acid, sodium salt-----	DA.
Dibutylnaphthalenesulfonic acid-----	GAF, S.
Didodecylnaphthalenesulfonic acid, sodium salt-----	PFZ.
Diisopropylnaphthalenesulfonic acid, sodium salt-----	DA, PFZ.
Dipentylnaphthalenesulfonic acid, (mixed alkyl)-amine salt.	NLC.
Dipentylnaphthalenesulfonic acid, sodium salt-----	CGY.
Isopropylnaphthalenesulfonic acid-----	DA, DUP, GRD.
Methylenebis(2-naphthalenesulfonic acid)-----	DUP.
Methylnaphthalenesulfonic acid, sodium salt-----	DA, UDI.
Tetrahydronaphthalenesulfonic acid, sodium salt-----	DUP.
*Sulfonic acids having amide linkages:	
*Sulfosuccinic acid derivatives:	
N-(1,2-Dicarboxyethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt.	ACY, MOA.
N-(2-Hydroxyethyl)-N-(undecyl)sulfosuccinamic acid, disodium salt.	ARD.
N-Octadecylsulfosuccinamic acid, disodium salt-----	ACY.
N-(Oleoyloxyisopropyl)sulfosuccinamic acid, disodium salt.	WTC.
Sulfosuccinic acid, alkanolamide ester, sodium salt.	HDG, SCP.
Sulfosuccinic acid, alkanolamide ester, triethanolamine salt.	SCP.
Sulfosuccinic acid, 2-(coconut oil amido)ethyl ester, disodium salt.	LAK.
*Taurine derivatives:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt--	GAF, LIL, TNI.
N-Cyclohexyl-N-palmitoyltaurine, sodium salt-----	GAF.
N-Methyl-N-oleoyltaurine, sodium salt-----	DA, GAF, HRT.
N-Methyl-N-palmitoyltaurine, sodium salt-----	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt-----	CRT, GAF, MRA, x.
*Sulfonic acids having ester or ether linkages:	
*Sulfosuccinic acid esters:	
*Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl)ester, sodium salt.	DAN, ECC, GAF, MOA.
*Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt.	ACY, CGY, CHP, CRT, CST, DA, DAN, EMK, HDG, HRT, MCP, MOA, MRA, PC, SCO, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents--Continued</i>	
*Sulfonic acids (and salts thereof)--Continued	
*Sulfonic acids having ester or ether linkages--	
Continued	
*Sulfosuccinic acid esters--Continued	
Sulfosuccinic acid, bis(tallow monoglyceride) ester, sodium salt.	ACY.
Sulfosuccinic acid, dihexyl ester, sodium salt-----	ACY, MOA.
Sulfosuccinic acid, diisododecyl ester, sodium salt.	MCP.
Sulfosuccinic acid, diisoctyl ester, sodium salt.	RH.
Sulfosuccinic acid, dipentyl ester, sodium salt-----	ACY.
Sulfosuccinic acid, ditridecyl ester, sodium salt.	ACY, MOA.
Sulfosuccinic acid, monolauryl ester, sodium salt--	ARD.
*Other sulfonic acids having ester or ether linkages:	
Coconut oil acids, 2-sulfoethyl ester, sodium salt.	GAF, LFV, x.
Dodecyldiphenyloxidedisulfonic acid, disodium salt.	DOW.
Dodecyl sulfoacetate, sodium salt-----	STP.
Glycerol monostearate sulfoacetate, sodium salt---	WTC.
Herring oil, sulfonated, sodium salt-----	SLM.
Iso-octylphenol, ethoxylated and sulfonated, sodium salt.	RH.
n-Octylphehol, ethoxylated and sulfonated, sodium salt.	CRT.
All other-----	SLM.
*All other sulfonic acids:	
Butylhydroxybiphenylsulfonic acid-----	RBC.
Mixed alkanesulfonic acid, sodium salt-----	DUP.
Mixed alpha olefin, sulfonic acid, sodium salt-----	CP, LAK, NLC, STP, TXT.
Petroleum sulfonic acid, water soluble (acid layer), sodium salt.	WTC.
*Sulfuric acid esters (and salts thereof):	
*Acids, amides, and esters, sulfated:	
Coconut oil acids - ethanolamine condensate, sulfated, potassium salt.	DFX, EMK.
*Esters of sulfated oleic acid:	
2-Butoxyethyl oleate, sulfated, sodium salt-----	S.
*Butyl oleate, sulfated, sodium salt-----	AKS, CIN, CRT, EFH, ICI, MCP, PC.
2-Ethylhexyl oleate, sulfated, sodium salt-----	CHP.
Glyceryl trioleate, sulfated, sodium salt-----	MRV.
Isobutyl oleate, sulfated, sodium salt-----	DA.
Isopropyl oleate, sulfated, sodium salt-----	CRT, DFX, HRT, LEA, SCP.
Methyl oleate, sulfated, sodium salt-----	ICI.
*Propyl oleate, sulfated, sodium salt-----	ACY, AKS, CHP, MCP, MRV.
Oleic acid, sulfated, disodium salt-----	ACT, ACY, DA, GAF, LEA, SCO, TEN.
Oleic acid, sulfated, sodium salt-----	WHI.
Other acids, amides, and esters, sulfated:	
Glycerol monoester of coconut oil acids, sulfated sodium salt.	CP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents--Continued</i>	
*Sulfuric acid esters (and salts thereof)--Continued	
*Acids, amides, and esters, sulfated--Continued	
Other acids, amides, and esters sulfated--Continued	
*Tall oil, sulfated, sodium salt-----	
All other-----	
*Alcohols, sulfated:	
Coconut and sperm oil alkyl sulfate, sodium salt-----	
Decyl and octyl sulfate, sodium salt-----	
*Decyl sulfate, sodium salt-----	
3,9-Diethyl-6-tridecyl sulfate, sodium salt-----	
*Dodecyl sulfate salts:	
2-Amino-2-methylpropanol salt-----	
*Ammonium salt-----	
Diethanolamine salt-----	
N,N-Diethylcyclohexylamine salt-----	
Isopropanolamine salt-----	
Magnesium salt-----	
Potassium salt-----	
*Sodium salt-----	
*Triethanolamine salt-----	
2-Ethylhexyl sulfate, sodium salt-----	
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt-----	
Hexadecyl and 9-octadecenyl sulfate, sodium salt-----	
Hexadecyl sulfate, sodium salt-----	
Hexyl sulfate, potassium salt-----	
Lauryl alcohol sulfate, diethylamine, sodium salt-----	
Lauryl alcohol sulfate, sodium salt-----	
Lauryl alcohol sulfate, triethanolamine salt-----	
*Mixed linear alcohols, sulfated, ammonium salt-----	
Mixed linear alcohols, sulfated, diethanolamine-----	
*Mixed linear alcohols, sulfated, sodium salt-----	
Mixed linear alcohols, sulfated, triethanolamine salt.	
Nonyl sulfate, sodium salt-----	
Octadecyl sulfate, sodium salt-----	
*Octyl sulfate, sodium salt-----	
Oleyl sulfate, sodium salt-----	
Tridecyl sulfate, sodium salt-----	
All other-----	
*Ethers, sulfated:	
*Alkylphenols, ethoxylated and sulfated:	
Iso-octylphenol, ethoxylated and sulfated, sodium salt.	
1-Naphthol, ethoxylated and sulfated, sodium salt--	
Nonylphenol, ethoxylated and sulfated, ammonium salt.	
Nonylphenol, ethoxylated and sulfated, sodium salt.	
Nonylphenol, ethoxylated and sulfated, triethanolamine salt.	
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt.	
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt.	
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt.	
2-Hexyloxypropyl sulfate, sodium salt-----	
*Mixed linear alcohols, ethoxylated and sulfated, ammonium salt.	
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt.	

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Anionic Surface-Active Agents--Continued</i>	
*Sulfuric acid esters (and salts thereof)--Continued	
*Ethers, sulfated--Continued	
Tridecyl alcohol, ethoxylated and sulfated, ammonium salt.	PRX.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, ARL.
*Natural fats and oils, sulfated:	
*Castor oil, sulfated, sodium salt-----	
Coconut oil, sulfated, sodium salt-----	ACT, ACY, AKS, APX, ARL, BAO, CRT, DA, DEX, GAF, HRT, ICI, KAL, KNG, LEA, LUR, MRD, MRV, S, SCO, SCP, SLM, WHW.
*Cod oil, sulfated, sodium salt-----	ACY, BAO, DA, LUR, MRD.
Grease, other than wool, sulfated, sodium salt-----	ACT, BAO, SEA, WHI, WHW.
Herring oil, sulfated, ammonium salt-----	SEA, WHI.
Herring oil, sulfated, sodium salt-----	SCP.
Lard, sulfated, sodium salt-----	DA, SLM, WHW.
Mixed alpha olefins and vegetable oils, sulfated, sodium salt.	CRT, WAW, WHW.
Mixed animal and vegetable oils, sulfated, sodium salt.	SLM.
Mixed fish oils, sulfated, sodium salt-----	SLM.
Mixed vegetable oils, sulfated, sodium salt-----	ACT, DA, MRD, SLM.
Mustard seed oil, sulfated, sodium salt-----	LUR, SEY.
*Neat's-foot oil, sulfated, sodium salt-----	DA.
Peanut oil, sulfated, sodium salt-----	ACT, BAO, DA, KAL, LUR, MRD, PC, SEA, SLM.
Pecan oil, sulfated, sodium salt-----	ACY, LUR, SLC.
Ricebran oil, sulfated, sodium salt-----	CRT.
Soybean oil, sulfated, sodium salt-----	DA, KNG, SEA.
*Sperm oil, sulfated, sodium salt-----	ACT, HRT, ONX.
*Tallow, sulfated, sodium salt-----	ACT, BAO, DA, KAL, LEA, MRD, ONX, SCO, SEA, WHI, WHW.
All other-----	ACT, ACY, DA, ECC, LUR, MCP, MRD, PC, SID, SLM, SOS, WHI.
Other anionic surface-active agents:	
Lignin, sodium salt-----	WVA.
Mixed linear alcohols, ethoxylated and carbonated, sodium salt.	S.
Polyethylene-vinyl alcohol copolymer, potassium salt---	NLC.
Tridecyl alcohol, ethoxylated and carbonated, sodium salt.	S.
All other-----	S.
<i>Cationic Surface-Active Agents</i>	
*Amine oxides and oxygen-containing amines (except those having amide linkages):	
*Acyclic:	
N,N-Bis(2-hydroxyethyl)(coconut oil alkyl)amine oxide.	ARC.
N,N-Bis(2-hydroxyethyl)octadecylamine-----	ARC, FIN, TCH.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine-----	ARC, SBC.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine oxide-----	ARC.
*(Coconut oil alkyl)amine, ethoxylated-----	ARC, ASH, BPD, ICI, NLC, TCH.
(Coconut oil alkyl)amine, ethoxylated, acetate-----	RPC.
(Coconut oil alkyl)amine, ethoxylated, maleate-----	SDH.
N,N-Dimethyl(coconut oil alkyl)amine oxide-----	ARC.
N,N-Dimethyldiethylamine oxide-----	BPD.
N,N-Dimethyldodecylamine oxide (Lauryl dimethylamine oxide).	BRD, x.
N,N-Dimethylhexadecylamine oxide-----	ONX.
N,N-Dimethyl(hydrogenated tallow alkyl)amine oxide-----	ARC.
N,N-Dimethylmyristylamine oxide-----	BRD.
Ethylenediamine, ethoxylated and propoxylated-----	ICI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Cationic Surface-Active Agents--Continued</i>	
*Amine oxides and oxygen-containing amines(except those having amide linkages)--Continued	
*Acyclic--Continued	
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)-ethylenediamine.	NLC.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)-ethylenediamine distearate, methyl sulfate.	DUP.
(Mixed alkyl)amine, ethoxylated-----	DA, GAF, ICI, RH, TCH.
(Mixed alkyl)poly(oxyethylene)amine-----	GAF.
Mixed substituted oximes-----	GNM.
(9-Octadecenyl)amine, ethoxylated-----	ARC, TCH.
Octadecylamine, ethoxylated-----	ARC, TCH.
N,N-Oleylamine oxide-----	SCP.
Polyethylenepolyamine, alkoxylated-----	NLC.
(Soybean oil alkyl)amine, ethoxylated-----	ARC.
*(Tallow alkyl)amine, ethoxylated-----	ARC, DUP, TCH.
Tallow alkyl amine ethoxylated, sulfate-----	DUP.
N-(Tallow alkyl)trimethylenediamine, ethoxylated-----	ARC.
N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine-----	NLC.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine dioleate, methyl sulfate.	DUP.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, propoxylated and ethoxylated.	ARC, BAS.
Triethanolamine, ethoxylated-----	MIL.
All other-----	ARC, TCH.
*Cyclic (including imidazoline and oxazoline derivatives):	
Aniline, ethoxylated-----	TCH.
Lignin amines-----	WVA.
Rosin amine, ethoxylated-----	HPC, NLC, WTC.
m-Toluidine, ethoxylated-----	TCH.
All other-----	TCH.
Imidazoline and oxazoline derivatives:	
1-(2-Aminoethyl)-1,2-distearylimidazoline-----	TCH.
2-(8-Heptadecenyl)-4,4-bis(hydroxymethyl)-2-oxazoline.	COM.
2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline.	BRD, COM.
*1-(2-Hydroxyethyl)-2-(8-heptadecenyl)-2-imidazoline-----	BRD, DA, ONX, TXT.
1-(2-Hydroxyethyl)-2-heptadecyl-4-carboxyethyl-imidazoline.	MOA.
*1-(2-Hydroxyethyl)-2-heptadecyl-2-imidazoline-----	BRD, CGY, CHP, MOA, SNW.
1-(2-Hydroxyethyl)-2-hexyl-4-carboxyethyl-imidazoline.	MOA.
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline.	BRD, CGY, GAF, MOA, TCH, TXT.
*1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline.	BRD, HDG, MOA, NLC, TCH, TXT, WTC.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline hydrochloride.	CGY.
1-(2-Hydroxyethyl)-2-undecyl-4,4-bis(carboxyethyl)-imidazoline.	MOA.
1-(2-Hydroxyethyl)-2-undecyl-4-carboxyethyl-imidazoline.	MOA.
1-(2-Hydroxypropyl)-2-imidazoline-----	TCH.
*Amines and amine oxides having amide linkages:	
*Carboxylic acids - diamine and polyamine condensates:	
Adipic and stearic acids - diethylenetriamine condensate.	STC.
Caprylic acid - tetraethylenepentamine condensate-----	ICI.
Coconut oil acids - diethylenetriamine condensate-----	APX.
Coconut oil acids - N,N-dimethyltrimethylene-diamine condensate.	JRG, TXT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Cationic Surface-Active Agents--Continued</i>	
*Amines and amine oxides having amide linkages--Continued	
*Carboxylic acids - diamine and polyamine condensates--Continued	
Mixed dicarboxylic acids - polyalkylenopolyamine condensate.	TXT.
Mixed fatty acids - polyalkylenopolyamine condensate.	GRD, NLC, QCP, TCH.
Oleic acid - diethylenetriamine condensate-----	ICI.
Oleic acid - N,N-dimethyltrimethylenediamine condensate.	CCW.
Pelargonic acid - tetraethylenepentamine condensate.	ICI
Stearic acid, diethanolamine condensate, methyl sulfate.	DUP.
Stearic acid - diethylenetriamine condensate-----	CHP, S.
Stearic acid - N,N-diethylenediamine condensate.	CGY, S.
Stearic acid - N,N-dimethyltrimethylenediamine condensate.	SNW.
Stearic acid - polyamine condensate-----	VND.
Stearic acid - tetraethylenenentamine condensate-----	ONX.
*Tall oil acids - diethylenetriamine and polyalkylene polyamine condensates:	
Tall oil acids - diethylenetriamine condensate-----	AZS, NCW, NLC, TXT, WTC.
*Tall oil acids - polyalkylenopolyamine condensate--	AZS, QCP, TXN, TXT, WTC.
Tallow acid - N,N-dimethyltrimethylenediamine condensate.	TXT.
Tallow acid - polyglycolamine condensate-----	NLC.
*Other amines and amine oxides having amide linkages:	
Coconut oil acids - dimethylamine oxide-----	HLI.
3-Lauramido-N,N-dimethylpropylamine oxide-----	SNW.
Oleic acid - ethylenediamine condensate, mono-ethoxylated.	CLD, DA, DEX, SOC, TNA.
Palm oil acids - ethylenediamine condensate, mono-ethoxylated.	APX.
Stearic acid - diethylenetriamine condensate, poly-ethoxylated.	ARC.
Stearic acid - ethylenediamine condensate, mono-ethoxylated.	CLD, CST, DEX, ICI, MRV, S, SCP.
Stearic acid - ethylenediamine condensate, poly-ethoxylated.	ICI.
3-Tallow-N,N-dimethylpropylamine oxide-----	TXT.
*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-----	GNM.
Octadecylamine acetate-----	ARC.
N-(Oleyl alkyl)trimethylenediamine tallate-----	ARC.
N-(Tallow alkyl)amine succinate-----	SM.
N-(Tallow alkyl)trimethylenediamine acetate-----	ARC, ASH.
N-(Tallow alkyl)trimethylenediamine oleate-----	ARC, ASH.
N-(Tallow alkyl)trimethylenediamine tallate-----	ARC.
*Diamines and polyamines:	
N-(Coconut oil alkyl)trimethylenediamine-----	ARC, ENO, GNM.
N-(Docosyl and eicosyl)trimethylenediamine-----	ENO.
N-Dodecyldiethylenetriamine-----	ARC.
*Imidazoline derivatives:	
1-[3-(2-Aminoethyl)naphth-1-yl]-2-(8-heptadecenyl)-2-imidazoline.	NLC.
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline.	ARC, AZS, NLC, TXT.
2-Heptadecyl-2-imidazoline-----	SCO.
*N-(Mixed alkyl)polyethylenopolyamine-----	ARC, BAS, CCW, SNW, STC.
*N-(9-Octadecenyl)trimethylenediamine-----	ARC, ASH, GNM.
N-(Soybean oil alkyl)trimethylenediamine-----	ENO.
N-(Tallow alkyl)dipropyleneetriamine-----	ARC, GNM.
*N-(Tallow alkyl)trimethylenediamine-----	ARC, ASH, ENO, GNM.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Cationic Surface-Active Agents--Continued</i>	
*Amines, not containing oxygen (and salts thereof)--	
Continued	
*Primary monoamines:	
(Coconut oil alkyl)amine-----	ARC, ASH, ENO, GNM.
Dodecylamine-----	ARC, ASH, GNM.
Hexadecylamine-----	ARC, ENO.
(Hydrogenated tallow alkyl)amine-----	ARC, ASH, ENO, GNM.
(Mixed alkyl)amine-----	ARC.
(Mixed tert-alkyl)amine-----	RH.
Myristylamine-----	GNM.
*9-Octadecylamine-----	ARC, ASH, ENO, GNM.
Octadecylamine-----	ARC, ASH, ENO.
Octylamine-----	ARC.
tert-Octylamine-----	RH.
(Soybean oil alkyl)amine-----	ARC, ENO.
(Tall oil alkyl)amine-----	ASH, GNM.
*(Tallow alkyl)amine-----	ARC, ASH, ENO, GNM.
*Secondary and tertiary monoamines:	
Bis(coconut oil alkyl)amine-----	ARC.
Bis(hydrogenated tallow alkyl)amine-----	ARC, ASH, ENO.
N,N-Dimethyl(coconut oil alkyl)amine-----	ARC, BRD.
N,N-Dimethyldecylamine-----	BRD.
N,N-Dimethyldodecylamine-----	ARC, BRD, ONX.
N,N-Dimethylhexadecylamine-----	ARC, BRD.
*N,N-Dimethyl(hydrogenated tallow alkyl)amine-----	ARC, ASH, ENO.
*N,N-Dimethyl(mixed alkyl)amine-----	ARC, BRD, ENO, ONX.
N,N-Dimethyloctadecylamine-----	ARC, BRD, ENO, ONX.
N,N-Dimethyloctylamine-----	BRD.
N,N-Dimethyl(soybean oil alkyl)amine-----	ARC, ENO.
*N,N-Dimethyltetradecylamine-----	ARC, BRD, ENO.
N,N-Dimethyltridecylamine-----	BRD.
N-Methylbis(coconut oil alkyl)amine-----	ASH, ENO.
*N-Methylbis(hydrogenated tallow alkyl)amine-----	ARC, ASH, ENO, GNM.
N-Methyldioctadecylamine-----	ASH.
Triisodecylamine-----	GNM.
Trilaurylamine-----	GNM.
Trioctylamine-----	GNM.
*Oxygen-containing quaternary ammonium salts:	
Quaternary ammonium salts having amide linkages:	
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)- ammonium dihydrogen phosphate.	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)- ammonium nitrate.	ACY.
(3-Lauramidopropyl)trimethylammonium methyl sulfate.	ACY.
2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride.	WTC.
1-Methyl-2-(2-stearoyloxyethyl)carbamoylpyridinium chloride.	WTC.
All other-----	MRV, x.
Other oxygen-containing quaternary ammonium salts:	
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2- hydroxyethyl)ammonium ethyl sulfate.	LUR.
(2-Aminoethyl)ethyl(oleyl)-2-imidazolinium chloride.	HLI.
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)- ammonium chloride.	NLC, TXT.
Benzyl(coconut oil alkyl, ethoxylated)dimethyl- ammonium chloride.	DUP, GAF.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazolinium chloride.	TXT.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)- 2-imidazolinium chloride.	MOA, NLC.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Cationic Surface-Active Agents--Continued</i>	
*Oxygen-containing quaternary ammonium salts--Continued	
Other oxygen-containing quaternary ammonium salts--Continued	
Bis(2-hydroxyethyl, ethoxylated)ethyl(hydrogenated tallow alkyl)ammonium ethyl sulfate.	ICI.
Bis(2-hydroxyethyl, ethoxylated)methyl(9-octadecenyl)ammonium chloride.	APC.
Bis(2-hydroxyethyl, ethoxylated)methyloctadecylammonium chloride.	ARC.
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)methylammonium chloride.	ARC.
(Coconut oil alkyl)bis(2-hydroxyethyl)methylammonium nitrate.	ARC.
(Ethoxybenzyl)dimethyl(octylphenoxy)ammonium chloride.	RH.
(Ethoxybenzyl)dimethyl(octyltolyloxy)ammonium chloride.	RH.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolinium ethyl sulfate.	ICI.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate-----	BRD, ICI.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate.	ICI.
Hexadecyl trimethylammonium p-toluenesulfonate-----	FIN.
2-Hydroxytrimethylenebis[(coconut oil alkyl)dimethylammonium chloride].	CGY.
(Methyloctyl)bis(2-hydroxyethyl)ammonium p-toluene sulfonate.	FIN.
*Quaternary ammonium salts, not containing oxygen:	
*Acyclic:	
Bis(coconut oil alkyl)dimethylammonium chloride-----	ARC, ASH, ENO, GNM.
Bis(coconut oil alkyl)dimethylammonium nitrate-----	ARC.
*Bis(hydrogenated tallow alkyl)dimethylammonium chloride.	ARC, ASH, CIN, ENO, GNM.
Bis(hydrogenated tallow alkyl)dimethylammonium methyl sulfate.	PRX.
(Coconut oil alkyl)trimethylammonium chloride-----	ARC, GNM.
Didecyldimethylammonium chloride-----	BRD.
Didodecyldimethylammonium bromide-----	ONX.
Dimethylbis(soybean oil alkyl)ammonium chloride-----	ARC.
Dimethyldioctadecylammonium chloride-----	ASH, ONX, PG.
Dimethyldioctylammonium chloride-----	BRD.
Dodecyltrimethylammonium chloride-----	ARC, GNM.
Ethyldimethyl(mixed alkyl)ammonium ethyl sulfate-----	DEX, JOR, TCC.
Ethyldimethyl(9-octadecenyl)ammonium bromide-----	ONX.
Ethylhexadecyldimethylammonium bromide-----	FIN.
Hexadecyltrimethylammonium bromide-----	FIN.
Hexadecyltrimethylammonium chloride-----	ARC, BRD.
(Hydrogenated tallow alkyl)trimethylammonium chloride.	ARC.
Methyltriocetylammonium chloride-----	GNM.
Mixed dialkyldimethylammonium chloride-----	BRD.
N,N,N',N'-Pentamethyl-N-(tallow alkyl)trimethylenebis[ammonium chloride].	ARC.
Trimethyl(mixed alkyl)ammonium chloride-----	NLC.
Trimethyloctadecylammonium chloride-----	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride-----	ARC, ENO.
Trimethyl(tallow alkyl)ammonium chloride-----	ARC, ASH, GNM.
Trimethyltetradecylammonium bromide-----	FIN.
All other-----	X.
*Benzoid:	
*Benzyl(coconut oil alkyl)dimethylammonium chloride.	ARC, CRT, DEP, ENO, LUR.
*Benzyldimethyl(mixed alkyl)ammonium chloride-----	AAC, BRD, FIN, ONX, RH, SDH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Cationic Surface-Active Agents--Continued</i>	
*Quaternary ammonium salts, not containing oxygen-- Continued	
*Benzenoид--Continued	
*Benzylidimethyloctadecylammonium chloride-----	BRD, FIN, ONX, RH, SNW, TNI, TXT.
Benzylidimethyl(tallow alkyl)ammonium chloride-----	ENO.
Benzylidimethyltetradecylammonium chloride-----	FIN, SDH.
Benzylidodecyldimethylammonium chloride-----	FIN, ONX.
Benzylhexadecyldimethylammonium chloride-----	ONX.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride.	ENO.
Benzylloctyldecyldimethylammonium chloride-----	TXT.
1-Benzyl-2-picolinium bromide-----	FIN.
1-Benzylpyridinium chloride-----	DEP.
Benzyltrimethylammonium chloride-----	CIN, CRT, SNW, TCC.
(3,4-Dichlorobenzyl)dodecyldimethylammonium chloride.	ONX.
(Dodecylbenzyl)triethylammonium chloride-----	PC.
2-Dodecylisoquinolinium bromide-----	ONX.
(Dodecylmethylbenzyl)trimethylammonium chloride-----	RH.
1-Dodecylpyridinium chloride-----	HK.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride.	BRD.
1-(Mixed alkyl)quinolinium ethyl sulfate-----	x.
1-Phenethyl-2-picolinium bromide-----	FIN.
All other-----	DUP, ICI.
<i>Nonionic Surface-Active Agents</i>	
*Carboxylic acid amides:	
*Diethanolamine condensates (amine/acid ratio=2/1):	
Capric acid-----	CGY, SCP, TCH.
Castor oil acids-----	CLI, NTL.
*Coconut oil acids-----	ACT, AKS, ARD, ARL, BRD, BSW, CHP, CIN, CLI, CTL, DA, DEP, ECC, EFH, HLI, HRT, KNP, LUR, MCP, MOA, MRV, ONX, PC, PG, PNX, PVO, RCD, SBC, SCP, STP, TCH, TXC, TXN, TXT, VAL, WTC, x.
*Coconut oil and tallow acids-----	ACT, CLI, CRT, ESS, MOA, PG, PVO, SEY, SOS, TXT, UNN.
*Lauric acid-----	BRD, CLI, DA, PG, TCH.
Lauric and myristic acids-----	MOA, RCD, SBC, STP.
*Linoleic acid-----	VND, KNP, WTC.
Mixed vegetable oil acids-----	HLI.
*Oleic acid-----	CCW, CLI, SBC, STP, TXT.
Pelargonic acid-----	TCH.
*Stearic acid-----	CLI, DA, ECC, ONX, SCO, SOS, TCH, TXC, VAL.
*Tall oil acids-----	ECC, EFH, MCP, MOA, MRV, WTC.
Tallow acids-----	SOS, TCH.
*Diethanolamine condensates (other amine/acid ratios):	
*Coconut oil acids (amine/acid ratio=1/1)-----	ARD, AZS, CCL, CGY, CLI, CTL, DA, HLI, JRG, MOA, MRV, ONX, PIL, SBC, SCP, SEY, STP, TCC, TXN, TXT, WTC.
Coconut oil acids (amine acid ratio=1/1.2)-----	CON, JRG, SCP.
Lard oil (amine/acid ratio=2/1)-----	EFH.
*Lauric acid (amine/acid ratio=1/1)-----	ARD, CLI, CTL, EMK, HLI, LEV, MOA, ONX, SBC, TCH, TXN, TXT, WTC.
*Lauric and myristic acids (amine/acid ratio=1/1)-----	CLI, PG, SBC, TXN, TXT.
Linoleic acid (amine/acid ratio=1/1)-----	MOA, SBC.
Mixed fatty acids (amine/acid ratio=1/1)-----	STP.
*Oleic acid (amine/acid ratio=1/1)-----	CGY, HLI, SCP, TXT.
Palmitic and stearic acid (amine/acid ratio=1/1)-----	MCP.
Rapeseed oil acids (amine/acid ratio=1/1)-----	EFH.
Stearic acid (amine/acid ratio=1/1)-----	CGY, EMR, MRV, RPC, SEY.
Stearic acid (amine/acid ratio=2.7/1)-----	EFH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid amides--Continued	
*Diethanolamine condensates (other amine/acid ratios)--Continued	
Tall oil acids (amine/acid ratio=1/1)-----	ECC, EFH, MRV.
Tallow acids (amine/acid ratio=1/1)-----	RPC.
All other-----	ORO.
All other carboxylic acid amides:	EFH.
Coconut oil acids - diethanolamine condensate, propoxylated.	CTL, PEK, PRX, STP, TCH, VND, WTC.
Coconut oil acids - ethanolamine condensate (amine/acid ratio=2/1).	ARD, HLI, HUM, MOA, PG, STP, WTC.
Coconut oil acids - ethanolamine condensate (amine/acid ratio=1/1).	DA, STP.
Coconut oil acids - ethanolamine condensate, ethoxylated.	STP.
Coconut oil acids - isopropanolamine condensate-----	GLV, NTL.
Hydrogenated castor oil acids - ethanolamine condensate (amine/acid ratio=2/1).	ARC, CTL, PRX.
Lauric acid - ethanolamine condensate (amine/acid ratio=2/1).	CLI, MOA, SNW.
Lauric acid - isopropanolamine condensate-----	MOA, TXN, TXT.
Lauric and myristic acids - ethanolamine condensate (amine/acid ratio=1/1).	LEV, TXT.
Lauric and myristic acids - isopropanolamine condensate.	VPC.
Oleic acid - ethanolamine condensate (amine/acid ratio=1/1).	DA, GAF.
Oleic acid - ethanolamine condensate, ethoxylated----	SBC.
Oleic acid - isopropanolamine condensates-----	ECC.
Succinic acid - ethanolamine condensate (amine/acid ratio=2/1).	CLI, ECC.
Stearic acid - ethanolamine condensate (amine/acid ratio=2/1).	HAL, MOA, SBC, SNW, VND.
Stearic acid - ethanolamine condensate (amine/acid ratio=1/1).	SCP.
Tallow acids - ethanolamine condensate (amine/acid ratio=1/1).	ROB, MCP, TCH.
All other-----	
*Carboxylic acid esters:	
*Anhydrosorbitol esters:	
Anhydrosorbitol dioleate-----	ICI.
Anhydrosorbitol distearate-----	CHP.
Anhydrosorbitol monoester of tall oil acids-----	HDG, ICI, TCH.
Anhydrosorbitol monolaurate-----	GLY, HDG, ICI, PVO, TCH.
Anhydrosorbitol mono-oleate-----	GLY, HDG, ICI, PVO, TCH.
Anhydrosorbitol monopalmitate-----	GLY, HDG, ICI, TCH.
Anhydrosorbitol monostearate-----	GLY, HDG, ICI, PVO, TCH.
Anhydrosorbitol sesquisterate of tall oil acids-----	WTC.
Anhydrosorbitol sesquioleate-----	GLY, HDG, TCH.
Anhydrosorbitol triester of tall oil acids-----	GLY.
Anhydrosorbitol triisostearate-----	TCH.
Anhydrosorbitol trioleate-----	GLY, ICI, TCH.
Anhydrosorbitol tristearate-----	GLY, ICI.
*Diethylene glycol esters:	
Diethylene glycol dioleate-----	GLY.
*Diethylene glycol distearate-----	ARC, ECC, GLY, VAL.
Diethylene glycol monoester of coconut oil acids-----	AAC, DA.
Diethylene glycol monoester of tallow acids-----	QCP.
Diethylene glycol monolaurate-----	ECC, GLY, HAL, HDG.
Diethylene glycol mono-oleate-----	ARC, HAL.
Diethylene glycol monoricinoleate-----	DA, GLY.
*Diethylene glycol monostearate-----	ARC, CHP, CLI, DA, HAL, HDG, MCP, VND.
Diethylene glycol sesquilaurate-----	ARC, GLY.
Diethylene glycol sesquistearate-----	WM, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid esters--Continued	
*Ethoxylated anhydrosorbitol esters:	
Ethoxylated anhydrosorbitol isostearate-----	TCH.
Ethoxylated anhydrosorbitol monolaurate-----	AAC, GLY, HDG, ICI, MIL, PVO, TCH.
*Ethoxylated anhydrosorbitol mono-oleate-----	AAC, GLY, HDG, ICI, MIL, PVO, TCH.
Ethoxylated anhydrosorbitol monopalmitate-----	AAC, GLY, ICI, TCH.
*Ethoxylated anhydrosorbitol monostearate-----	AAC, GLY, HDG, ICI, PVO, TCH.
Ethoxylated anhydrosorbitol triester of tall oil acids.	ICI, TCH.
Ethoxylated anhydrosorbitol trioleate-----	AAC, GLY, ICI, TCH.
Ethoxylated anhydrosorbitol tristearate-----	AAC, GLY, HDG, ICI, PVO, TCH.
Ethoxylated sorbitol esters:	
Ethoxylated sorbitol beeswax ester-----	ICI.
Ethoxylated sorbitol distearate-----	ICI.
Ethoxylated sorbitol heptaoleate-----	ICI.
Ethoxylated sorbitol hexaester of tall oil acids-----	ICI, TCH.
Ethoxylated sorbitol hexaoleate-----	GLY, ICI, TCH.
Ethoxylated sorbitol lanolin ester-----	ICI.
Ethoxylated sorbitol mono-oleate-----	AAC, GLY, ICI.
Ethoxylated sorbitol oleate, acetylated-----	ICI.
Ethoxylated sorbitol pentaoleate-----	ICI.
Ethoxylated sorbitol pentadecanoate-----	ICI.
Ethoxylated sorbitol tetraester of lauric and oleic acids.	ICI.
Ethoxylated sorbitol tetraoleate-----	ICI.
*Ethylene glycol esters:	
Ethylene glycol distearate-----	ARC, EMR, HUM, WM.
Ethylene glycol mono-oleate-----	EFH.
Ethylene glycol monostearate-----	ARC, CLI, GLY, HAL, HDG, KNP, TCH, VND, WM.
*Glycerol esters:	
*Complex glycerol esters:	
Glycerol diacetyl tartrate monostearate-----	WTC.
Glycerol esters ethoxylated-----	GLY.
Glycerol lactate esters of fatty acids-----	GLD.
Glycerol lactate stearate-----	GLY.
Glycerol monoester of mixed fatty acids, acetylated.	EKT.
Glycerol mono-oleate, acetylated-----	GLY.
Glycerol mono-oleate, ethoxylated-----	SCP.
Glycerol monostearate, succinylated-----	EKT.
Glycerol pelargonate-----	WM.
*Glycerol esters of chemically defined acids:	
Glycerol dioleate-----	ARC, HAL.
Glycerol dilaurate-----	VND.
Glycerol distearate-----	ARC, ICI.
Glycerol monocaprylate-----	ARC, PVO.
Glycerol monoisostearate-----	TCH.
Glycerol monolaurate-----	ARC, GLY, HAL.
*Glycerol mono-oleate-----	ARC, CCW, DA, EFH, EMR, GLY, GRO, HAL, HDG, PVO, TCH, WM, WTC.
Glycerol monopalmitate-----	ARC.
Glycerol monoricinoleate-----	DA, HAL, HDG.
*Glycerol monostearate-----	ARC, ASH, BLS, CHL, CIN, DA, EFH, EMR, GLY, GRO, HAL, HDG, HRT, PG, PVO, SCP, TCH, VND, WM, WTC.
Glycerol trioleate-----	HAL, TCH.
*Glycerol esters of mixed acids:	
Glycerol mono and diesters of mixed fatty acids-----	BFP, GLD, ICI, LEV.
Glycerol monoester of coconut oil acids-----	PVO.
Glycerol monoester of cottonseed oil acids-----	EKT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid esters--Continued	
*Glycerol esters--Continued	
*Glycerol esters of mixed acids--Continued	
*Glycerol monoester of hydrogenated cottonseed oil acids.	EKT, GLD, LEV, WM.
*Glycerol monoester of hydrogenated soybean oil acids.	ASH, EKT, GLD, NW, PVO, TCH, WTC.
Glycerol monoester of hydrogenated tall oil acids--	TCH.
*Glycerol monoester of lard acids-----	EKT, GLD, GLY.
Glycerol monoester of mixed vegetable oil acids---	EKT.
Glycerol monoester of peanut oil acids-----	PVO.
Glycerol monoester of safflower oil acids-----	EKT.
Glycerol monoester of tall oil acids-----	EFH.
Glycerol monoester of tallow acids-----	BFP, EKT.
Glycerol sesquiester of hydrogenated tallow acids--	JRG.
Glycerol sesquiester of tall oil acids-----	SLM.
*Natural fats and oils, alkoxylated:	
*Castor oil, ethoxylated-----	AAC, DA, GAF, ICI, MIL, NLC, NTL, PVO, TCH, TMH, WTC.
Corn oil, ethoxylated-----	TCH.
*Hydrogenated castor oil, ethoxylated-----	DA, ICI, NTL, TCH.
*Lanolin, ethoxylated-----	AAC, CRD, CRN, ICI, PRX, TCH.
Tall oil, ethoxylated-----	DA, JCC, TCH.
All other-----	ARC, TCH.
*Polyethylene glycol esters:	
*Polyethylene glycol esters of chemically defined acids:	
*Polyethylene glycol dilaurate-----	ARC, DA, EFH, GLY, HAL, HDG, PVO, TCH, WM.
*Polyethylene glycol dioleate-----	ARC, BRD, CGY, CLD, EFH, GLY, HAL, HDG, NLC, TCH, VND, WM.
Polyethylene glycol distearate-----	ARC, GLY, HAL, HDG, PVO, TCH.
Polyethylene glycol ditallate-----	EFH.
Polyethylene glycol methylcarbitol maleate-----	CCA.
Polyethylene glycol monocaprylate-----	ECC.
Polyethylene glycol monoisostearate-----	TCH.
*Polyethylene glycol monolaurate-----	AAC, ARC, BRD, CCA, CGY, DA, GLY, HAL, HDG, ICI, KNP, TCH.
*Polyethylene glycol mono-oleate-----	ARC, BRD, CCA, CHP, CIN, CLD, CRT, DA, DEP, DEX, EFH, GAF, GLY, HAL, HDG, MRV, ONX, SCP, STC, TCH, WM, WTC.
Polyethylene glycol mono-oleate, ethoxylated-----	ICI.
Polyethylene glycol monopalmitate-----	ICI, WTC.
Polyethylene glycol monopelargonate-----	EMR, TCH.
Polyethylene glycol monoricinoleate-----	DA, HAL.
*Polyethylene glycol monostearate-----	AAC, AKS, ARC, CGY, CHP, CIN, CRT, DA, DEP, DEX, EFH, EMR, GAF, GLY, HAL, HDG, HRT, ICI, KNP, MCP, ONX, PC, PVO, STC, TCH, VND, WM, WTC.
Polyethylene glycol monotallate-----	TCH.
Polyethylene glycol sesquioleate-----	ICI, SM, TCH, WTC.
*Polyethylene glycol esters of mixed acids:	
Polyethylene glycol monoester of coconut oil acids, ethoxylated.	ICI.
Polyethylene glycol monoesters of lauric and stearic acids.	MCP.
Polyethylene glycol monoester of soybean oil acids.	GLY, TCH.
Polyethylene glycol monoester of tall oil acids----	ACT, TCH.
Polyethylene glycol monoester of tall oil acids, ethoxylated.	NLC.
Polyethylene glycol sesquiester of castor oil acids.	CGY.
*Polyethylene glycol sesquiester of coconut oil acids.	ARL, MRT, PG, VND.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid esters--Continued	
*Polyethylene glycol esters--Continued	
*Polyethylene glycol esters of mixed acids--	
Continued	
Polyethylene glycol sesquister of rosin acids-----	HPC, STC.
*Polyethylene glycol sesquister of tall oil acids-----	ICI, MON, SLM, SM, WTC.
Polyethylene glycol sesquister of tallow acids-----	SOS.
All other-----	EMR.
Polyglycerol esters:	TCH.
Polyglycerol decaoleate-----	AZS.
Polyglycerol mono ester of tall oil acids-----	HDG, TCH, VND, WTC.
Polyglycerol mono-oleate-----	GLY, PVO, TCH, WTC.
Polyglycerol monostearate-----	
*Propanediol esters:	X.
1,2-Propanediol dioleate-----	WM.
1,3-Propanediol monoester of coconut oil acids-----	ARC, HAL, PVO, SBC.
*1,2-Propanediol monolaurate-----	EFH, HAL.
1,2-Propanediol mono-oleate-----	ARC, EKT, GLD, GLY, HAL, ICI, PVO, TCH, WM, WTC.
*1,2-Propanediol monostearate-----	JRG.
1,2-Propanediol sesquister of hydrogenated tallow acids.	EMR, GLD.
All other-----	
Miscellaneous carboxylic acid esters:	ICI.
Anhydrosorbitol glycerol monolaurate-----	ICI.
Ethoxylated glycerol sesquister of mixed fatty acids.	WTC.
Ethoxylated 1,2-propanediol mono-oleate-----	ICI, WTC.
Ethoxylated 1,2-propanediol monostearate-----	ICI.
2-Hydroxymethyl-1-butene-1,4-diol monopalargonate-----	TCC.
Lauric acid esters of glycerol and ethoxylated nonylphenol.	WTC.
Mannitol dioleate, propoxylated-----	HDG.
Methylglucoside laurate-----	ICI.
Mixed polyhydric alcohols-triester of tall oil acids.	
Oleic acid esters of ethoxylated nonylphenol-----	EFH.
Pentaerythritol distearate-----	GLY, QCP.
Pentaerythritol stearate-----	VAL.
Polyalkylene glycol adipate-----	NLC.
Polyalkylene glycol naphthenate-----	TCH.
Polyethylene glycol monoester of coconut oil acids, ethoxylated.	AAC.
Polypropylene glycol mono-oleate-----	HDG.
Polypropylene glycol monostearate-----	HDG.
All other-----	CCW, EMR, SOS, TCH.
*Ethers:	
*Benzoid ethers:	
(Mixed alkyl)phenol - formaldehyde, alkoxylated-----	NLC, NTL, WTC.
Nonylphenol - formaldehyde, alkoxylated-----	NLC, WTC.
tert-Octylphenol - formaldehyde, ethoxylated-----	ARC, DA, SDW.
Pentylphenol-formaldehyde, alkoxylated-----	AAC.
Diisobutylphenol, ethoxylated-----	GAF.
Dinonylphenol, ethoxylated-----	GAF, JCC, STP, TCH.
*Dodecylphenol, ethoxylated-----	DA, GAF, MON, TCH, TMH, UCC, WTC.
Iso-octylphenol, ethoxylated-----	AAC, APX, DA, OMC, RH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Ethers--Continued	
*Benzoid ethers--Continued	
(Mixed alkyl)phenol, ethoxylated-----	PRX, RH, TCH.
(Mixed alkyl)phenol, ethoxylated, butyl ether-----	NTL.
(Mixed alkyl)phenoxy poly(ethyleneoxy)ethyl chloride.	GAF.
*Nonylphenol, ethoxylated-----	DA, GAF, HDG, ICI, JCC, MON, NLC, OMC, RH, STP, TCH, TMH, UCC, WTC.
Nonylphenol, ethoxylated and propoxylated-----	WTC.
Nonylphenoxy poly(ethyleneoxy)ethyl iodide-----	GAF.
n-Octylphenol, ethoxylated-----	TCH.
*Phenol, ethoxylated-----	DA, GAF, ICI, MIL, TCH, UCC.
Phenol, propoxylated-----	ICI.
Styrenated phenol, ethoxylated-----	DA.
Tetradecylphenol, ethoxylated-----	ORO.
Tridecylphenol, ethoxylated-----	TCH.
Xylenol, ethoxylated-----	NLC.
*Nonbenzenoid ethers:	
*Linear alcohols, alkoxylated:	
Coconut oil alcohol, ethoxylated-----	GLY, JCC, TCH, WTC.
*Decyl alcohol, ethoxylated-----	GAF, ICI, VPC, WTC.
Decyl and octyl alcohols, ethoxylated-----	GAF, GLY.
Decyl and octyl alcohols, ethoxylated and propoxylated.	GAF.
Decyloxy poly(ethyleneoxy)ethyl chloride-----	AAC, DUP, GAF, HDG, ICI, MIL, UCC, WTC.
*Dodecyl alcohol, ethoxylated-----	AAC, GLY, ICI.
Hexadecyl alcohol, ethoxylated-----	TCH.
Hexyl alcohol, ethoxylated-----	GLY.
Lauryl alcohol, ethoxylated-----	AAC, CIN, CO, DUP, GAF, HDG, JCC, NLC, RH, SHC, TCH, UCC, WTC.
*Mixed linear alcohols, ethoxylated-----	BAS, DUP, JCC, STP, TCH, UCC, WTC.
*Mixed linear alcohols, ethoxylated and propoxylated.	DUP.
Mixed linear alcohols, propoxylated-----	AAC, CRN, DA, GAF, ICI, TCH, VPC.
*9-Octadecenyl alcohol, ethoxylated-----	DA, DUP, GAF, ICI, HDG, VPC.
*Octadecyl alcohol, ethoxylated-----	CRD.
Oleyl alcohol, ethoxylated-----	DUP.
Sperm oil alcohol, ethoxylated-----	TCH.
Stearyl alcohol, ethoxylated-----	ICI.
Stearyl alcohol, propoxylated-----	AAC, JCC, TCH.
Tallow alcohol, ethoxylated-----	ICI.
Tetradecyl alcohol, ethoxylated-----	CRD.
Wool wax alcohols, ethoxylated-----	AAC.
*Other ethers and thioethers:	
tert-Dodecyl mercaptan, ethoxylated-----	TCH.
4-Ethyl-1-octyn-3-ol, ethoxylated-----	TCH.
2-Ethylhexanol, ethoxylated-----	NLC.
Glycerol, alkoxylated-----	TCH.
Isodecyl alcohol, ethoxylated and propoxylated-----	GAF.
Iso-octyl alcohol, ethoxylated-----	CRN, MIL, PVO.
Mixed alcohols, ethoxylated-----	BAS, NLC, UCC, WTC.
Poly(mixed ethylene, propylene)glycol-----	TCH.
Polyoxy-4-ethyl-1-octyn-3-ol-----	NLC, TCH, WTC.
Polypropylene glycol, ethoxylated-----	RH.
Primary alcohols, ethoxylated-----	NLC.
Rosin alcohol, ethoxylated-----	TCH, WTC.
Sorbitol, ethoxylated-----	GLY.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated.	AAC, DA, DUP, GAF, ICI, JCC, MIL, MON, NLC, OMC, PVO, TCH, WTC.
*Tridecyl alcohol, ethoxylated-----	JCC.
Tridecyl alcohol, propoxylated and ethoxylated-----	TCH.
Trimethylheptanol, ethoxylated-----	HDG, UCC.
Trimethylnonyl alcohol, ethoxylated-----	BAS, HDG.
Trimethylolpropane, alkoxylated-----	VAL.
All other-----	

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
<i>Nonionic Surface-Active Agents--Continued</i>	
Other nonionic surface-active agents: Dodecybenzenesulfonic acid - diethanolamine condensate, fatty acid monoester.	ACT.
Octyl phosphate, ethoxylated-----	DUP, GLY.
All other-----	X.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of surface-active agents to the U.S. International Trade Commission for 1974 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 Chemical Corp.	FIN	Fine Organics, Inc.
ACT	Arthur C. Trask Co.	GAF	GAF Corp., Chemical Div.
ACY	American Cyanamid Co.	GLD	SCM Corp., Glidden-Durkee Div.
AES	Amerace Corp., Penetone Div.	GLY	Glyco Chemicals, Inc.
AGP	Armour-Dial, Inc.	GNM	General Mills Chemicals, Inc.
AIP	Air Products & Chemicals, Inc.	GRC	Chemed Corp., Dubois Chemicals Div.
AKS	Arkansas Co., Inc.	GRD	W.R. Grace & Co., Polymer & Chemicals Div.
APX	Apex Chemical Co., Inc.	GRL	Chemed Corp., Vestal Laboratories, Inc.
ARC	Armark Co.	GRO	Millmaster Onyx Corp., A. Gross & Co. Div.
ARD	Ardmore Chemical Co.	GYR	Goodyear Tire & Rubber Co.
ARL	Arol Chemical Products Co.	HAL	C.P. Hall Co. of Illinois
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	HDG	Hodag Chemical Corp.
ASY	American Synthetic Rubber Corp.	HEW	Hewitt Soap Co., Inc.
ATR	Atlantic Richfield Co., ARCO Chemical Co.	HK	Hooker Chemicals & Plastics Corp.
AZS	AZS Corp.: AZ Products Co. Div. Lancaster Chemical Co. Div.	HLI	Haag Laboratories, Inc.
BAO	Bayoil Co., Inc.	HMP	W.R. Grace & Co., Dewey & Almy Chemical Div., Organic Chemicals
BAS	BASF Wyandotte Corp.	HNT	Huntington Laboratories, Inc.
BFP	Breddo Food Products Corp.	HPC	Hercules, Inc.
BLA	Astor Products, Inc., Blue Arrow Div.	HRT	Hart Products Corp.
BLS	Life Savers, Inc.	HUM	Kraftco Corp., Humko Products Div.
BRD	Lonza, Inc.	ICI	ICI United States, Inc., Specialty Chemicals Group
BSW	Original Bradford Soap Works, Inc.	JCC	Jefferson Chemical Co., Inc.
CCA	Interstab Chemical, Inc.	JOR	Jordan Chemical Co.
CCW	Cincinnati Milacron Chemicals, Inc.	JRG	Andrew Jergens Co.
CCL	A.E. Staley Manufacturing Co., Textile Div.	KAL	Pathan Chemical Co.
CEL	Celanese Corp., Celanese Coatings & Specialties Co., Wica Plant	KNG	Far-Best Corp., O.L. King Div.
CGY	Ciba-Geigy Corp. and Ciba Pharmaceutical Co.	KNP	Knapp Products, Inc.
CHL	Chemol, Inc.	LAK	Lakeway Chemicals, Inc.
CHP	C.H. Patrick & Co., Inc.	LFA	Leatex Chemical Co.
CIN	Cindet Chemicals, Inc.	LEV	Lever Brothers Co.
CLD	Colloids, Inc.	LIL	Eli Lilly & Co.
CLI	Clintwood Chemical Co.	LYK	Lake States Div. of St. Regis Paper Co.
CO	Continental Oil Co.	LMI	North American Chemical Co.
COM	Commercial Solvents Corp.	LUR	Laurel Products Corp.
CON	Concord Chemical Co., Inc.	MAR	American Can Co.
CP	Colgate-Palmolive Co.	MCP	Moretex Chemical Products, Inc.
CPP	Charmin Paper Products Co.	MIR	Miranol Chemical Co., Inc.
CRD	Croda, Inc.	MOA	Mona Industries, Inc.
CRN	CPC International, Inc.	MON	Monsanto Co.
CRT	Crest Chemical Corp.	MRA	Crown-Metro, Inc.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	MRD	Marden-Wild Corp.
CST	Charles S. Tanner Co.	MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.
CTL	Continental Chemical Co.	MRV	Marlowe-Van Loan Corp.
CWP	Consolidated Papers, Inc.	NCW	Nostrip Chemical Works, Inc.
DA	Diamond Shamrock Corp.	NES	Nease Chemical Co., Inc.
DAN	Dan River, Inc.	NLC	Nalco Chemical Co.
DEP	DePaul Chemical Co., Inc.	NMC	National Milling & Chemical Co., Inc.
DEX	Dexter Chemical Corp.	NPR	Safeway Stores, Inc.
DOW	Dow Chemical Co.	NTL	NL Industries, Inc.
DUP	E.I. duPont de Nemours & Co., Inc.	NW	Northwestern Chemical Co.
DYS	Davies-Young Co.	OMC	Olin Corp.
ECC	Eastern Color & Chemical Co.	ONX	Millmaster Onyx Corp., Onyx Chemical Co.
EFH	E.F. Houghton & Co.	ORO	Chevron Chemical Co.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.		
EMK	Emkay Chemical Co.		
EMR	Emery Industries, Inc.		
ENO	Enenco, Inc.		
ESS	Essential Chemicals Corp.		

SURFACE-ACTIVE AGENTS

183

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1974--CONTINUED

Code	Name of company	Code	Name of company
PC	Proctor Chemical Co., Inc.	SOP	Southern Chemical Products Co., Inc.
PCH	Peerless Chemical Co.	SOS	Southern Sizing Co.
PEK	Peck's Products Co.	SPA	Scott Paper Co.
PFZ	Pfizer, Inc.	STC	Sou-Tex Chemical Co., Inc.
PG	Procter & Gamble Co.	STP	Stepan Chemical Co.
PIL	Pilot Chemical Co.	SW	Sherwin-Williams Co.
PLX	Plex Chemical Corp.	SYL	Deering Milliken, Inc., Milliken Chemical Div.
PNX	Murphy-Phoenix Co.	TCC	Tanatex Chemical Corp.
PRX	Purex Corp.	TCH	Emery Industries, Inc., Trylon Chemical Div.
PSP	Georgia-Pacific Corp., Bellingham Div.	TCI	Texize Chemical Co.
PVO	PVO International, Inc.	TEN	Cities Service Co., Copperhill Operations
QCP	Quaker Chemical Corp.	TMH	Thompson-Hayward Chemical Co.
RAY	ITT Rayonier, Inc.	TNA	Ethyl Corp.
RBC	Fike Chemicals, Inc.	TNI	The Gillette Co., Chemical Div.
RCD	Richardson Co.	TXC	Tex Chem. Co.
RH	Rohm & Haas Co.	TXN	Textilana-Nease, Inc.
ROB	Robeco Chemicals, Inc.	TXT	Textilana Corp.
RPC	Millmaster Onyx Corp., Refined-Onyx Div.	UCC	Union Carbide Corp.
S	Sandoz, Inc., Sandoz Colors & Chemical Div.	UDI	Petrochemicals Co., Inc.
SBC	Scher Bros. Inc.	UNN	United Chemical Corp. of Norwood
SBP	Sugar Beet Products Co.	UNP	United Chemical Products Corp.
SCO	Scholler Bros., Inc.	USR	Uniroyal, Inc., Chemical Div.
SCP	Henkel, Inc.	VAL	Valchem
SDC	Martin-Marietta Corp., Sodyeco Div.	VND	Van Dyk & Co., Inc.
SDH	Sterling Drug, Inc.:	VPC	Mobay Chemical Corp., Verona Div.
SDW	Hilton-Davis Chemical Co. Div.	WAW	W.A. Wood Co.
SEA	Winthrop Laboratories Div.	WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.
SEY	Seaboard Chemicals, Inc.	WBG	White & Bagley Co.
SFS	Seydel-Woolley & Co.	WHI	White & Hodges, Inc.
SHC	Stauffer Chemical Co., Specialty Div.	WHW	Whittemore-Wright Co., Inc.
SID	Shell Oil Co., Shell Chemical Co. Div.	WM	Inolex Corp.
SLC	George F. Siddall Co., Inc.	WTC	Witco Chemical Co., Inc.
SLM	Soluol Chemical Co., Inc.	WVA	Westvaco Corp., Chemicals Div., Polychemicals Dept.
SM	Salem Oil & Grease Co.		
	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.		
SNW	Sun Chemical Corp., Chemicals Div.		
SOC	Standard Oil Co. of California, Chevron Chemical Co.		

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

PESTICIDES AND RELATED PRODUCTS

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

U.S. production of pesticides and related products in 1974 amounted to 1,417 million pounds--9.9 percent greater than the 1,289 million pounds reported for 1973 (table 1).¹ Sales in 1974 were 1,365 million pounds, an increase of 13.8 percent, as compared with 1,199 million pounds reported in 1973; the value of sales was \$1,815 million in 1974, compared with \$1,344 million in 1973--an increase of 35.0 percent.

The output of cyclic pesticides and related products amounted to 1,026 million pounds in 1974--12.7 percent greater than the 910 million pounds produced in 1973. Sales in 1974 were 971 million pounds, valued at \$1,468 million, compared with 852 million pounds, valued at \$1,091 million in 1973. Production of acyclic pesticides and related products in 1974 amounted to 392 million pounds, compared with 379 million pounds reported for 1973, an increase of 3.4 percent. Sales in 1974 were 394 million pounds, an increase of about 13.5 percent, as compared to the 347 million pounds reported in 1973; the value of sales was \$347 million in 1974, compared with \$252 million in 1973--an increase of 37.7 percent.

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

PESTICIDES AND RELATED PRODUCTS

185

TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1974

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

	Production	Sales		
		Quantity	Value	Unit value ¹
Grand total-----	1,000 pounds 1,417,158	1,000 pounds 1,365,214	1,000 dollars 1,815,433	Per pound \$1.330
Benzzenoid-----	844,959	765,586	1,176,408	1.537
Nonbenzenoid-----	572,199	599,628	639,025	1.066
PESTICIDES AND RELATED PRODUCTS, CYCLIC				
Total-----	1,025,547	971,078	1,468,494	1.512
Fungicides, total-----	124,562	108,658	94,233	.867
Naphthenic acid, copper salt-----	1,981	1,794	802	.447
Pentachlorophenol (PCP)-----	52,373	53,869	16,193	.301
Phenylmercuric acetate (PMA)-----	136	131	756	5.771
All other cyclic fungicides ² -----	70,072	52,864	76,482	1.447
Herbicides and plant hormones, total-----	487,697	417,044	930,410	2.231
1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH)-----	5,834	4,898	12,449	2.542
2,4-Dichlorophenoxyacetic acid, dimethylamine salt-----	14,459	13,207	6,961	.527
All other cyclic herbicides and plant hormones ³ -----	467,404	398,939	911,000	2.284
Insecticides and rodenticides, total-----	413,288	445,376	443,851	.997
Aldrin-toxaphene group ⁴ -----	141,719	176,551	99,425	.563
Organophosphorus insecticides, total-----	107,825	114,761	176,224	1.536
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (Methyl parathion)-----	51,448	53,376	41,883	.785
All other organophosphorus insecticides ⁵ -----	56,377	61,385	134,341	2.188
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor)-----	3,248	4,051	3,773	.931
All other cyclic insecticides and rodenticides ⁶ -----	160,496	150,013	164,429	1.096
PESTICIDES AND RELATED PRODUCTS, ACYCLIC				
Total-----	391,611	394,136	346,939	.880
Fungicides, total-----	38,235	36,222	28,670	.792
Dithiocarbamic acid salts ⁷ -----	35,419	33,398	22,803	.683
All other acyclic fungicides ⁸ -----	2,816	2,824	5,867	2.078
Herbicides and plant hormones ⁹ -----	116,455	111,425	117,258	1.052
Insecticides, rodenticides, soil conditioners and fumigants, total-----	236,921	246,489	201,011	.815
Methyl bromide (Bromomethane)-----	30,452	30,354	15,244	.502
Organophosphorus insecticides ¹⁰ -----	78,762	74,274	115,588	1.556
Trichloronitromethane (Chloropicrin)-----	4,757	4,610	2,307	.500
All other acyclic insecticides, rodenticides, soil conditioners and fumigants ¹¹ -----	122,950	137,251	67,872	.494

See footnotes on following page.

Footnotes for table 1

¹ Calculated from rounded figures.

² Includes benomyl, captafol, captan, chlorothalonil, dinocap, DMT, folpet, pentachloronitrobenzene, sodium pentachlorophenate, tri- and tetra-chlorophenols (including 2,4,5-trichlorophenol and its salts), all other phenylmercury compounds, and others.

³ Includes alachlor, atrazine, barban, benefin, bensulide, CDMA, 2,4-D, acid, esters, and salts, 2,4-DB, dicamba, dimethylurea compounds, dinitrophenol compounds, isopropyl phenylcarbamates (IPC and CIPC), MCPA, molinate, NPA, picloram, propanil, silvex and its esters, 2,4,5-T acid esters and salts, triazines, trifluralin, uracils, and others.

⁴ Includes aldrin, chlordan, dieldrin, endrin, heptachlor, and toxaphene.

⁵ Includes carbophenothon, coumaphos, diazinon, dioxathion, fensulfothion, parathion, ronnel, and other phosphorothioates and phosphorodithioates, and others.

⁶ Includes carbaryl, carbofuran, chlorinated insecticides (BHC + lindane, chlorobenzilate, DDT, dicofol, endosulfan, and others), insect attractants, DEET and other insect repellents, small amounts of rodenticides, piperonyl butoxide and other synergists, and others.

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

⁸ Includes dodine, and others.

⁹ Includes cacodylic acid, CDAA, dalapon, methanearsonic acid salts, sodium TCA, thiocarbonate, thiolcarbonate, and organophosphorus herbicides, and others.

¹⁰ Includes dichlorvos, dimethoate, disulfoton, ethion, malathion, monocrotophos, naled, phorate, and other organophosphorus insecticides.

¹¹ Includes DBCP, soil conditioners and fumigants, methomyl, 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 report on cyclic intermediates.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Pesticides and related products 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]

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC	
*Fungicides:	
2,6-Bis(dimethylaminomethyl)cyclohexanone-----	MRK.
4-Bromoacetoxymethyl-m-dioxolane-----	EFH.
2'-Bromo-4'-hydroxyacetophenone-----	BKM.
Cyanomethylthiobenzothiazole-----	X.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine-----	CHG.
1,4-Dichloro-2,5-dimethoxybenzene (Chloroneb)-----	DUP.
1,2-Dihydro-6-ethoxy-2,4-trimethylquinoline (Ethoxyquin).	MON.
3,5-Dimethyl-1,3,5-2H-tetrahydrothiadiazine-2-thione (DMTT).	MRK, VCC.
5-Ethoxy-3-(trichloromethyl)-1,2,4-thiadiazole-----	OMC.
Hexahydro-1,3,5-triethyl-s-triazine-----	VNC.
Mercury fungicides:	
*Phenylmercuric acetate (PMA)-----	CLY, MRK, TRO.
Phenylmercuric ammonium acetate-----	TRO.
Phenylmercuric hydroxide-----	TRO.
Phenylmercuric lactate-----	TRO.
Phenylmercuric oleate-----	TRO.
Phenylmercuric propionate-----	MRK.
Methyl 1-(butylcarbamoyl)-2-benzimidazole carbamate (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, FER, MCI, TRO, WTC.
10,10'-Oxybisphenoxarsine-----	SAL.
Pentachloronitrobenzene (PCNB)-----	OMC.
*Pentachlorophenol (PCP)-----	DOW, FRO, MON, RCI.
Pentachlorophenol, sodium salt-----	DOW, RCI.
8-Quinolinol (8-Hydroxyquinoline), copper salt-----	ASH.
cis-N-[(1,1,2,2-Tetrachloroethyl)thio]-4-cyclohexene- 1,2-dicarboximide (Captafol).	ORO.
2,4,5,6-Tetrachloroisopthalonitrile-----	DA.
2,3,4,6-Tetrachlorophenol-----	DOW.
N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide (Captan).	SFA, SFC.
N-Trichloromethylthiophthalimide (Folpet)-----	SFA, SFC.
2,4,5-Trichlorophenol acid and salts:	
2,4,5-Trichlorophenol-----	DOW.
2,4,5-Trichlorophenol, ethanolamine salt-----	GAF.
2,4,5-Trichlorophenol, sodium salt-----	DOW.
2,4,6-Trichlorophenol-----	DOW.
1,3,5-Tris(2-isopropanol)-s-triazine-----	EFH.
*Herbicides and plant hormones:	
3-Amino-2,5-dichlorobenzoic acid, ammonium salt-----	AMC, GAF.
4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4- triazin-5(4H)-one (Metribuzin).	CHG.
4-Amino-3,5,6-trichloropicolinic acid (Picloram)-----	DOW.
2,4-Bis(isopropylamino)-6-methoxy-s-triazine (Prometon).	CGY.
2,4-Bis(isopropylamino)-6-methylthio)-s-triazine (Prometryn).	CGY.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)-----	ACN, DUP.
2-tert-Butylamino-4-chloro-6-ethylamino-s-triazine-----	CGY.
2-tert-Butylamino-4-ethylamino-6-methoxy-s-triazine-----	CGY.
2-tert-Butylamino-4-ethylamino-6-methylthio-s- triazine.	CGY.
3-tert-Butyl-5-chloro-6-methyluracil (Terbacil)-----	DUP.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
N-Butyl-N-ethyl-a,a,a-trifluoro-2,6-dinitro-p-toluidine (Benefin).	LIL.
2-Butynyl-4-chloro-m-chlorocarbanilate (Barban)-----	GOC.
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)-----	CGY.
2-Chloro-4,6-bis(isopropylamino)-s-triazine (Propazine).	CGY.
2-Chloro-4-cyclopropylamino-6-isopropylamino-s-triazine.	GOC.
2-Chloro-2',6'-diethyl-N-(n-butoxymethyl)acetanilide (Butachlor).	MON.
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (Alachlor).	MON.
2-Chloro-4-ethylamino-6-isopropylamino-s-triazine (Atrazine).	CGY, VTC.
2-(4-Chloro-6-ethylamino-s-triazin-2-ylamino)-2-methylpropionitrile (Cyanazine).	CGY.
2-Chloro-N-isopropylacetanilide (Propachlor)-----	MON.
4-Chloro-5-(methylamino)-2-(a,a,a-trifluoro-m-tolyl)-3(2H)-pyridazinone (Norflurazon).	S.
4-(4-Chloro-2-methylphenoxy)butyric acid-----	RDA.
3-(p-Chlorophenyl)-1,1-dimethylurea (Monuron)-----	DUP.
3-(p-Chlorophenyl)-1,1-dimethylurea trichloroacetate-----	ACN.
3,5-Dibromo-4-hydroxybenzoylnitrile, octanoic acid ester (Bromoxynil octanoate).	RDA.
3,6-Dichloro-2-anisic acid (Dicamba)-----	VEL.
2,4-Dichlorobenzyltributylphosphonium chloride-----	SM.
2,5-Dichloro-6-nitrobenzoic acid, sodium salt-----	GAF.
4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB)-----	RDA.
3-(2,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)-----	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron).	DUP.
2,4-Dichlorophenyl p-nitrophenyl ether-----	RH.
3',4'-Dichloropropionanilide (Propanil)-----	EGR, RH.
N ³ ,N ³ -Diethyl-2,4-dinitro-6-trifluoromethyl-1,3-phenylenediamine (Dinitroamine).	X.
*1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide (MH)).	ACY, ASL, FMT, USR.
N-(β-O,O,-Diisopropyl-dithiophosphorylethyl)benzene sulfonamide (Bensulide).	SFA.
N,N-Dimethyl-1,2,2-diphenylacetamide (Diphenamid)-----	CWN.
N-(1,1-Dimethyl-2-propynyl)3,5-dichlorobenzamide (Pronamide).	RH.
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)-----	DA.
Dinitrobutylphenol (DNBP)-----	DOW, FMN, VTC.
Dinitrobutylphenol, ammonium salt-----	DOW, FMN.
Dinitrobutylphenol, triethanolamine salt-----	DOW, FMN.
Dinitrocresol, sodium salt-----	FMN.
2,6-Dinitro-N,N-dipropylcumidine (Isopropalin)-----	LIL.
2-Ethylamino-4-isopropylamino-6-methylmercapto-s-triazine (Ametryn).	CGY.
S-Ethyl(cyclohexyl)ethylthiocarbamate-----	SFA.
S-Ethyldiethylthiocarbamate-----	GOC.
S-Ethyl hexahydro-1H-azepine-1-carbothioate (Molinate).	SFA.
2-Ethylthio-4,6-bis(isopropylamino)-s-triazine (Diproteryn).	CGY.
Gibberellic acid-----	ABB, MRK.
3-Indolebutyric acid-----	ARA.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)-----	PPG.
Isopropyl N-phenylcarbamate (IPC)-----	PPG.

PESTICIDES AND RELATED PRODUCTS

189

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)-----	DUP.
Methyl 5-(2',4'-dichlorophenoxy)-2-nitrobenzoate-----	SM.
4-Methyl-1-pivaloyl-3-thiosemicarbazide-----	LIL.
4-(Methylsulfonyl)-2,6-dinitro-N,N-dipropylaniline (Nutralin).	SNC.
1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetic acid-----	AMC.
1-Naphthaleneacetic acid, sodium salt-----	BKL.
1,8-Naphthalic anhydride-----	GOC.
N-1-Naphthylphthalamic acid (NPA)-----	USR.
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid, di- sodium salt (Endothall).	PAS.
Phenoxyacetic acid derivatives:	
4-Chloro-2-methylphenoxyacetic acid (MCPA)-----	CLY., RDA, TMH.
2,4-Dichlorophenoxyacetic acid (2,4-D)-----	DOW, MON, RDA.
2,4-Dichlorophenoxyacetic acid esters and salts:	
2,4-Dichlorophenoxyacetic acid, 2-butoxyethanol ester.	DOW.
2,4-Dichlorophenoxyacetic acid, butoxypolypropy- leneglycol ester.	DOW.
2,4-Dichlorophenoxyacetic acid, n-butyl ester-----	RDA, RIV.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester----	DOW.
*2,4-Dichlorophenoxyacetic acid, dimethylamine salt.	DOW, RDA, RIV, TMH.
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salt.	DOW.
2,4-Dichlorophenoxyacetic acid, iso-octyl ester----	DOW, RDA, RIV.
2,4-Dichlorophenoxyacetic acid, isopropyl ester----	DOW, RIV.
2,4-Dichlorophenoxyacetic acid, lithium salt-----	GTH.
2,4-Dichlorophenoxyacetic acid, sodium salt-----	DOW, GTH, RIV.
2,4,5-Trichlorophenoxyacetic acid esters and salts:	
2,4,5-Trichlorophenoxyacetic acid, 2-butoxyethanol ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, butoxypoly- propylene glycol ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, sec-butyl ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester.	DOW, RIV, TMH.
Polychloro-tetrahydro-methanoindene (Polychlorodicyclo- pentadiene) isomers.	VEL.
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)-----	TMH.
2-(2,4,5-Trichlorophenoxy)propionic acid esters and salts:	
2-(2,4,5-Trichlorophenoxy)propionic acid, butoxypoly- propylene glycol ester.	DOW.
2-(2,4,5-Trichlorophenoxy)propionic acid, dimethyl- amine salt.	RIV.
2-(2,4,5-Trichlorophenoxy)propionic acid, iso-octyl ester.	DOW, RIV.
α,α,α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin).	LIL.
All other cyclic herbicides-----	CWN, x.
Insect attractants and repellents:	
tert-Butyl 4(and 5)-chloro-2-methylcyclohexanecarboxy- late (Trimedure).	UOP.
N,N-Diethyltoluamide (DEET)-----	HPC, PFZ.
Di-n-propylisocinchomeronate-----	MGK.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
Insecticides:	
3-sec-Amylphenyl-N-methylcarbamate-----	x.
5-Benzyl-3-furylmethyl-2,2-dimethyl-3-(2-methyl-1-propenyl)cyclopropane carboxylate (Resmethrin).	PEN.
Bacillus thuringiensis-----	ABB, S.
2-sec-Butyl-4,6-dinitrophenyl-3,3-dimethylacrylate (Binapacryl).	FMN.
2-(p-tert-Butylphenoxy)cyclohexyl-2'-propynyl sulfite--	USR.
o-sec-Butylphenyl-N-methylcarbamate-----	OTC.
Chlorinated insecticides:	
*Aldrin-toxaphene group:	
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor).	VEL.
Hexachloro-epoxy-octahydro-endo, endo-dimethano-naphthalene (Endrin).	VEL.
Hexachloro-epoxy-octahydro-endo, exo-dimethano-naphthalene (Dieldrin).	SHC.
Hexachloro-hexahydro-endo, exo-dimethanonaphthalene (Aldrin).	SHC.
Octachloro-hexahydro-methanoindene (Chlordan)-----	VEL.
Toxaphene (Chlorinated camphene)-----	HN, HPC, VTC.
α -Bis(p-chlorophenyl) β , β , β -trichloroethane (DDT)-----	MTO.
α -Chlorophenyl-N-methylcarbamate-----	OTC.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone (Tetradifon).	FMN.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane-----	RH.
4,4'-Dichloro- α -trichloromethylbenzhydrol (Dicofol)-----	RH.
Dodecachlorooctahydro-1,3,4-metheno-2H-cyclobuta-[cd]pentalene (Mirex).	ACN.
Ethyl 4,4'-dichlorobenzilate (Chlorobenzilate)-----	CGY.
Hexachlorocyclohexane (Benzene hexachloride) (BHC)---	HK.
Hexachlorocyclohexane, 100% γ -isomer (Lindane)-----	ACN, HK.
Hexachloro-hexahydro-methano-benzodioxathiepin-3-oxide (Endosulfan).	HK.
*1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor).	ACN, CHF, DUP, EGR.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methyl-carbamate (Carbofuran).	FMN.
m-[[(Dimethylamino)methylene]amino]phenyl methyl-carbamate.	x.
m-(1-Ethylpropyl)phenyl methylcarbamate-----	ORO.
m-(1-Methylbutyl)phenyl methylcarbamate-----	ORO.
1-Naphthyl N-methylcarbamate (Carbaryl)-----	UCC.
*Organophosphorus insecticides:	
0-(4-Bromo-2,5-dichlorophenyl) 0-methylphenyl-phosphonothioate (Leptophos).	VEL.
4-tert-Butyl-2-chlorophenyl methyl methylphosphoramidite (Crufomate).	DOW.
S-[(p-Chlorophenyl)thio]methyl 0,0-diethyl phosphorodithioate (Carbophenothon).	SFA.
2-Chloro-1-(2,4,5-trichlorophenyl)vinyl dimethyl-phosphate.	SHC.
2-(Diethoxyphosphinylimino)-4-methyl-1,3-dithiolane.	ACY, x.
0,0-Diethyl 0-3-chloro-4-methyl-1-oxo-2H-1-benzopyran-7-yl-phosphorothioate (Coumaphos).	CHG.
0,0-Diethyl S-(2-Chloro-1-phthalimidioethyl)-phosphorodithioate.	HPC.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
Insecticides--Continued	
*Organophosphorus insecticides--Continued	
0,0-Diethyl 0-(2-isopropyl-4-methyl-6-pyrimidinyl)-phosphorothioate (Diazinon).	CGY.
0,0-Diethyl 0-[p-(methylsulfinyl)phenyl] phosphorothioate (Fensulfothion).	CHG.
0,0-Diethyl 0-p-nitrophenyl phosphorothioate (Parathion).	MON, SFA.
0,0-Diethyl 0-3,5,6-trichloro-2 pyridyl phosphorothioate.	DOW.
0,0-Dimethyl 0-[4-(methylthio)-m-tolyl]phosphorothioate (Fenthion).	CHG.
*0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (Methyl parathion).	AMP, MON, SFA, VTC.
0,0-Dimethyl S-[4-oxo-1,2,3-benzotriazin-3(4H)-ylmethyl] phosphorodithioate (Azinphos-methyl).	CHG.
Dimethyl 2,4,5-trichlorophenyl phosphorothionate (Ronnel).	DOW.
2,3-p-Dioxane S,S-bis(0,0-diethylphosphorodithioate) (Dioxathion).	HPC.
0-Ethyl 0-p-nitrophenylphenylphosphonothioate (EPN).	SFA.
0-Ethyl S-phenylethylphosphonodithioate (Fonofos)-----	SFA.
2-Imino-1,3-dithiolane, dihydrogen sulfate-----	ACY, x.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-crotonate.	SHC.
0,0,0',0'-Tetramethyl 0,0'-thiodi-p-phenylene phosphorothioate.	ACY.
All other organophosphorus insecticides-----	SFA.
N-(1-Phenyl-2-nitropropyl)piperazine-----	MRK.
All other cyclic insecticides-----	PLC.
Nematicides:	
0,0-Diethyl 0-(2,4-dichlorophenyl) phosphorothioate (Dichlofenthion).	SM.
Rodenticides:	
3-(α-Acetylbenzyl)-4-hydroxycoumarin (Warfarin)-----	MOT.
2-Diphenylacetyl-1,3-indandione and sodium salt (Diphacinone).	NES.
2-Pivaloyl-1,3-indandione and salts (Pindone)-----	MOT, PIC, RSA.
Synergists and adjuvants:	
α-[2-(2-n-Butoxyethoxy)-ethoxy]-4,5-methylenedioxy-2-propyltoluene (Piperonyl butoxide).	ALP, BKL, FMN, FMP.
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-dicarboximide.	MGK.
Piperonal bis[2-(2'-n-butoxyethoxy)ethyl]acetal (Heliotropin acetal).	MGK.
All other cyclic pesticides and related products-----	x.
PESTICIDES AND RELATED PRODUCTS, ACYCLIC	
Fungicides:	
Bis-1,4-bromoacetoxy-2-butene-----	VIN.
Cadmium sebacate-----	MAL.
Cadmium succinate-----	MAL.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Fungicides--Continued	
Chloromethoxypropylmercuric acetate-----	TRO.
1-Chloro-2-nitropropane-----	FMN.
Copper tallate-----	AMP.
Disodium cyanodithiocarbamate-----	X.
*Dithiocarbamic acid fungicides:	
Dimethylthiocarbamic acid, ferric salt (Ferbam)-----	FMN.
Dimethylthiocarbamic acid, manganese salt-----	FMN.
Dimethylthiocarbamic acid, potassium salt-----	BKM.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam).	ALC, RH, USR, 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, RH.
Polyethylenethiuron disulfide (PETD)-----	FMN.
All other dithiocarbamic acid fungicides-----	VNC.
n-Dodecyguanidine acetate (Dodine)-----	ACY.
2-Hydroxypropylmethanethiol sulfonate (HPMTS)-----	X.
Methylene bis(thiocyanate)-----	VCC.
*Herbicides and plant hormones:	
N,N-Bis(phosphonomethyl)glycine-----	MON.
N,N-Bis(phosphonomethyl)glycine, isopropylamine salt---	MON.
2-Chloroallyl diethyldithiocarbamate (CDEC)-----	MON.
2-Chloro-N,N-diallylacetamide (CDAA)-----	MON.
(2-Chloroethyl)phosphonic acid-----	GAF.
(2-Chloroethyl)trimethyl ammonium chloride-----	ACY.
S-2,3-Dichloroallyl diisopropylthiocarbamate (Diallate).	MON.
2,2-Dichloropropionic acid, sodium salt (Dalapon)-----	DOW.
N-Dimethylaminosuccinamic acid (DMSA)-----	USR.
Dimethylarsinic acid (Cacodylic acid)-----	ASL.
S-Ethyl diisobutylthiocarbamate (Butylate)-----	SFA.
S-Ethyl dipropylthiocarbamate (EPTC)-----	SFA.
Ethyl xanthogen disulfide (EXD)-----	RBC.
Methanearsonic acid, disodium salt (DSMA)-----	ASL, CLY, VIN.
Methanearsonic acid, dodecyl- and octylammonium salts--	CLY.
Methanearsonic acid, monosodium salt (MSMA)-----	ASL, DA.
Poly[oxyethylene(dimethylimino)ethylene-(dimethylimino) ethylene dichloride].	BKM.
S-Propyl butylethylthiocarbamate (Pebulate)-----	SFA.
S-Propyl dipropylthiocarbamate (Vernolate)-----	SFA.
S,S,Tributyl phosphorotrithioate-----	PLC.
Tributyl phosphorotrithioate (Merphos)-----	SM.
Trichloroacetic acid, sodium salt (TCA)-----	DOW.
S-2,3,3-Trichloroallyl diisopropylthiocarbamate (Triallate).	MON.
All other acyclic herbicides-----	LIL, SFA.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate-----	RH.
S-Methyl N-[(methylcarbamoyl)oxy]thioacetimidate (Methomyl).	DUP.
*Organophosphorus insecticides:	
S-[1,2-Bis(ethoxycarbonyl)ethyl] 0,0-dimethyl phosphorodithioate (Malathion).	ACN, ACY.
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate (Mevinphos).	SHC.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled).	SHC.

PESTICIDES AND RELATED PRODUCTS

193

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Insecticides--Continued	
*Organophosphorus insecticides--Continued	
0,0-Diethyl S-(ethylthio)ethyl phosphorodithioate (Disulfoton).	CHG.
0,0-Diethyl O-(ethylthio)ethyl phosphorothioate (Demeton O).	CHG.
0,0-Diethyl S-(ethylthio)methyl phosphorodithioate (Phorate).	ACY.
3-(Dimethoxyphosphinyl)oxy-N,N-dimethyl-cis- crotonamide (Dicrotophos).	SHC.
O,S-Dimethylacetylphosphoramidothioate (Acephate)----	ORO.
0,0-Dimethyl 2,2-dichlorovinyl phosphate (Di- chlorvos).	SHC.
0,0-Dimethyl S-[2-(ethylsulfinyl)ethyl]phosphoro- thioate (Oxydemetonmethyl).	CHG.
0,0-Dimethyl S-(N-methylcarbamoylmethyl)phosphoro- dithioate (Dimethoate).	ACY.
Dimethyl phosphate of 3-hydroxy-N-methyl-cis crotonamide (Monocrotophos).	SHC.
O,S-Dimethyl phosphoramidothioate-----	CHG.
0,0',0'-Tetraethyl S,S'-methylene bis-phosphoro- dithioate (Ethion).	FMN, FMP.
0,0',0'-Tetra-n-propyl dithiopyrophosphate-----	SFA.
All other acyclic insecticides-----	ARA, PLC.
Nematocides:	
0-Ethyl S,S-dipropyl phosphorodithioate-----	SM.
2-Methyl-2-(methylthio)propionaldehyde O-(methylcarba- moyl)oxime (Aldicarb).	UCC.
Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt.	ACY, NLC.
Soil fumigants:	
1,2-Dibromo-3-chloropropane (DBCP)-----	DOW, SHC.
1,3-Dichloropropene-----	DOW.
1,3-Dichloropropene and 1,2-dichloropropane-----	DOW, SHC.
*Methyl bromide (Bromomethane)-----	AMP, DOW, GTL, MCH.
N-Methylthiocarbamic acid, sodium salt (Metham)-----	SFA.
Methyl isothiocyanate-----	MRT.
*Trichloronitromethane (Chloropicrin)-----	DOW, NLO, SBN.
All other acyclic pesticides and related products-----	PCW, PLC, RBC, TRO.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers of pesticides and related products that reported production or sales to the U.S. International Trade Commission for 1974 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 Chemical Works
ACN	Allied Chemical Corp., Union Texas Petroleum Div., Agricultural Dept.	MCH	Michigan Chemical Corp.
ACY	American Cyanamid Co.	MCI	Mooney Chemical Corp.
ALC	Alco Chemical Corp.	MGK	McLaughlin, Gormley & King Co.
ALP	Alpha Laboratories, Inc.	MON	Monsanto Co.
AMC	Amchem Products, Inc., Div. of Rorer-Amchem, Inc.	MOT	Motomoco, Inc.
AMP	Kerr-McGee Chemical Corp.	MRK	Merck & Co., Inc.
ARA	Arapahoe Chemical, Inc. Sub. of Syntex Corp. (U.S.A.)	MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	MTO	Montrose Chemical Corp. of California
ASL	Ansul Chemical Co.	NES	Nease Chemical Co., Inc.
BKL	Millmaster Onyx Corp., Millmaster Chemical Co. Div., Berkeley Chemical Dept.	NLC	Nalco Chemical Co.
BKM	Buckman Labs., Inc.	NLO	Niklor Chemical Co.
CCA	Interstab Chemical, Inc.	OMC	Olin Corp.
CGY	Ciba-Geigy Corp., Ciba Agricultural Co.	ORO	Chevron Chemical Co.
CHF	Chemical Formulators, Inc.	OTC	Story Chemical Corp.
CHG	Mobay Chemical Corp., Chemagro Agricultural Div.	PAS	Pennwalt Corp.
CLY	W. A. Cleary Corp.	PCW	Pfister Chemical, Inc.
CWN	Upjohn Co., Fine Chemical Div.	PEN	CPC International, Inc., Penick Div.
DA	Diamond Shamrock Corp.	PFZ	Pfizer, Inc.
DOW	Dow Chemical Co.	PIC	Pierce Organics, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.	PLC	Phillips Petroleum Co.
EFH	E. F. Houghton & Co.	PPG	PPG Industries, Inc.
EGR	Eagle River Chemical Corp.	RBC	Fike Chemicals, Inc.
FER	Ferro Corp., Ferro Chemical Div.	RCI	Reichhold Chemicals, Inc.
FMC	FMC Corp.:	RDA	Rhodia, Inc.
FMN	Agricultural Chemical Div.	RH	Rohm & Haas Co.
FMP	Industrial Chemical Div., Organic Business Group	RIV	Riverdale Chemical Co.
FMT	Fairmount Chemical Co.	RSA	R.S.A. Corp.
FRO	Vulcan Materials, Co., Chemical Div.	S	Sandoz Corp., Crop Protection Dept.
GAF	GAF Corp., Chemical Div.	SBN	Sobin Chemical Co.
GOC	Gulf Oil Corp., Gulf Oil Chemical Co. - U.S.	SFA	Stauffer Chemical Co.:
GTH	Guth Chemical Co.	SFC	Agricultural Div.
GTL	Great Lakes Chemical Corp.	SHC	Calhio Chemicals, Inc. Div.
HK	Hooker Chemicals & Plastics Corp.	SM	Shell Oil Co., Shell Chemical Co. Div.
HN	Tenneco Chemicals, Inc.	TMH	Mobil Oil Corp., Mobil Chemical Co. Div.
HPC	Hercules, Inc.	TRO	Thompson-Hayward Chemical Co.
LAK	Lakeway Chemicals, Inc.	UCC	Troy Chemical Corp.
LIL	Eli Lilly & Co.	UOP	Union Carbide Corp.
		USR	Universal Oil Products Co., UOP Chemical Div.
		VCC	Uniroyal, Inc., Chemical Div.
		VEL	Vinings Chemical Co.
		VIN	Veliscol Chemical Corp.
		VNC	Vineland Chemical Co.
		VTC	Vanderbilt Chemical Corp.
			Vicksburg Chemical Co. Sub. of Vertac Consolidated.
		WTC	Witco Chemical Co., Inc.

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

MISCELLANEOUS CHEMICALS

The term miscellaneous chemicals comprises those synthetic organic products that are not included in the use groups covered by the other preliminary reports in the 1974 series. They include products that are employed in a great variety of uses. The number of chemicals used exclusively for only one purpose is not large. Among the products covered are those used for gasoline and lubricating oil additives, paint driers, photographic chemicals, tanning materials, flotation reagents, refrigerants, textile polymers, sequestering agents, organic fertilizers, antifreeze chemicals, solvents, and acyclic intermediates. This report presents statistics on U.S. production and sales of miscellaneous chemicals in as great detail as is possible without revealing the operations of individual producers.

Production of miscellaneous cyclic and acyclic chemicals in 1974 totaled over 100.6 billion pounds, or 1.9 percent more than the output of 98.7 billion pounds reported for 1973. Sales of miscellaneous chemicals in 1974 amounted to 47.4 billion pounds, valued at \$7.8 billion, compared with 49.6 billion pounds, valued at \$5.3 billion in 1973.

The total output of miscellaneous cyclic chemicals in 1974 was 3.6 billion pounds, or 20.0 percent more than the output of 3 billion pounds reported for 1973. Sales in 1974 totaled over 1.3 billion pounds, valued at \$674 million, compared with 1.4 billion pounds, valued at \$511 million in 1973. In 1974, the most important cyclic compound was polyethylene terephthalate, the output of which was 1.9 billion pounds. The lubricating oil and grease additives group output decreased from 535 million pounds in 1973 to 490 million pounds in 1974.

Total production of miscellaneous acyclic chemicals in 1974 was 97.0 billion pounds, or 1.4 percent more than the output of 95.7 billion pounds reported for 1973. Sales in 1974 totaled 46.1 billion pounds, valued at \$7.1 billion, compared with 48.2 billion pounds, valued at \$4.8 billion, in 1973. The statistics for acyclic chemicals are grouped primarily by chemical function. The order of precedence of these functional groups is generally that used in naming and indexing chemical compounds by Chemical Abstracts, but other important considerations are comparability with other statistics and the need for groupings that will not reveal the operations of individual producers.

In 1974, the most important groups of acyclic chemicals were the halogenated hydrocarbons, the nitrogenous compounds, monohydric alcohols, and aldehydes and ketones. Production of halogenated hydrocarbons, which are used as solvents, intermediates, refrigerants, and aerosol propellants, totaled 23.1 billion pounds. The most important chemicals in this group were dichloroethane (production of 9.2 billion pounds in 1974, compared with 9.3 billion pounds in 1973) and vinyl chloride (5.6 billion pounds

in 1974, compared with 5.4 billion pounds in 1973). Output of nitrogenous compounds totaled 17.6 billion pounds. The most important chemical in this group was urea (used principally in fertilizers and as a feed additive), production of which was 7.6 billion pounds in 1974 and 7.1 billion pounds in 1973.

Monohydric alcohols, which are used largely as solvents and intermediates, were the third largest group in 1974, with production of 14.6 billion pounds. The most important items in the group in terms of production were synthetic methanol (6.9 billion pounds in 1974, compared with 7.1 billion pounds in 1973), synthetic ethyl alcohol (1.6 billion pounds in 1974, compared with 2.0 billion pounds in 1973), and isopropyl alcohol (1.9 billion pounds in 1974, compared with 1.8 billion pounds in 1973). Aldehydes and ketones, which are also used largely as solvents and intermediates, were the next largest group with production of 12.6 billion pounds. The most important items in this group in 1974 were formaldehyde (5.8 billion pounds) and acetone (2.0 billion pounds).

MISCELLANEOUS CHEMICALS

197

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1974

[Listed below are all miscellaneous 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 chemicals for which data on production and/or sales were reported and identifies the manufacturers of each]

Chemical	Production	Sales		
		Quantity	Value	Unit Value ¹
				Per pound
Grand total-----	100,604,375	1,000 pounds 47,430,967	1,000 dollars 7,815,487	\$0.16
MISCELLANEOUS CHEMICALS, CYCLIC				
Total-----	3,567,193	1,358,796	673,913	.50
Benzoic acid, sodium salt-----	13,513	11,233	4,904	.44
Benzoyl peroxide-----	9,092	8,329	10,581	1.27
Benzyl alcohol-----	15,923	12,344	6,090	.49
tert-Butyl peroxybenzoate-----	2,733	2,767	3,639	1.32
2,6-Di-tert-butyl-p-cresol:				
Food grade-----	10,286	7,986	6,246	.78
Tech-----	15,800	15,464	10,749	.70
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)-----	836	...	...	...
Dioxane (1,4-Diethylene oxide)-----	17,646	8,365	4,129	.49
Enzymes-----	(2)	(2)	36,918	...
Flotation reagents-----	5,304	3,620	2,714	.75
Gasoline additives ³ :				
N,N'-Di-sec-butyl-p-phenylenediamine-----	914	1,082	1,291	1.19
N,N'-Diisopropyl phenylenediamine-----	...	974	1,377	1.41
N',N'-Disalicylidene-1,2-propanediamine-----	868	...	...	...
Hexamethylenetetramine, tech-----	145,892	63,285	14,136	.22
Lubricating oil and grease additives, total-----	490,141	319,268	109,523	.34
Oil-soluble petroleum sulfonates, total-----	308,678	...	...	...
Oil-soluble petroleum sulfonate, calcium salt-----	168,778	...	...	...
Oil-soluble petroleum sulfonate, sodium salt-----	102,898	102,558	22,998	.22
All other-----	37,302	...	...	...
Phenol salts-----	89,062	75,890	26,199	.35
All other lubricating oil and grease additives-----	92,401	140,820	60,326	.43
Methyl p-hydroxybenzoate (Methylparaben)-----	1,049	976	2,141	2.19
Morpholine-----	...	20,210	14,627	.72
Naphthenic acid salts, total ⁴ ⁵ -----	19,398	18,036	8,935	.50
Calcium naphthenate-----	1,626	1,552	618	.40
Cobalt naphthenate-----	4,015	3,846	3,329	.87
Lead naphthenate-----	9,039	8,257	2,753	.33
Manganese naphthenate-----	2,023	1,899	788	.41
Zinc naphthenate-----	1,457	1,355	515	.38
All other-----	1,238	1,127	932	.83
Photographic chemicals:				
2,5-Diethoxy-4-morpholinobenzenediazonium chloride-----	203	166	1,435	8.64
p-Diethylaminobenzenediazonium chloride-----	148	148	410	2.77
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride-----	19	19	80	4.21

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
MISCELLANEOUS CHEMICALS, CYCLIC--Continued		1,000 pounds	1,000 pounds	1,000 dollars
Pinene (α - and β)-----	76,857	28,494	5,340	\$0.19
Polyethylene terephthalate-----	1,934,367	309,849	111,375	.36
Tall oil salts ⁴ :				
Calcium tallate-----	758	737	184	.25
Cobalt tallate-----	1,004	904	618	.68
Lead tallate-----	1,132	1,252	431	.34
Manganese tallate-----	456	426	204	.48
Tanning materials, synthetic-----	60,570	54,544	16,031	.29
All other miscellaneous cyclic chemicals-----	744,284	468,318	299,805	.64
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total-----	97,037,182	46,072,171	7,141,574	.16
<i>Cellulose Esters and Ethers</i>				
Total-----	1,057,690	321,650	182,559	.57
Cellulose esters: Cellulose acetate-----	819,597	...	...	...
Cellulose ethers: Sodium carboxymethylcellulose, 100%-----	75,604	71,490	44,290	.62
All other cellulose esters and ethers ⁶ -----	162,489	250,160	138,269	.55
<i>Lubricating Oil Additives</i>				
Total-----	596,304	157,583	55,471	.35
Phosphorodithioates (Thiophosphates)-----	124,443	...	...	...
Sulfur compounds: Sulfurized lard oil-----	3,458	2,127	566	.27
All other-----	468,403	155,456	54,905	.35
<i>Nitrogenous compounds</i>				
Total ⁷ -----	17,599,341	8,230,325	1,383,274	.17
Acrylonitrile-----	1,411,749	511,701	95,171	.19
Amines, total-----	1,390,962	389,956	151,253	.39
Butylamines-----	28,358	14,879	7,357	.49
Diethylenetriamine-----	...	32,341	16,386	.51
Ethylamines:				
Diethylamine-----	12,067	...	...	...
All other-----	46,232	42,559	13,064	.31
Ethylenediamine-----	...	51,309	21,240	.41
Methylamines:				
Dimethylamine-----	116,811	37,351	7,790	.21
Methylamine, mono-----	54,677
Trimethylamine-----	28,711	16,706	3,202	.19

See footnotes at end of table.

MISCELLANEOUS CHEMICALS

199

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALE, 1974--CONTINUED

Chemical	Production	Sales			
		Quantity	Value	Unit value ¹	
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued					
<i>Nitrogenous Compounds--Continued</i>					
Amines--Continued					
Propylamines:					
Dipropylamine-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound	
Propylamine, mono-----	24,496	16,473	5,182	\$0.31	
Tetraethylenepentamine-----	3,607	...	...	...
Triethylenetetramine-----	...	12,576	8,291	.66	
All other-----	...	17,281	9,546	.55	
1,076,003	148,481	59,195	.40		
2-(2-Aminoethylamino)ethanol-----	13,506	10,641	5,905	.55	
Caprolactam-----	668,164	...	...	...
Eruamide-----	3,316	3,253	5,394	1.66	
Ethanolamines, total-----	306,951	263,967	59,987	.23	
2-Aminoethanol (Monoethanolamine)-----	86,494	76,439	17,040	.22	
2,2'-Aminodiethanol (Diethanolamine)-----	98,263	79,327	17,569	.22	
2,2',2' -Nitrilotriethanol (Triethanolamine)-----	122,194	108,201	25,378	.23	
N,N'-Ethylene bis(stearamide)-----	6,765	6,312	3,698	.59	
Hexamethylenediammonium adipate (Nylon salt)-----	743,347	...	...	...
Nitriloacids and salts, total-----	172,595	130,384	41,333	.32	
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt-----	4,177	3,746	1,384	.37	
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt-----	64,484	35,317	13,938	.39	
(N-Hydroxyethyl)ethylenedinitrilo triacetic acid, trisodium salt-----	6,002	3,985	2,211	.55	
All other-----	97,932	87,336	23,800	.27	
Nylon 6 and 6/6 (polymers for fiber, only)-----	1,757,182	...	...	...
Pentaerythritol tetrinitrate-----	6,009	4,397	4,633	1.05	
Polyacrylamide-----	29,217	30,844	25,849	.84	
Polyacrylonitrile-----	621,108	...	...	...
Urea in compounds or mixtures (100% basis), total-----	⁸ 7,578,160	5,792,952	⁹ 348,233	.06	
In feed compounds-----	753,334	699,917	43,239	.06	
In liquid fertilizer-----	2,691,407	2,012,113	97,278	.05	
In solid fertilizer-----	2,870,219	2,523,867	175,366	.07	
In plastics-----	982,362	399,139	23,202	.06	
All other-----	280,838	157,916	9,148	.06	
All other nitrogenous compounds-----	2,890,310	1,085,918	641,818	.59	
<i>Acids, Acyl Halides and Anhydrides</i>					
Total-----	7,329,024	1,978,622	407,759	.21	
Acetic acid, synthetic, 100%-----	2,583,554	666,485	61,667	.09	
Acetic anhydride, 100%-----	1,633,102	409,855	48,377	.12	
Acrylic acid-----	232,987	...	...	...
Adipic acid-----	1,478,423	123,575	37,770	.31	
Dodecenylsuccinic anhydride-----	...	1,266	692	.55	
Formic acid, 90%-----	62,631	51,383	5,264	.10	

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales			
		Quantity	Value	Unit value ¹	
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued					
<i>Acids, Acyl Halides and Anhydrides--Continued</i>					
Fumaric acid-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound	
Lauroyl chloride-----	52,925	37,251	13,801	\$0.37	
Maleic anhydride-----	2,282	...	...	...
Polyacrylic acid-----	289,819	214,418	62,579	.29	
Propionic acid-----	864	758	347	.46	
All other acids, acyl halides and anhydrides-----	73,975	64,235	9,184	.14	
	918,462	409,396	168,078	.41	
<i>Salts of Organic Acids</i>					
Total-----	358,374	300,122	140,282	.47	
Acetic acid salts, total-----	38,899	26,590	9,514	.36	
Barium acetate-----	...	56	48	.86	
Potassium acetate-----	2,567	1,998	1,067	.53	
Zinc acetate-----	660	663	366	.55	
All other-----	35,672	23,873	8,033	.34	
2-Ethylhexanoic acid (α -Ethylcaproic acid) salts, total-----	15,693	14,581	12,071	.83	
Calcium 2-ethylhexanoate-----	2,748	2,157	1,056	.49	
Cobalt 2-ethylhexanoate-----	3,746	3,354	3,383	1.01	
Lead 2-ethylhexanoate-----	2,443	2,473	956	.39	
Manganese 2-ethylhexanoate-----	1,226	1,200	551	.46	
Nickel 2-ethylhexanoate-----	234	239	348	1.46	
Zinc 2-ethylhexanoate-----	1,065	982	572	.58	
Zirconium 2-ethylhexanoate-----	2,356	2,449	2,336	.95	
All other-----	1,875	1,727	2,869	1.66	
Formic acid, sodium salt, tech-----	41,833	43,173	2,141	.05	
Gluconic acid, sodium salt-----	8,169	12,751	5,078	.40	
Octanoic acid salts-----	948	869	1,766	2.03	
Oleic acid salts-----	586	563	642	1.14	
Stearic acid salts, total ¹⁰ -----	82,841	83,518	46,688	.56	
Aluminum stearates, total-----	4,258	4,086	2,640	.65	
Aluminum distearate-----	3,282	3,159	2,043	.65	
Aluminum monostearate-----	425	421	284	.67	
Aluminum tristearate-----	551	506	313	.62	
Barium stearate-----	700	751	472	.63	
Calcium stearate-----	45,619	47,505	23,614	.50	
Magnesium stearate-----	5,993	6,047	3,831	.63	
Zinc stearate-----	22,316	21,504	13,601	.63	
All other-----	3,955	3,625	2,530	.70	
All other salts of organic acids-----	169,405	118,077	62,382	.53	

See footnotes at end of table.

MISCELLANEOUS CHEMICALS

201

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales			
		Quantity	Value	Unit value ¹	
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued					
<i>Aldehydes and Ketones</i>					
Total-----		<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	
Acetone, total-----	12,577,610	6,784,640	489,594	\$0.07	
From cumene-----	1,980,306	1,634,840	168,115	.10	
All other-----	1,277,532	1,041,259	112,670	.11	
702,774	593,581	55,445	.09		
2-Butanone (Methyl ethyl ketone)-----	506,187	468,608	66,114	.14	
Butyraldehyde-----	564,903	...	...	...
Formaldehyde (37% by weight)-----	5,764,458	2,660,373	72,744	.03	
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	...	57,127	10,089	.18	
Isobutyraldehyde-----	381,885	...	...	...
4-Methyl-1-2-pentanone (Methyl isobutyl ketone)-----	207,167	165,169	30,456	.18	
4-Methyl-3-penten-2-one (Mesityl oxide)-----	...	26,824	4,615	.17	
All other aldehydes and ketones-----	3,172,704	1,771,699	137,461	.08	
<i>Alcohols, Monohydric, Unsubstituted</i>					
Total-----	14,587,742	8,221,813	687,084	.08	
Alcohols, C ₁₁ or lower, unmixed, total-----	13,768,730	7,646,496	550,218	.07	
Butyl alcohols:					
n-Butyl alcohol (n-Propylcarbinol)-----	557,650	345,910	49,370	.14	
Isobutyl alcohol (Isopropylcarbinol)-----	160,980	113,657	14,334	.13	
Ethyl alcohol, synthetic-----	1,617,565	1,230,133	115,214	.09	
2-Ethyl-1-hexanol-----	394,919	368,152	60,086	.16	
Hexyl alcohol-----	36,684	...	...	...
Isopropyl alcohol-----	1,938,561	868,467	72,922	.08	
Methanol, synthetic-----	6,878,310	3,555,993	129,318	.04	
Propyl alcohol (Propanol)-----	96,290	79,809	13,728	.17	
All other-----	2,087,771	1,084,375	95,246	.09	
Alcohols, C ₁₂ and higher, unmixed, total-----	156,047	108,171	32,100	.30	
Mixtures of alcohols, total-----	662,965	467,146	104,766	.22	
C ₁₁ and lower, only-----	116,697	93,934	16,936	.18	
C ₁₂ and higher, only-----	525,293	354,551	79,174	.22	
All other-----	20,975	18,661	8,656	.46	
<i>Polyhydric Alcohols and Their Esters and Ethers</i>					
Total ¹² -----	6,373,622	5,065,865	1,000,483	.20	
Polyhydric alcohols, total-----	4,749,654	3,786,191	694,854	.18	
Ethylene glycol-----	3,340,695	2,699,075	388,098	.14	
Glycerol, synthetic only-----	202,793	...	...	...
Pentaerythritol-----	125,133	110,672	39,491	.36	
Propylene glycol (1,2-Propanediol)-----	510,206	476,450	99,017	.21	
Sorbitol-----	171,819	145,728	40,165	.28	
All other-----	399,008	354,266	128,083	.36	
Polyhydric alcohol esters-----	235,879	196,558	63,794	.32	

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
<i>Polyhydric Alcohols and Their Esters and Ethers--Continued</i>		<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Polyhydric alcohol ethers, total-----	1,388,089	1,083,116	241,835	\$0.22
2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	131,266	122,711	26,642	.22
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monoisobutyl ether)-----	26,288	19,872	4,409	.22
Diethylene glycol-----	309,302	213,527	34,635	.16
Dipropylene glycol-----	52,947	50,831	10,190	.20
2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	159,952	92,803	19,487	.21
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)-----	31,856	36,134	7,694	.21
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-----	21,496	...	...	...
2-Methoxyethanol (Ethylene glycol monomethyl ether)-----	115,591	106,659	22,914	.21
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)-----	33,251	8,949	2,131	.24
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)-----	14,683	12,071	2,621	.22
Polyethylene glycol-----	96,890	79,755	24,597	.31
Polypropylene glycol-----	48,872	37,995	10,543	.28
Tetraethylene glycol-----	...	10,525	2,308	.22
Triethylene glycol-----	110,495	97,216	19,232	.20
All other ethers of polyhydric alcohols-----	235,200	194,068	54,432	.28
<i>Esters of Monohydric Alcohols</i>				
Total-----	3,680,857	2,054,179	443,263	.22
n-Butyl acetate, unmixed-----	77,218	68,994	12,399	.18
Butyl acrylate-----	169,874	101,713	23,997	.24
tert-Butyl peroxy-2-ethylhexanoate-----	1,637	1,626	2,828	1.74
tert-Butyl peroxypivalate-----	1,011	986	2,064	2.09
Dibutyl maleate-----	13,592	9,836	3,407	.35
Di(2-ethyl-1-hexyl) maleate-----	501	...	...	...
Dilauryl 3,3'-thiodipropionate-----	2,313	1,930	1,668	.86
Diocetyl maleate-----	...	3,741	1,302	.35
Distearyl 3,3'-thiodipropionate-----	2,045	2,106	1,871	.89
Ethyl acetate (85%)-----	197,590	153,041	23,011	.15
Ethyl acrylate-----	307,237	149,301	30,542	.20
2-Ethyl-1-hexyl acrylate-----	52,483	47,367	12,650	.27
Isopropyl acetate-----	...	43,038	6,339	.15
Methyl acetate-----	7,915	...	...	...
Methyl methacrylate, monomer-----	718,810	...	...	...
Phosphorus acid esters, not elsewhere specified-----	78,832	65,665	34,561	.53
Propyl acetate-----	34,686	34,150	5,888	.17
Vinyl acetate-----	1,402,675	830,674	107,216	.13
All other-----	612,438	540,011	173,520	.32

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1974--CONTINUED

Chemical	Production	Sales			
		Quantity	Value	Unit value ¹	
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued					
<i>Halogenated Hydrocarbons</i>					
Total-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound	
23,110,413	9,562,955	1,172,626	\$0.12		
Carbon tetrachloride-----	1,162,655	784,192	75,169	.10	
Chlorinated paraffins, total-----	78,012	74,970	17,024	.23	
35-64% chlorine-----	61,251	59,074	12,379	.21	
Other-----	16,761	15,896	4,645	.29	
Chloroethane (Ethyl chloride)-----	662,493	279,325	24,936	.09	
Chloroform-----	301,787	252,300	28,337	.11	
Chloromethane (Methyl chloride)-----	¹³ 493,097	214,718	20,184	.09	
1,2-Dibromoethane (Ethylene dibromide)-----	332,125	170,829	38,006	.22	
1,2-Dichloroethane (Ethylene dichloride)-----	¹³ 9,165,077	1,313,614	68,620	.05	
Dichloromethane (Methylene chloride)-----	608,821	527,413	67,175	.13	
1,2-Dichloropropane (Propylene dichloride)-----	145,061	48,197	1,756	.04	
Fluorinated hydrocarbons, total-----	1,172,602	...	...	...
Chlorodifluoromethane-----	...	111,905	62,397	.56	
Dichlorodifluoromethane-----	487,394	449,007	138,234	.31	
Tetrafluoroethylene, monomer-----	24,620	...	...	...
Trichlorofluoromethane-----	340,963	320,543	77,787	.24	
All other fluorinated hydrocarbons-----	319,625	...	...	...
Tetrachloroethylene (Perchloroethylene)-----	734,437	708,897	74,160	.10	
1,1,1-Trichloroethane (Methyl chloroform)-----	591,633	575,715	75,087	.13	
Trichloroethylene-----	388,129	402,595	46,152	.11	
Vinyl chloride, monomer (Chloroethylene)-----	5,621,191	3,121,997	259,588	.08	
All other halogenated hydrocarbons-----	1,653,293	206,738	98,014	.47	
<i>All Other Miscellaneous Acyclic Chemicals</i>					
Total-----	9,766,205	3,394,417	1,179,179	.35	
2-Butanone peroxide-----	6,690	6,595	6,361	.96	
tert-Butyl peroxide (Di-tert-butyl peroxide)-----	2,982	2,703	2,293	.85	
Carbon disulfide-----	781,972	498,797	23,276	.05	
Epoxides, ethers, and acetals, total-----	6,258,294	1,361,468	225,169	.17	
Ethylene oxide-----	¹³ 3,892,543	457,102	71,740	.16	
Ethyl ether, tech-----	62,627	...	...	...
Isopropyl ether-----	...	12,103	1,573	.13	
Propylene oxide-----	1,756,305	...	...	...
All other epoxides, ethers, and acetals-----	546,819	892,263	151,856	.17	
Organo-silicon compounds, total-----	256,190	125,621	182,263	1.45	
Silicone fluids-----	86,314	72,685	83,111	1.14	
Other organo-silicon compounds-----	169,876	52,936	99,152	1.87	
Phosgene (Carbonyl chloride)-----	867,410	10,078	1,282	.13	
Sodium methoxide (Sodium methylate)-----	18,016	18,137	4,883	.27	
Tetraethyllead-----	464,228	391,705	264,412	.68	
Other organo-lead compounds-----	455,368	581,295	348,433	.60	
All other-----	655,055	398,018	120,807	.30	

See footnotes on following page.

SYNTHETIC ORGANIC CHEMICALS, 1974

Footnotes for table 1

- ¹ Calculated from rounded figures.
- ² Not available.
- ³ Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given with "Plasticizers."
- ⁴ Quantities are given on the basis of solid naphthenate, tallate or linoleate content.
- ⁵ Statistics exclude production and sales of copper naphthenate. Statistics on copper naphthenate are given with "Pesticides and Related Products."
- ⁶ Ethylcellulose which was formerly included with cellulose ethers is now included with cellulosic plastics materials.
- ⁷ Statistics exclude production and sales of fatty amines. Statistics on fatty amines are given with "Surface-Active Agents."
- ⁸ Production of urea in primary solution totaled 7,582,715 thousand pounds.
- ⁹ Includes estimated values for sales of urea in nitrogen compounds.
- ¹⁰ Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included with "Surface-Active Agents."
- ¹¹ Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Department of Treasury, Bureau of Alcohol, Tobacco, and Firearms.
- ¹² Some polyols which are used as intermediates for urethanes have been included with "Plastics and Resin Materials."
- ¹³ Production totals may be understated because some methyl chloride, ethylene dichloride and ethylene oxide is produced but not separated or accurately measured (and therefore not reported) by some producers.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974

[Miscellaneous 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. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC	
6-Acetoxy-2,4-dimethyl-1,3-dioxane-----	GIV.
Acetyl cyclohexanesulfonyl peroxide-----	WTL.
Adenosine and derivatives-----	PLB.
2-Aminobenzothiazole-----	FMT.
1-(2-Aminoethyl) piperazine-----	JCC.
Amyl-p-dimethylaminobenzoate-----	VND.
*Benzoinic acid, sodium salt-----	HN, MON, PFZ.
p-Benzozquinone (p-Quinone)-----	EKT.
Benzothiazole-----	ACY.
*Benzoyl peroxide-----	AZT, CAD, NOC, RCI, WTC, WTL.
*Benzyl alcohol-----	BPC, HN, MNR, UOP, VEL.
Bis(2-cyclopentenyl) ether-----	UCC.
Bis(2,4-dichlorobenzoyl) peroxide-----	CAD.
Bis[α , α -dimethylbenzyl]peroxide-----	WTL.
2,4-Bis(4-Hydroxy-3,5-di-tert-butylphenoxy)-6-(n-octyl-thio)-1,3,5-triazine.	CGY.
Bis(6-methyl-3-cyclohexenylmethyl) adipate-----	UCC.
1,3-Bis(N-m-methoxyphenylurethane) benzene-----	OTC.
2,4-Bis(n-octylthio)-6-(4'-hydroxy-3',5'-di-tert-butyl-anilino)-1,3,5-triazine.	CGY.
Boron fluoride-phenol complex-----	ACS.
Butyl benzoate-----	PFZ, TCC, VEL.
2 (and 3)-tert-Butyl-4-methoxyphenol (BHA)-----	EKT.
*tert-Butyl peroxybenzoate-----	AZT, CAD, NOC, WTC, WTL.
4-tert-Butylpyrocatechol-----	DOW.
Camphene-----	GLD, HPC.
Cellulose acetate hexahydrophthalate-----	x.
Cellulose acetate phthalate-----	OTC.
N,N'-Diethyl-N,N'-diphenylurea-----	ARA, EK, FIN, GFS, LAM, NEP.
Chemical indicators and reagents-----	DOW.
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride.	ABB.
p-Chlorophenyldiodomethyl sulfone-----	ACS, RCI.
Cumene hydroperoxide-----	FMB.
Cyanuric acid-----	ALD.
1,3-Cyclohexadiene-----	NOC.
Cyclohexanone peroxide-----	UCC.
3-Cyclohexenyl-3-cyclohexene carboxylate-----	EKT.
1,4-Cyclohexylenedimethanol-----	OH, TAE.
Cyclopropane-----	PLB.
Cytidine and derivatives-----	FIN.
Decabromobiphenyl or ether-----	DUP.
Decahydronaphthalene (Decalin)-----	GAN.
Dehydroacetic acid or sodium salt-----	JCC.
Diaminodiphenylmethane-----	AIP.
1,4-Diazobicyclo(2.2.2)octane-----	HPC.
Diazodinitrophenol-----	WTL.
2,5-Di(benzoylperoxy)-2,5-dimethylhexane-----	ARA.
Dibromodimethyl hydantoin-----	FIN.
Di- and tribromosalicylanilide-----	
2,6-Di-tert-butyl-p-cresol (BHT):	
*Food grade-----	ASH, KPT, SHC, USR.
*Tech-----	ASH, KPT, PRD, SHC, USR.
Di-tert-butyl diperoxyphthalate-----	WTL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
2,5-Di-tert-butylhydroquinone-----	EKT.
1,3-Dichloro-5,5-dimethylhydantoin-----	GLY.
Dichloroisocyanuric acid and salts-----	FMB.
4,4'-Dichloro-3-(trifluoromethyl)carbanilide-----	CGY.
Dicyclohexylammonium nitrate-----	OMC.
2,5-Dihydrothiophene-1,1-dioxide (Sulfolene)-----	PLC.
2,2'-Dihydroxy-4,4'-dimethoxybenzophenone-----	ACY, GAF.
3,5-Dihydroxy-3,5-dimethyl-1,2-peroxycyclopentane-----	WTL.
2,6-Dihydroxypyridine-4-carboxylic acid-----	EK.
Diiodomethyl-p-tolyl sulphone-----	ABB.
Diisopropylbenzene hydroperoxide-----	HPC.
Diisopropyl cresols-----	GIV.
Diketene-----	ALD, FMP.
*p-Dimethoxybenzene (Hydroquinone dimethyl ether)-----	ASL, EKT, GAF.
2,6-Dimethylmorpholine-----	DOW.
Morpholino diethyl ether-----	JCC.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol-----	MRK.
Di-n-octadecyl-3,5-di-tert-butyl-4-hydroxyphenyl phosphonate.	CGY.
*Dioxane (1,4-Diethylene oxide)-----	DOW, FER, UCC.
1,3-Dioxolane-----	FER.
4-(Dodecyloxy)-2-hydroxybenzophenone-----	EKT.
*Enzymes:	
Hydrolytic:	
Amylases-----	BAX, DLI, MLS, PFZ, PMP, RH, x.
Proteases-----	BAX, CHH, DOL, MLS, PEN, PFZ, PMP, x.
Other-----	BAX, JFR, MLS, OMS, RH, WBC, x.
Nonhydrolytic:	MLS, OMS, PFZ, PLB, WBC.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)-----	x.
2-Ethylhexyl-p-dimethylaminobenzoate-----	VND.
Ethylidene norbornene-----	UCC.
4-Ethylmorpholine-----	JCC.
Flotation reagents:	
Dicresylphosphorodithioic acid (Dicresyldithiophosphoric acid).-----	ACY.
Dicresylphosphorodithioic acid, ammonium salt-----	ACY.
Dicresylphosphorodithioic acid, sodium salt-----	KCU.
2,2'-Dimethylthiocarbanilide (Di-o-tolylthiourea)-----	RBC.
Rosin amines-----	HPC.
Thiocarbanilide (Diphenylthiourea)-----	ACY.
Furan derivatives:	
2-Furaldehyde (Furfural)-----	QKO.
Tetrahydrofurfuryl alcohol-----	QKO.
Gallic acid-----	HSH, MAL.
*Gasoline additives:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	EKT.
Butylphenols, mixed-----	TNA.
4,4'-Di-sec-butylaminodiphenylmethane-----	x.
2,6-Di-tert-butyl-a-dimethylamino-p-cresol-----	TNA.
2,6-Di-tert-butylphenol-----	GLY, TNA.
N,N'-Di-sec-butyl-o-phenylenediamine-----	x.
*N,N'-Di-sec-butyl-p-phenylenediamine-----	DUP, EKT, USR, x.
2,6-Diethylaniline-----	TNA.
*N,N'-Diisopropyl-p-phenylenediamine-----	DUP, EKT, USR.
*N,N'-Disalicylidene-1,2-propanediamine-----	DUP, SM, TX.
Methylcyclopentadienylmanganese tricarbonyl-----	TNA.
4,4'-Methylenebis(2,6-di-tert-butylphenol)-----	x.
N-Phenyl-N-sec-butylphenylenediamine-----	

MISCELLANEOUS CHEMICALS

207

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Gasoline additives--Continued	
2,2'-Thiobis(6-tert-butyl-p-cresol)-----	ASH.
4,4'-Thiobis(6-tert-butyl-o-cresol)-----	TNA.
Triethyl phenol-----	SM.
1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-mesitylene.	TNA.
Other-----	EKT, GLY, TNA, x.
Glyceryl p-aminobenzoate-----	VND.
Guanosine and derivatives-----	PLB.
*Hexamethylenetetramine, tech-----	BOR, DUP, HKD, HN, HMP, PLS, UCC.
Hydrabamine hydrobromide-----	ABR.
Hydrazantin-----	HEX.
p-Hydroxybenzoic acid esters:	
Butyl p-hydroxybenzoate (Butylparaben)-----	HN.
Ethyl p-hydroxybenzoate (Ethylparaben)-----	HN.
*Methyl p-hydroxybenzoate (Methylparaben)-----	ARS, HN, LEM.
Propyl p-hydroxybenzoate (Propylparaben)-----	ARS, HN, LEM.
2-Hydroxy-4-methoxybenzophenone-----	ACY, GAF.
2-Hydroxy-4-methoxy-5-sulfobenzophenone trihydrate-----	ACY.
2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole-----	ACY.
Inosine and derivatives-----	PLB.
Isopropyl-o-cresols-----	CP.
Ketene dimer-----	EKT.
*Lubricating oil and grease additives:	
*Oil-soluble petroleum sulfonates:	
Oil-soluble petroleum sulfonate, ammonium salt-----	NTL.
Oil-soluble petroleum sulfonate, barium salt-----	LUB, PAR, WTC.
*Oil-soluble petroleum sulfonate, calcium salt-----	ENJ, LUB, ORO, PAR, PLC, TX, WTC.
*Oil-soluble petroleum sulfonate, sodium salt-----	ENJ, MOR, PAR, SHC, SOC, WTC.
Other-----	LUB, TX.
*Phenol salts:	
Barium alkylphenolates-----	CCA, ENJ, TX.
Calcium alkylphenolates-----	ORO, TX.
Other-----	ACY, ATP, ENJ, GOC, ORO, SM, TX.
All other-----	ENJ, FMP, GOC, LUB, ORO, PLC, SHC, SM, TX.
p-Menthane-----	HPC.
8-p-Menthyl hydroperoxide-----	HPC.
p-Methoxybenzylidenemalonic acid, diethyl and dimethyl esters.	ACY.
p-Methoxybenzylidenemalonic acid, dimethyl ester-----	ACY.
4-Methoxyphenol-----	ARS, ASL, EKT.
2,2'-Methylenebis(4-chlorophenol) (Dichlorophene)-----	GIV.
Methylene-bis(5,5-dimethyl hydantoin) and derivatives-----	GLY.
Methylenebis(phenoxypropanol)-----	JCC.
2,2'-Methylenebis(3,4,6-trichlorophenol) (Hexachlorophene).	GIV.
Methyl gallate-----	HSH.
4-Methylmorpholine-----	JCC, UCC.
1-Methyl-2-pyrrolidone, monomer-----	GAF.
*Morpholine-----	DOW, JCC, UCC.
*Naphthenic acid salts:	
Aluminum naphthenate-----	SHP.
Barium naphthenate-----	CCA.
Cadmium naphthenate-----	CCA.
*Calcium naphthenate-----	CCA, FER, HN, MCI, SHP, SW, TRO, WTC.
Chromium naphthenate-----	MCI.
*Cobalt naphthenate-----	CCA, FER, HN, MCI, SHP, TRO, WTC.
Iron naphthenate-----	CCA, HN, MCI, WTC.
Lead manganese naphthenate-----	CCA.
*Lead naphthenate-----	CCA, FER, MCI, SHP, SW, TX, WTC.
Lithium naphthenate-----	CCA, MCI.
*Manganese naphthenate-----	CCA, FER, HN, MCI, SHP, SM, SW, WTC.
Magnesium naphthenate-----	CCA.
Rare earths naphthenates-----	CCA, SHP.
Sodium naphthenate-----	CCA.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Naphthenic acid salts--Continued	
Strontium naphthenate-----	CCA.
*Zinc naphthenate-----	CCA, FER, HN, MCI, SHP, SW, WTC.
All other-----	MCI.
5-Nitroimidazole-----	PCW.
1-Octadecenyl-2-naphthetyl tetrahydro pyrimidine-----	SM.
1-Octadecenyl-2-oleyl tetrahydro pyrimidine-----	SM.
Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)- propionate.	CGY.
1-Oleylpyrimidine-2-oleyl diamine-----	SM.
Phenothiazine-----	WAG.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)-----	DOW, JCC, TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether).	DOW.
2,2'-(p-Phenylene)diethanol-----	EKT.
m-Phenylene isonaphthalamide-----	DUP.
Phenyl hydrogen phosphate-----	HDG.
Photographic chemicals:	
N-(2-Acetamidophenethyl)-1-hydroxy-2-naphthamide-----	EKT.
3-(3'-Aminobenzamido)-1-(2',4',6'-trichlorophenyl)- 5-pyrazolone.	WAY.
5-Amino-2,3-dihydro-1,4-phthalazenedione-----	EK.
N-[2-(4-Amino-N-ethyl-m-toluidino)ethyl]methane- sulfonamide.	EKT.
2-(4-Amino-N-ethyl-m-toluidino)ethyl sulfate-----	EKT.
3-Amino-1,2,4-triazole-----	FMT.
Benzotriazole-----	EK, FMT, SW.
o-Benzoyl-o-methoxyacetanilide-----	EKT.
p-Benzylaminophenol hydrochloride-----	EK.
Catechol-----	CRZ.
5-Chlorobenzotriazole-----	FMT.
3-Chloro-4-diethylaminobenzene diazonium chloride (p- Diaz o-2-chloro-N,N-diethylaniline) - zinc chloride.	ESA, FMT.
Chlorhydrquinone-----	EK.
N,N'-(2,4-Di-tert-amylphenoxyacetyl)-amido-4,6- dichloro-5-methyl phenol.	WAY.
4-Diazo-2,4-diethoxy-1-thio-p-cresylbenzene zinc salt-----	FMT.
4-Diazo-1-morpholine benzene zinc chloride-----	FMT.
α-Diazo-1-naphthol-5-sulfonate-----	FMT.
*2,5-Diethoxy-4-morpholinobenzene diazonium chloride-----	ALL, ESA, HST.
*p-Diethylaminobenzene diazonium chloride-----	ESA, FMT, WAY.
N,N-Diethyl-p-phenylenediamine hydrochloride-----	EKT.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride-----	EKT, FMT, WAY.
2,5-Dihydroxy-p-benzenedisulfonic acid dipotassium salt.	EK.
p-Dimethylaminobenzene diazonium chloride-----	ESA, FMT, WAY.
2,5-Dimethylbenzothiazole-----	FMT.
p-Diphenylaminobenzene diazonium sulfate-----	FMT.
p-(N-Ethylbenzimidido)benzenediazonium chloride-----	ESA, FMT.
*p-[Ethy1(2-hydroxyethyl)amino]benzenediazonium- chloride (p-Diazo-N-ethyl-N-hydroxyethylaniline- zinc chloride).	ESA, FMT, WAY.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate-----	WAY.
Hydroquinone (Hydroquinol)-----	EKT.
p[(2-Hydroxyethyl)methylamino]benzenediazonium chloride.	ESA, FMT.
N-(2-Hydroxyethyl)-β-resorcylamide-----	MRT.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Photographic chemicals--Continued	
2-Hydroxynaphthoic ethylamide-----	FMT.
1-(3-Hydroxyphenyl)urea-----	FMT.
4-Methoxy-1-naphthol-----	x.
p-Methylaminophenol sulfate-----	EK.
5-Methylbenzotriazole-----	EK.
5-Methyl-1,7-dihydroxy-1,3,4-triazaindolizine-----	FMT.
4-Methyl-1-phenyl-3-pyrazolidinone-----	WAY.
2-Methylthiazoline-----	FMT.
6-Nitrobenzimidazole-----	EK, FMT.
1-Phenyl-3-pyrazolidine-----	CGY.
1-Phenyl-3-pyrazolidone-----	WAY.
4-Phenylpyrocatechol-----	x.
1-Phenyl-2-tetrazole-5-thiol-----	FMT.
β-Resorcylic acid monoethanolamide-----	FMT.
2,2',4,4'-Tetrahydroxydiphenyl sulfide-----	FMT.
1-(2,4,6-Trichlorophenyl)-3-p-anilino-2-pyrazolin-5-one.	EKT.
All other-----	BKC, EK, FMT, WAY, x.
Phthalic acid, lead salt, dibasic-----	NTL.
Picramic acid, sodium salt-----	SDC.
*Pinene (α - and β)-----	ARZ, CBY, GLD, HN, HPC, NCI.
α -Pinene, P_2S_5 treated-----	ENJ.
Pinene, sulfate-----	HPC.
Piperazine, ethoxylated-----	GAF.
Poly-4-(2-acryloxyethoxy)-2-hydroxybenzophenone-----	ACY.
*Polyethylene terephthalate-----	CEL, DUP, EK, EKT, FRF, GYR.
Propyl gallate-----	EKT, HSH.
Pyrogallol (Pyrogallic acid)-----	HSH, MAL.
2-Pyrrolidinone-----	GAF.
Resorcinol monobenzoate-----	EKT.
Rosin acid salts:	
Calcium resinate-----	CBY.
Calcium zinc resinate-----	CBY.
All other-----	SHP.
Salicylanilide-----	FIN, PCW.
Salicylic acid, lead salt-----	NTL.
Sodium cresoxide (Cresylic acid, sodium salt)-----	DEX, GOC.
Sodium ferric ethylenediaminedihydroxyphenylacetate-----	CGY.
Stannous octanoate dioctylphthalate-----	x.
Sulfosalicylic acid-----	MON.
Tall oil salts (Linoleic-rosin acid salts):	
Calcium manganese tallate-----	MCI.
*Calcium tallate-----	CCA, HN, MCI, SHP, ZGL.
Calcium zinc cobalt tallate-----	MCI.
*Cobalt tallate-----	CCA, FER, FOC, HN, MCI, SHP.
Copper tallate-----	CCA, MCI.
Iron tallate-----	CCA, SHP.
Lead manganese tallate-----	MCI.
*Lead tallate-----	CCA, FER, HN, MCI, SHP.
*Manganese tallate-----	CCA, FER, HN, MCI, SHP.
Zinc tallate-----	MCI.
All other-----	KCH, MCI.
Tannic acid-----	HSH, MAL.
*Tanning materials, synthetic:	
Cresol phenol formaldehyde condensate-----	DA.
Hydroxytoluenesulfonic acid, formaldehyde condensate (Cresol-formaldehyde sulfonate), sodium salt.	CGY, DA.
Naphthalenesulfonic acid-----	CGY.
1-Naphthalenesulfonic acid, formaldehyde condensate and salt.	DA.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Tanning materials, synthetic--Continued	
2-Naphthalenesulfonic acid, formaldehyde condensate and salt.	AKS, GRD, RH.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated).	RH.
Tetrabromobisphenol A-----	GTL.
2,3,5,6-Tetrachloro-4-(methylsulfonyl)pyridine-----	DOW.
1,2,3,6-Tetrahydrobenzaldehyde-----	UCC.
Tetrahydrothiophene-----	PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)-----	PLC, SHC.
Tetraakis[methylene-3-(3',5'-di-tert-butyl-4'-hydroxy-phenol)propionate]methane.	CGY.
1,3,6,8-Tetranitrocarbazole-----	SDC.
Tetraphenylin chloride-----	x.
Tetraphenylin succinic acid-----	TX.
Textile chemicals, other than surface-active agents:	
Dimethyloldihydroxy ethylene urea-----	x.
1-((Octadecyloxy)methyl)pyridinium chloride-----	DUP.
Tetrahydro-3,5-bis(methoxymethyl)-4H-1,3,5-oxadiazin-4-one (1,3-Bis(methoxymethyl)uron).	DEX.
2,2',4,4'-Tetrahydroxybenzophenone-----	GAF.
Tri(phenyloxymethyl)trimethyloxymethylmelamine-----	DUP.
Thioanisole-----	EVN.
Thiophene-----	PAS.
Thymidine and derivatives-----	PLB.
o-Toluidine formaldehyde hydrochloride-----	RBC.
p-Toluquinone-----	EK.
Triallyl cyanurate-----	ACY.
3,4',5-Tribromosalicylanilide-----	FIN.
1,2,3-Triketohydridene hydrate-----	PIC.
Trimethylaminopropyl piperazine-----	JCC.
3,5,5-Trimethyl-2-cyclohexen-1-one (Isophorone)-----	ENJ, UCC.
Triphenyl phosphite-----	MON.
2,4,6-Trinitroresorcinol and lead derivative-----	REM.
Triphenyl sulfonium chloride-----	ASH.
Uridine derivatives-----	PLB.
Vinylnorbornene-----	UCC.
1-Vinyl-2-pyrrolidinone, monomer and polymer-----	DAN, GAF.
1-Vinyl-2-pyrrolidinone - ethylacrylate, copolymer-----	GAF.
1-Vinyl-2-pyrrolidinone - vinyl acetate, copolymer-----	GAF.
1-Vinyl-2-pyrrolidinone - other copolymers-----	GAF.
All other-----	ABB, ALB, ALD, AMB, ARA, ARS, CCA, CDY, CGY, CTN, DUP, EK, EKT, EVN, FIN, FMT, GAF, GIV, GOC, HEX, HMY, HPC, MON, MRK, PD, PFN, PIC, PLB, RCI, REM, RSA, SM, SYP, TRO, UCC, VND, RAY, WBC, x..
MISCELLANEOUS CHEMICALS, ACYCLIC	
Cellulose Esters and Ethers	
Cellulose esters:	
*Cellulose acetate-----	AV, CEL, DUP, EKT.
Cellulose acetate butyrate-----	EKT.
Cellulose acetate propionate-----	EKT.
Cellulose ethers:	
Hydroxyethylcellulose-----	UCC, x.
Hydroxypropylcellulose-----	x.
Methylcellulose-----	DOW.
*Sodium carboxymethylcellulose, 100%-----	BAS, BUK, DUP, KON, WMP, x.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Lubricating Oil Additives</i>	
*Phosphorodithioates (Dithiophosphates):	
Di-2-ethylhexylphosphorodithioic acid-----	SFA.
Di-N-propylphosphorodithioic acid-----	SFA.
Zinc dialkyl dithiophosphate-----	ATR.
Zinc di(butylhexyl) phosphorodithioate-----	ORO.
Zinc hydrocarbon dithiophosphate-----	LUB.
Zinc isopropyl hexyl phosphorodithioate-----	TX.
Sulfur compounds:	
Aliphatic hydrocarbon sulfides-----	LUB.
Chlorosulfurized sperm oil-----	CCW.
Diisobutylene polysulfide-----	TX.
Phosphosulfurized polybutene-----	ENJ.
*Sulfurized lard oil-----	ATR., CCW, GOC, QCP, WBG.
Sulfurized sperm oil and substitutes-----	CCW.
Triisobutylene polysulfide-----	TX.
Other sulfur compounds-----	ATR., CCW, HK, TX.
All other-----	ALD, ALX, ATR, ENJ, GOC, LUB, NLC, ORO, UCC, WTH, x, x, x.
<i>Nitrogenous Compounds</i>	
Acetamide-----	ACS.
Acetamidoethanol (N-Acetyl-ethanolamine)-----	ALB, RBC.
Acetone semicarbazone-----	NOR.
Acetonitrile-----	EKK, MON, SOH.
Acetyl glycine-----	CHT.
Acrylamide monomer-----	ACY.
*Acrylonitrile-----	ACY, DUP, MON, SOH.
Adiponitrile-----	DUP, MON.
β-Alanine-----	HFT.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea-----	FMT.
Allyl isothiocyanate, non-perfume grade-----	OPC.
*Amines:	
Allylamines-----	SHC.
Bis-hexamethylenetriamine amine-----	DUP.
*Butylamines:	
n-Butylamine, mono-----	AIP, PAS, UCC, VGC.
Di-n-butylamine-----	AIP, PAS, UCC, VGC.
sec-Butylamine, mono-----	PAS, VGC.
tert-Butylamine, mono-----	MON, RH.
Tri-n-butylamine-----	PAS, VGC.
n-Butylethylamine-----	PAS.
*Diethylenetriamine-----	DOW, JCC, UCC.
N,N-Diethylenetriamine-----	ALB, GCY.
N ¹ ,N ¹ -Diethyl-1,4-pentanediamine (Novoldiamine)-----	SDH.
Dimethylaminopropylamine-----	JCC.
*Ethylamines:	
*Diethylamine-----	AIP, PAS, UCC.
Diethylamine hydrochloride-----	RSA.
Ethyamine, mono-----	AIP, PAS, UCC.
Triethylamine-----	AIP, PAS, UCC.
*Ethylenediamine-----	DOW, JCC, UCC.
Ethyleneimine-----	DOW.
(2-Ethylhexyl)amine, mono-----	VGC.
1,6-Hexanediamine (Hexamethylenediamine)-----	CEL, DUP, ELP, MON.
3,3'-Iminobispropylamine-----	JCC.
Isobutylamines: Diisobutylamine-----	AIP, VGC.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Amines--Continued	
Isopropylamines:	
Diisopropylamine-----	AIP, UCC.
Isopropylamine, mono-----	AIP, UCC, VGC.
Methylamines:	
*Dimethylamine-----	AIP, COM, DUP, GAF.
Dimethylamine hydrochloride-----	EK, RSA.
Dimethylamine sulfate-----	RH.
*Methylamine, mono-----	AIP, COM, DUP, GAF.
*Trimethylamine-----	AIP, COM, DUP, GAF.
Octylamine, mono-----	VGC.
Oleylamine-----	x.
Pentaethylenehexamine-----	JCC, UCC.
Pentylamines (Amylamines):	
Dipentylamine-----	PAS, VGC.
Pentylamine, mono-----	PAS.
Tripentylamine-----	PAS.
Polyalkylene polyamines-----	NLC.
1,2-Propanediamine (Propylenediamine)-----	UCC.
1,3-Propanediamine (1,3-Diaminopropane)-----	JCC, x.
Propylamines:	
*Dipropylamine-----	AIP, PAS, UCC, VGC.
*Propylamine, mono-----	AIP, PAS, UCC, VGC.
Tripropylamine-----	PAS, VGC.
*Tetraethylenepentamine-----	DOW, JCC, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine-----	UCC.
Tetramethylethylenediamine-----	RH.
*Triethylenetetramine-----	DOW, JCC, UCC.
Other amines-----	ALB, ALD, BPC, DUP, EK, LIL, NTL, ONX, PAS, PIC, UCC, VGC, x. COM. JCC. DOW, HDG, JCC, UCC. EVN.
2-Amino-1-butanol-----	COM.
Aminoethoxyethanol-----	COM.
*2-(2-Aminoethylamino)ethanol (Aminoethylmethanolamine)-----	COM.
2-Aminoethyl mercaptoacetate (Monoethanolamine thio-glycolate).	COM, JCC.
2-Amino-2-ethyl-1,3-propanediol-----	COM.
Aminoguanidine bicarbonate-----	VAL.
2-Amino-2-(hydroxymethyl)-1,3-propanediol (Tris-(hydroxymethyl)aminomethane).	UCC.
2-Amino-2-methyl-1,3-propanediol-----	NPI, USR.
2-Amino-2-methyl-1-propanol-----	x.
2-Amino-2-methyl-1-propanol hydrochloride-----	DUP, FMT.
Y-Aminopropyltriethoxysilane-----	HMP.
1,1'-Azobisisformamide-----	TX.
2,2-Azobis (2-methylpropionamide)dihydrochloride-----	GLY, x.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile).	PIC.
N,N-Bis(2,2'-acetamido)glycine-----	ALD.
N-Bis(hydroxyethyl)amino alkanol-----	PIC.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)-----	ARA.
N,O-Bis(trimethylsilyl)acetamide-----	ARA.
N,N-Bis-(trimethylsilyl)acetamide-----	CDY, EK.
N,O-Bis-(trimethylsilyl)trifluoroacetamide-----	ALB.
Biuret-----	
N-Bromoacetamide-----	
N-Bromosuccinimide (Succinibromimide)-----	
2,3-Butanedione monoxime-----	
2-Butanone oxime-----	

MISCELLANEOUS CHEMICALS

213

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Nitrogenous Compounds--Continued</i>	
1-Butyl-3-ethyl-2-thiourea-----	PAS.
Butyl isocyanate-----	CWN, OTC, UPJ.
n-Butyronitrile-----	EKX.
*Caprolactam (2-Oxohexamethyleneimine)-----	ACP, CNP, DBC.
Chlorocholine chloride-----	ACY.
2-Chloro-N,N-diethylethylamine hydrochloride-----	HEX, MCH.
2-Chloro-N,N-dimethylethylamine (Dimethylamino ethyl chloride) hydrochloride.	HEX, MCH.
3-Chloro-N,N-dimethylpropylamine-----	SK.
2-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH.
3-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH.
2-Chloroethylamine, hydrochloride-----	NES.
3-Chloro-2-hydroxypropyltrimethyl, ammonium chloride-----	OTC.
Chloro-N-(2-hydroxyethyl)acetamide-----	KF.
N-Chlorosuccinimide (Succinichlorimide)-----	ARA.
2-Chlorotriethylamine hydrochloride-----	CGY.
Choline base-----	RH.
Choline bicarbonate-----	TCH.
Choline bisulfite-----	WAY.
Coco nitrile-----	ARC, ASH.
Coconut oil acids - ammonium condensate-----	PG.
Coconut oil amide-----	ARC.
Cyanoacetic acid-----	KF.
Cyanogen bromide-----	EK.
2,2'-Di-(3-aminopropoxy)ethyl ether-----	UCC.
2-Dibutylaminoethanol-----	AAC, PAS.
1,3-Dibutyl-2-thiourea-----	PAS, RBC.
1,4-Dicyanobutene-----	DUP.
2-Diethylaminoethanol-----	AAC, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol-----	PAS.
2-Diethylaminoethyl acrylate-----	ABC, UCC.
2-Diethylaminoethyl methacrylate-----	DUP.
Diethylcarbamoyl chloride-----	ASH.
Diethyldithiocarbamic acid, sodium salt-----	EK.
N,N-Diethyldecanediamide-----	EK.
Diethylhydroxylamine-----	PAS.
1,3-Diethyl-2-thiourea-----	PAS, RBC.
Disopropylaminoethanol-----	PAS, UCC.
2-Disopropylamino ethyl chloride hydrochloride-----	MCH.
N,N-Dimethylacetamide-----	DUP.
2-Dimethylaminoethanethiol hydrochloride-----	EVN.
2-Dimethylaminoethanol-----	AAC, PAS, RH, UCC.
Dimethylaminoethyl acrylate-----	ABC.
Dimethylaminoethyl methacrylate-----	AAC, CPS.
Dimethylaminoethyl methacrylate, methyl chloride quaternary salt.	AAC.
2-Dimethylamino-2-methyl-1-propanol-----	COM.
Dimethylamino-2-propanol-----	PAS.
3-Dimethylaminopropionitrile-----	ABB, ACY, UCC.
Dimethylenetriaminepentamethylene phosphonic acid-----	WAY.
N,N-Dimethylformamide-----	AIP, DUP.
1,1-Dimethylhydrazine-----	FMP.
Dimethylol methoxyethyl carbamate-----	DAN.
Dimethylthiocarbamoyl chloride-----	ALD.
2,5-Dithiobiurea-----	ACY.
*Erucamide-----	ARC, ASH, FIN, HUM.
Erucamide - Lauramide-----	FIN.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)-----	DOW, GLY, JCC, OMC, UCC.
*2,2'-Aminodiethanol (Diethanolamine)-----	DOW, JCC, OMC, UCC.
*2,2'2''-Nitrilotriethanol (Triethanolamine)-----	DOW, JCC, OMC, UCC.
Ethoxymethylenemalononitrile-----	ALD.
3-Ethoxypropionitrile-----	DIX.
2-Ethylaminoethanol (Ethylmonoethanolamine)-----	PAS.
Ethyl cyanoacetate-----	KF.
Ethyl diazoacetate-----	ALD.
*N,N'-Ethylene bis(stearamide)-----	CCW, DA, HUM, NLC.
2-Ethylhexyl ammonium tridecylphosphate-----	DUP.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone-----	SDW.
Ethylmonoethanolamide, mixed-----	PAS.
Fish oil fatty acid amide-----	HUM.
Formamide-----	DUP.
Glycine (Aminoacetic acid)-----	CHT.
Glycine ethyl ester hydrochloride-----	BPC.
Glycolonitrile-----	KF.
4-Guanyl-1-nitrosoguanyl-1-tetrazine-----	REM.
*Hexamethylenediammonium adipate (Nylon salt)-----	CEL, DUP, MON.
Hexamethylene phosphoric triamide-----	DUP.
Hydracrylonitrile (Ethylene cyanohydrin)-----	AAE.
Hydrazine hydrate (100%)-----	USR.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-(hydroxymethyl)nitromethane).-----	COM.
Iminodiacetic acid-----	HMP.
Iminodiacetic acid, disodium salt-----	HMP.
Isobutyronitrile-----	AIP, EKX.
Isopropanolamines:	
1-Amino-2-propanol (Monoisopropanolamine)-----	DOW, UCC.
1,1'-Iminodi-2-propanol (Biisopropanolamine)-----	DOW, UCC.
1,1',1'''-Nitrilotri-2-propanol (Triisopropanolamine)-----	DOW, UCC.
2-Isopropylaminoethanol-----	PAS.
Isopropylethythionocarbamate-----	DOW.
Ketimine, tetrafunctional-----	GNM.
Lactonitrile-----	MON.
Lauronitrile (Dodecyl nitrile)-----	ARC, ASH.
Methacrylamide-----	x.
Methacrylonitrile-----	SOH.
Methoxyethyl carbamate-----	DAN.
3-Methoxypropylamine-----	JCC.
N-Methylacetamide-----	ARS, EK.
N-Methylacetamide, sodium salt-----	ARS.
2-Methylaminoethanol (N-Methylethanolamine)-----	PAS, UCC.
5-Methyl-2-aminohexane-----	PAS.
Methylcarbamate-----	FMP.
Methyl cyanoacetate-----	KF.
Methyl α -cyanoacrylate-----	EKT.
N,N'-Methylenebis(acrylamide)-----	ACY, SOH.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)-----	PAS, UCC.
Methyl isocyanate-----	OTC, UCC.
2-Methyllactonitrile (Acetone cyanohydrin)-----	RH, x.
2-Methyl-2-(methylthio)propionaldoxime-----	UCC.
2-Methyl-1-2-nitro-1-propanol-----	COM.
Methylpolyethanolamine-----	GAF.
N-Methyltaurine-----	GAF.
N-Methylurea-----	LIL.
*Nitriloacids and salts:	
(Diethylenetrinitrilo)pentaacetic acid-----	HMP.
(Diethylenetrinitrilo)pentaacetic acid, monosodium hydrogen ferric salt.	CGY.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Nitrogenous Compounds</i> --Continued	
*Nitriloacids and salts--Continued	
*(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt.	CGY, DAN, DOW, HMP.
(Diethylenetrinitrilo)pentaacetic, sodium salt-----	CGY, RPC.
N,N-Dihydroxyethylglycine, sodium salt-----	DOW, HMP.
Ethanoldiglycine, disodium salt-----	HMP.
(Ethylenedinitrilo)tetraacetic acid (Ethylenediaminetetraacetic acid).	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt.	DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, diammonium salt---	DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, diammonium zinc salt, dihydrate.	DOW.
(Ethylenedinitrilo)tetraacetic acid, disodium salt-----	CGY, DOW, EK, HMP, RPC.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate.	DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	HMP.
(Ethylenedinitrilo)tetraacetic acid, manganese salt-----	DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, monoammonium iron salt.	HMP.
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt.	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt.	DOW.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt.	CGY, HMP.
* (Ethylenedinitrilo)tetraacetic acid, tetrasodium salt--	CGY, CRT, DAN, DOW, HMP, JOR, RPC.
(Ethylenedinitrilo)tetraacetic acid, trisodium salt----	CGY, HMP.
(N-Hydroxyethyl)ethylenedinitrilo)triacetic acid-----	HMP.
(N-Hydroxyethyl)ethylenedinitrilo)triacetic acid, copper salt..	HMP.
(N-Hydroxyethyl)ethylenedinitrilo)triacetic acid, iron salt.	HMP.
(N-Hydroxyethyl)ethylenedinitrilo)triacetic acid, magnesium salt.	HMP.
(N-Hydroxyethyl)ethylenedinitrilo)triacetic acid, manganese salt.	HMP.
* (N-Hydroxyethyl)ethylenedinitrilo)triacetic acid, trisodium salt.	CGY, CRT, DAN, DOW, HMP, RPC.
Nitrilotriacetic acid-----	HMP.
Nitrilotriacetic acid, trisodium salt-----	DOW, HMP, MON.
Nitrido-tris-methylene triphosphonic acid-----	WAY.
Nitrido-tris-methylene triphosphonic acid, sodium salt.	WAY.
Other-----	EK, HMP, WAY.
Nitrilotriacetonitrile-----	HMP.
2-Nitro-1-butanol-----	COM.
Nitroethane-----	COM.
Nitromethane-----	COM.
1-Nitropropane-----	COM.
2-Nitropropane-----	COM.
*Nylon, 6 and 6/6 polymer for fiber-----	ALF, CEL, DBC, DUP, MON.
Octadecyl isocyanate-----	MOB, UPJ.
N-Octylethanolamine-----	X.
Oleamide (Octadecene amide)-----	ARC, FIN, GLY, HUM.
Oleic acid - ethylenediamine condensate (amine/acid ratio=1/2).	CCW.
Oleinonitrile (Octadecene nitrile)-----	ARC.
Oleoylpalmitamide-----	FIN.
Oleyl nitrate-----	SM.
*Pentaerythritol tetranitrate-----	COM, DUP, HPC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Nitrogenous Compounds</i> --Continued	
Pentyl nitrate (Amyl nitrate) & hexyl nitrate-----	TNA.
*Polyacrylamide-----	ACY, DOW, HPC, NLC.
Polyacrylamide polymers other than polyacrylamide-----	ACY.
*Polyacrylonitrile-----	ACY, DBC, DUP, EKX, MON.
Polyalkylene amine-----	NLC.
Polyamide resin (flake)-----	MON.
Polyaminopolymethylene phosphonic acids-----	TXT.
Polyethoxy (Hydrogenated tallow) amide-----	ARC.
Polyethyleneimine-----	AAC, DOW.
Polyoxypropylenediamine-----	JCC.
Propyleneimine-----	ARS.
Propyl isocyanate-----	OTC.
Ricinolamide-----	TKL.
Sarcosine (N-Methylaminoacetic acid)-----	CGY, HMP.
Semicarbazide hydrochloride-----	FMT.
Stearamide (Octadecane amide)-----	ARC, FIN, GLY, HUM.
Stearonitrile (Octadecanenitrile)-----	ARC, ASH.
Stearylcerucamide-----	FIN.
Tallow amide, hydrogenated-----	ARC.
Tallow nitrile-----	ARC, ASH.
Tallow nitrile, hydrogenated-----	ASH.
N,N,N',N'-Tetrakis (2-hydroxypropyl)ethylenediamine-----	BAS.
Tetramethyl ammonium bromide-----	RSA.
Tetramethyl ammonium hydroxide-----	RSA.
Tetramethylguanidine-----	ACY.
Thioacetamide-----	EK, RBC.
3,3'-Thiodipropionitrile-----	ACY, EVN.
Thiosemicarbazide-----	ACY.
N-Trimethylsilylacetamide-----	LIL.
*Urea in compounds or mixtures, 100% basis:	
*In feed compounds-----	ACN, AIP, AKL, APD, AGY, FTX, GCC, HKY, JDC, MSC, PPC, SNI, SOH, TER, TRI, VLN, WYC.
*In liquid fertilizer-----	ACN, ACS, AGY, AIP, AKL, APD, ARM, CFA, CHN, CNC, FCA, FTX, GCC, HKY, HPC, JDC, MSC, PLC, PPC, SNI, SOH, TER, TRI, TVA, VLN, WLC, WYC
*In solid fertilizer-----	ACN, ACS, AGY, AKL, APD, CFA, COL, FMS, GCC, HPC, JDC, MSC, OMC, PPC, SOH, TER, TRI, TVA, VLN, WLC, WYC.
*In plastics-----	BOR, FMS, MSC, OMC, SOH, TRI.
All other-----	DAN, DUP, PPC, SOH, SNW, TER, WAY, WYC.
Urea ammonium nitrate solution-----	WYC.
Urea - urethane copolymer-----	DUP.
All other nitrogenous compounds-----	ABB, ALB, ALD, ARC, AZT, CDY, CHP, COM, DUP, EFH, EK, EVN, GAF, GNM, HMP, HUM, ICI, JCC, KF, LIL, MAL, MOB, OTC, PAS, PD, PFN, PFZ, PIC, RSA, S, SBC, SDW, SM, SNW, STC, TWA, TXT, UCC, USR, VND, WAY, WLC, ZGL, x, x, x.
<i>Acids, Acid Anhydrides, and Acyl Halides</i>	
*Acetic acid, synthetic, 100%-----	ATR, BOR, CEL, EKT, FMP, MON, PUB, UCC.
*Acetic anhydride, 100%:	
From acetic acid-----	CEL, EKT, FMP.
From ethylene-----	UCC.
*Acrylic acid-----	BFG, CEL, DBC, UCC.
*Adipic acid-----	CEL, DUP, ELP, MON, RH.
Azelaic acid-----	EMR.
Behenic acid-----	ASH.
Bromoacetic acid-----	MCH.

MISCELLANEOUS CHEMICALS

217

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Acids, Acid Anhydrides, and Acyl Halides--Continued	
tert-Butylperoxymaleic acid-----	WTL.
Butyric acid-----	CEL, EKT.
Butyric anhydride-----	EKT.
Castor oil fatty acids, dehydrated-----	NTL.
Chloroacetic acid, mono-----	BUK, DOW, x.
Chloroacetyl chloride-----	DOW.
2-Chloropropionic acid-----	DOW.
Citric acid-----	MLS, PFZ.
Crotonic acid (2-Butenoic acid)-----	EKT.
Decanoyl chloride-----	WTL.
Dimethylpropionic acid-----	COM.
Di-n-propylacetic acid and chloride-----	ARA.
Dipropylmalonic acid-----	ARA.
Dodecanedioic acid-----	DUP.
*Dodecenylysuccinic anhydride-----	ACS, DIX, HMY.
Dodecylsuccinic anhydride-----	HN.
Erucic acid-----	ASH.
2-Ethylbutyric acid (Diethylacetic acid)-----	UCC.
2-Ethylhexanoic acid (α -Ethylcaproic acid)-----	EKT, UCC.
2-Ethylhexanoyl chloride-----	AZT, WTL.
*Formic acid, 90%-----	CEL, DUP, UCC.
*Fumaric acid-----	ACS, HN, MON, PFZ, USS.
Gluconic acid, tech-----	PFZ.
Glutaric anhydride-----	UCC.
Glycolic acid (Hydroxyacetic acid)-----	DUP.
n-Hexadecenylsuccinic anhydride-----	HMY.
n-Hexanoic acid-----	UCC.
1-Hydroxyethylidene-1,1-diphosphonic acid-----	WAY.
Isethionic acid (2-Hydroxyethanesulfonic acid)-----	GAF, WTC.
Isoascorbic acid-----	MRK, PFZ.
Isobutyric acid-----	EKT, EKX.
Isobutyric anhydride-----	EKT.
Isobutyril chloride-----	WTL.
Iso-octadecenylsuccinic anhydride-----	HMY.
Itaconic acid (Methylenesuccinic acid)-----	PFZ.
2-Keto-D-gluconic acid-----	MRK.
Lactic acid-----	CLN, MON.
*Lauroyl chloride-----	HK, ONX, TEK, UOP, WTL.
Maleic acid-----	ACS, PFZ.
*Maleic anhydride-----	HN, KPT, MON, PTT, RCI, SOC, USS.
Malic acid-----	ACS, EK.
Malonic acid-----	KF.
Mercaptoacetic acid (Thioglycolic acid)-----	EVN.
3-Mercaptopropionic acid-----	EVN.
Mercaptosuccinic acid (Thiomalic acid)-----	EVN.
Methacrylic acid-----	DUP, RH.
Methanesulfonic acid-----	EK, PAS.
Methanesulfonyl chloride-----	PAS.
Neodecanoic acid-----	ENJ.
Neodecanoyl chloride-----	WTL.
Neopentanoic acid-----	ENJ.
Nonanoic acid (Pelargonic acid)-----	EMR, GIV.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Acids, Acid Anhydrides, and Acyl Halides--Continued</i>	
Nonenylsuccinic anhydride-----	HMY.
Oleic acid-----	ASH.
Octanoyl chloride-----	HK.
Octenylsuccinic anhydride-----	HMY.
Oleoyl chloride-----	GAF, HRT.
Oxalic acid-----	ACS, PFZ.
Palmityl chloride-----	GAF, OPC.
Peroxyacetic acid-----	FMB, UCC.
Pivaloyl chloride-----	AZT, WTL.
*Polyacrylic acid-----	AAE, DA, RH.
*Propionic acid-----	CEL, COM, EKT, UCC.
Propionic anhydride-----	EKT.
Propionyl chloride-----	EK.
Sebacic acid-----	RH, WTH.
Sebacyl chloride-----	WTL.
Stearoyl chloride-----	GAF, UOP.
Succinic acid-----	ACS.
Succinic anhydride-----	ACS, ORO.
Tetrahydroxysuccinic acid (Dioxytartaric acid)-----	ACY.
Thioacetic acid-----	EVN.
Thiolactic acid-----	EVN.
3,3'-Thiodipropionic acid-----	CCW, EVN.
Trichloroacetic acid-----	DOW.
Valeric acid-----	UCC.
All other-----	ABB, ALD, AMB, EK, EKX, ENJ, EVN, GAF, HMY, LIL, PAS, PFN, PLC, QKO, RH, RSA, SHA, WAY.
<i>Salts of Organic Acids</i>	
*Acetic acid salts:	
Aluminum acetate-----	ACY, UCC.
Ammonium acetate-----	ACS, BKC, MAL.
*Barium acetate-----	ACS, BKC, MAL.
Calcium acetate-----	ACS, MAL.
Chromium acetate-----	SHP.
Cobalt acetate-----	HSH, SHP.
Copper acetate-----	ACS, BKC.
Lead acetate-----	BKC, MAL.
Lead subacetate-----	BKC, MAL.
Lead tetracetate-----	ARA.
Magnesium acetate-----	BKC, SHP.
Manganese acetate-----	HSH, SHP.
Mercuric acetate-----	MAL.
Nickel acetate-----	BKC, HSH, SHP.
*Potassium acetate-----	ACS, BKC, MAL, UCC.
Silver acetate-----	MAL, RSA.
Sodium acetate-----	ACS, BKC, DAN, EKT, MAL, UCC.
Sodium diacetate-----	UCC.
*Zinc acetate-----	ACS, BKC, HSH, MAL, SHP, UCC.
Zirconium acetate-----	HSH, SNW, TZC.
Other acetic acid salts-----	MAL.
Acrylic acid, sodium salt-----	AAE.
Adipic acid, ammonium salt-----	ASH.
Allylsulfonic acid, sodium salt-----	IOC, NES, UOP.
Chloroacetic acid, sodium salt-----	DOW.
Citric acid salts:	
Ammonium citrate-----	MAL, PFZ.
Calcium citrate-----	PFZ.
Ferric ammonium citrate-----	MAL, PFZ.
Ferric citrate-----	MAL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Salts of Organic Acids--Continued</i>	
Citric acid salts--Continued	
Potassium citrate-----	MLS, PFZ.
Sodium citrate-----	MLS, PFZ.
Other citric acid salts-----	EK.
Diethyl chlorophosphate-----	SFA.
Di-n-propylacetic acid, sodium salt-----	ARA.
*2-Ethylhexanoic acid (2-Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate-----	PFZ, WTC.
Barium 2-ethylhexanoate-----	CCA, TRO.
Cadmium 2-ethylhexanoate-----	CCA.
*Calcium 2-ethylhexanoate-----	CCA, FER, HN, MCI, PFZ, SW, TRO, WTC.
*Cobalt 2-ethylhexanoate-----	CCA, FER, HN, MCI, SHP, SW, TRO, WTC.
Copper 2-ethylhexanoate-----	CCA.
Iron 2-ethylhexanoate-----	CCA, HN, SHP.
*Lead 2-ethylhexanoate-----	CCA, FER, HN, NTL, SHP, WTC.
Lithium 2-ethylhexanoate-----	WTC.
*Manganese 2-ethylhexanoate-----	CCA, FER, HN, MCI, SHP.
*Nickel 2-ethylhexanoate-----	MCI, SHP, WTC.
Potassium 2-ethylhexanoate-----	CCA, MCI.
Rare earths 2-ethylhexanoate-----	CCA.
Stannous 2-ethylhexanoate-----	WTC.
*Zinc 2-ethylhexanoate-----	CCA, FER, HN, MCI, SHP, SW, WTC.
*Zirconium 2-ethylhexanoate-----	CCA, FER, HN, MCI, TRO, WTC.
All other-----	MCI, SHP.
Formic acid salts:	
Aluminum formate-----	WSN.
Ammonium formate-----	ACS, RSA.
Calcium formate-----	COM.
Chromic formate-----	GAF.
Copper formate-----	CTN.
Lead formate-----	NTL.
Sodium formate, refined-----	ACS, BKC.
*Sodium formate, tech-----	CEL, COM, HPC, PNA.
Fumaric acid, lead salt-----	NTL.
Glucoheptonic acid salts: Sodium glucoheptanoate-----	HMP.
*Gluconic acid, sodium salt-----	PFZ, SFI, x.
9H-Hexadecafluorononanoic acid, ammonium salt-----	WTC.
Humic acids, sodium salts-----	NLC.
Isoascorbic acid, sodium salt-----	MRK, PFZ.
Lactic acid salts:	
Calcium lactate-----	SHF.
Sodium lactate-----	MAL.
Lauric acid, zinc salt-----	SNW.
Linoleic acid salts:	
Calcium linoleate-----	CCA, SHP.
Manganese linoleate-----	SHP.
Maleic acid salts: Lead (tribasic) maleate-----	NTL.
Mercaptoacetic acid (Thioglycolic acid) salts:	
Ammonium mercaptoacetate-----	EVN, TNI.
Antimony mercaptoacetate-----	CCA.
Calcium mercaptoacetate-----	EVN.
Dibutyltin mercaptoacetate-----	CCA.
Potassium mercaptoacetate-----	EVN.
Sodium mercaptoacetate-----	EVN.
Mercaptopropionic acid, dibutyltin salt-----	CCA.
Methacrylic acid, sodium salt-----	AAE.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Salts of Organic Acids--Continued</i>	
Neodecanoic acid salts:	
Cadmium neodecanoate-----	CCA.
Calcium neodecanoate-----	CCA, MCI.
Cobalt manganese neodecanoate-----	MCI.
Cobalt neodecanoate-----	MCI.
Lead cobalt neodecanoate-----	MCI.
Lead neodecanoate-----	MCI.
Lithium neodecanoate-----	MCI.
Manganese neodecanoate-----	MCI.
Zinc neodecanoate-----	CCA, MCI.
Zirconium neodecanoate-----	MCI.
*Octanoic acid (Caprylic acid) salts:	
Aluminum octanoate-----	DA.
Barium cadmium octanoate-----	CCA
Stannous octanoate-----	CCW, x.
Other-----	BKC, DA.
*Oleic acid salts:	
Aluminum oleate-----	SHP, WTC.
Chromium oleate-----	SHP.
Copper oleate-----	WTC.
Lead oleate-----	NOC.
Stannous oleate-----	CCW, x.
Other oleic acid salts-----	ARS, SHP.
Oxalic acid salts:	
Ammonium oxalate-----	ACS, PFZ.
Ferric ammonium oxalate-----	PFZ.
Potassium oxalate-----	BKC, PFZ.
Sodium oxalate-----	BKC.
Palmitic acid salts:	
Aluminum palmitate-----	DA.
Zinc palmitate-----	DA, WTC.
Phosphorodithioic acid salts (Dithiophosphates):	
Potassium dihexyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl diethyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl phosphorodithioate-----	ACY.
Sodium diethyl phosphorodithioate-----	ACY.
Sodium dihexyl phosphorodithioate-----	ACY.
Sodium diisopropyl phosphorodithioate-----	ACY.
Polyacrylic acid salts:	
Ammonium polyacrylate-----	BFG.
Sodium ammonium polyacrylate and copolymers-----	BFG.
Sodium polyacrylate-----	ALC, BFG, DA, RH, STC.
Polymethacrylic acid, sodium salt-----	GRD.
Propionic acid salts:	
Calcium propionate-----	HFT, PFZ.
Sodium propionate-----	HFT, PFZ.
Ricinoleic acid salts:	
Calcium ricinoleate-----	NTL.
Lithium ricinoleate-----	NTL.
Sodium ethyl oxalacetate-----	FMP.
Sodium polypectate-----	SKG.
Sodium sorbitol borate-----	ICI.
*Stearic acid salts:	
*Aluminum stearates:	
*Aluminum distearate-----	DA, MAL, NOC, PEN, SYP, WTC.
*Aluminum monostearate-----	DA, MAL, NOC, SYP, WTC.
*Aluminum tristearate-----	DA, MAL, NOC, PEN, SYP, WTC.
Ammonium stearate-----	DA.
*Barium stearate-----	DA, NOC, PEN, SYP, WTC.
Cadmium stearate-----	SYP, WTC.
*Calcium stearate-----	ACY, DA, FER, HN, JTC, MAL, NOC, PEN, SYP, WTC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Salts of Organic Acids--Continued</i>	
*Stearic acid salts--Continued	
Cobalt stearate-----	WTC.
Copper stearate-----	NOC.
Ferric stearate-----	SHP, WTC.
Ferrous stearate-----	MCI, NOC.
Lead stearate-----	DA, NOC, WTC.
Lead stearate, dibasic-----	NTL.
Lithium stearate-----	DA, PEN, SYP, WTC.
*Magnesium stearate-----	ACY, DA, MAL, NOC, PEN, SYP, WTC.
Nickel stearate-----	WTC.
Silver stearate-----	PEN.
*Zinc stearate-----	ACY, DA, HN, MAL, NOC, PEN, SNW, SYP, WTC.
All other-----	DA, NOC.
Succinic acid, sodium salt-----	MAL.
Sulfosuccinic acid, trisodium salt-----	STP.
Tartaric acid salts:	
Antimony potassium tartrate-----	PFZ.
Potassium sodium tartrate-----	PFZ.
Valeric acid, ammonium salt-----	RSA.
Xanthic acid salts:	
Potassium amylixanthate-----	DOW.
Potassium ethylxanthate-----	DOW.
Potassium hexylxanthate-----	DOW.
Potassium pentylxanthate-----	ACY.
Sodium n-butylxanthate-----	KCC, USR.
Sodium sec-butylxanthate-----	DOW.
Sodium ethylxanthate-----	DOW.
Sodium isobutylxanthate-----	DOW.
Sodium isopropylxanthate-----	DOW.
All other salts of organic acids-----	ALD, BAX, BKC, CRN, DA, EK, MCI, MLS, SDH, SHF, SHP, UCC, x.
<i>Aldehydes and Ketones</i>	
Acetaldehyde-----	CEL, EKT, EKX, PUB, SHC, UCC.
*Acetone:	
*From cumene-----	ACS, CLK, DOW, GP, GYR, MON, SHC, SKO, SOC, UCC, USS.
From isopropyl alcohol-----	EKT, ENJ, SHC, UCC.
Other-----	CEL, DIX, OCC.
Acrolein (Acrylaldehyde)-----	SHC, UCC, x.
*2-Butanone (Methyl ethyl ketone)-----	ATR, CEL, DIX, ENJ, SHC, UCC.
*Butyraldehyde-----	CEL, EKX, UCC.
Chloral (Trichloroacetaldehyde)-----	DA, MTO.
5-Chloro-2-pentanone-----	SDW.
1-Chloro-1-penten-3-one (β -Chlorovinyl ethyl ketone)-----	x.
Chloro-2-propanone (Chloroacetone)-----	EK, MRK.
Crotonaldehyde-----	CEL, EKT, UCC.
1,3-Dihydroxy-2-propanone (Dihydroxyacetone)-----	BAX.
2,4-Dimethyl-3-pentanone-----	EKK.
Ethyl amyl ketone-----	SHC.
Ethyl butyl ketone-----	UCC.
2-Ethylbutyraldehyde-----	UCC.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Aldehydes and Ketones--Continued	
2-Ethylhexanal (α -Ethylcaproaldehyde)-----	EKX, UCC.
*Formaldehyde (37% by weight)-----	ACS, BOR, CBD, CEL, COM, DUP, GAF, GOC, GP, HKD, HN, HPC, MON, RCI, RH, UCC, WCL.
Glutaraldehyde-----	UCC.
Glyoxal-----	UCC.
2-Heptanone (Methyl amyl ketone)-----	UCC.
Hexafluoroacetone-----	DUP.
2,5-Hexanedione (Acetonylacetone)-----	ARS.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	CEL, SHC, UCC.
*Isobutyraldehyde-----	DBC, EKX, OXC, UCC.
Isopentaldehyde, mixed isomers-----	UCC.
Isovalerone (Diisobutyl ketone)-----	UCC.
Lactide (3,6-Dimethyl-2,5,p-dioxanedione)-----	CLN.
Methacrolein-----	ALD, RDA.
4-Methoxy-4-methyl-2-pentanone-----	SHC.
2-Methylbutyraldehyde-----	UCC.
5-Methyl-2-hexanone (Methyl isoamyl ketone)-----	EKT.
Methylnonyl ketone-----	ORT.
*4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	CEL, EKT, ENJ, SHC, UCC.
Methylpentenal-----	UCC.
*4-Methyl-3-penten-2-one (Mesityl oxide)-----	ENJ, SHC, UCC.
2-Methylvaleraldehyde (2-Methylpentanaldehyde)-----	EKX, UCC.
n-Nonyl ketone-----	ARC.
2-Octanone (Hexyl methyl ketone)-----	WTH.
Paraformaldehyde-----	CEL, HN.
2,4-Pentanedione (Acetylacetone)-----	UCC.
3-Pantanone (Diethyl ketone)-----	HEX, ORT.
Propionaldehyde-----	EKX, UCC.
Pseudoionone-----	RDA.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)-----	UCC.
Valeraldehyde-----	UCC.
All other-----	ALD, AZT, EK.
Alcohols, Monohydric, Unsubstituted	
*Alcohols C ₁₁ or lower, unmixed:	
Allyl alcohol-----	FMP, SHC.
Amyl alcohols:	
2-Methyl-1-butanol-----	CPS, UCC.
2-Methyl-2-butanol-----	ENJ.
1-Pentanol-----	UCC.
Butyl alcohols:	
Primary:	
*Iso (Isopropylcarbinol)-----	DBC, EKX, OXC, SHC, UCC.
*Normal (n-Propylcarbinol)-----	CEL, CO, DBC, EKX, GAF, OXC, SHC, TNA, UCC.
Secondary (Methylethylcarbinol)-----	ENJ, SHC, UCC.
Tertiary (Trimethylcarbinol)-----	SHC, x.
1-Decanol-----	CO, PG.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)-----	UCC.
*Ethyl alcohol, synthetic-----	EKX, ENJ, PUB, SHC, UCC, USI, x.
2-Ethyl-1-butanol-----	UCC.
*2-Ethyl-1-hexanol-----	CEL, DBC, EKX, OXC, SHC, UCC.
2-Ethyl-4-methyl-1-pentanol-----	EKX.
Heptyl alcohol-----	EKX.
3-Hexyne-2-ol-----	LIL.
*Hexyl alcohol-----	CO, ENJ, PG, TNA, UCC.
Isodecyl alcohol-----	ENJ, TID, UCC, USS.
Iso-octyl alcohol-----	ENJ, TID, USS.
*Isopropyl alcohol-----	ATR, CEL, ENJ, SHC, UCC.
*Methanol, synthetic-----	AIP, ALD, ATR, BOR, CEL, COM, DUP, GP, HN, HPC, MON, RH.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Alcohols, Monohydric, Unsubstituted--Continued</i>	
*Alcohols C ₁₁ or lower, unmixed--Continued	
Methyl amyl alcohol-----	UCC.
3-Methyl-1-butanol-----	EKK, UCC.
2-Methyl-1-pentanol-----	EKK, UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)-----	SHC.
Nonyl alcohol-----	ENJ.
1-Octanol-----	CO, PG, UCC.
2-Octanol (sec-Capryl alcohol)-----	RH, WTH.
3-Pentanol-----	EK, UCC.
*Propyl alcohol (Propanol)-----	CEL, EKK, UCC.
2-Propyn-1-ol-----	GAF.
*Alcohols, C ₁₂ or higher, unmixed:	
1-Decanol-----	CO, PG.
Dodecyl alcohol (Lauryl alcohol) (95%)-----	CO.
7-Ethyl-2-methyl-4-hendecanol-----	UCC.
1-Hexadecanol (Cetyl alcohol) (95%)-----	CO, ENJ, GIV, PG.
Hexadecyl alcohols, other-----	ENJ, SCP.
1-Octadecanol (Stearyl alcohol) (95%)-----	CO, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)-----	ASH, DUP.
1-Tetradecanol (Myristyl alcohol)-----	CO, PG.
1-Tridecanol-----	ENJ, UCC.
2,6,8-Trimethyl-4-nonanol-----	UCC.
*Mixtures of alcohols:	
*C ₁₁ and lower only-----	CEL, CO, EKK, ENJ, PUB, TNA.
*C ₁₂ and higher only-----	ASH, CO, ENJ, PG, SHC, TNA, WTH.
All other monohydric alcohols, unsubstituted (including mixtures).	ALD, CO, PG, TNA.
<i>Polyhydric Alcohols and Their Esters and Ethers</i>	
*Polyhydric alcohols:	
2,2-Bis(bromomethyl)-1,3-propanediol-----	DOW.
1,2(and 1,3)-Butanediol-----	CEL.
1,4-Butanediol-----	GAF, DUP.
2-Butene-1,4-diol-----	GAF.
2-Butyne-1,4-diol-----	GAF.
3-Chloro-1,2-propanediol (Glycerol- α -chlorohydrin)-----	EVN.
1,10-Decanediol-----	ASH.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)-----	EKK.
*Ethylene glycol-----	BAS, CAU, CEL, DIX, DOW, EKK, JCC, NWP, OMC, PPG, SHC, UCC.
2-Ethyl-1,3-hexanediol-----	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane).-----	CEL.
*Glycerol, synthetic-----	DOW, FMP, SHC.
1,6-Hexanediol-----	CEL.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylolethane).-----	COM.
Mannitol-----	ICI.
3-Mercapto-1,2-propanediol (Thioglycerol)-----	EVN.
2-Methyl-1,2,4-pentanediol (Hexylene glycol)-----	CEL, SHC, UCC.
*Pentaerythritol-----	CEL, COM, HN, HPC, PNA, RCI.
1,5-Pantanediol-----	UCC.
*Propylene glycol (1,2-Propanediol)-----	DOW, JCC, OCC, OMC, UCC.
*Sorbitol-----	BRD, ICI, MRK, PFZ.
2,2,4-Trimethyl-1,3-pantanediol-----	EKK.
All other-----	GLY, ICI, PNA, RSA, x.
*Polyhydric alcohol esters:	
1,3-Butanediol dimethacrylate-----	SAR.
2-(2-Butoxyethoxy)ethyl acetate-----	EKT, UCC.
2-Butoxyethyl acetate-----	UCC.
1,3-Butyleneglycol diacetate-----	SAR.
1,3-Diacryloxy-1,3-dimethylpropane-----	UCC.
Diethylene glycol bis(allyl carbonate), monomer-----	PD.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Polyhydric Alcohols and their Esters and Ethers--Continued</i>	
*Polyhydric alcohol esters--Continued	
Diethylene glycol chloroformate-----	PD, PPG.
2-Diisopropylaminoethyl methacrylate-----	DUP.
2,2-Dimethyl-3-hydroxylpropyl-2',2-dimethyl-3'-hydroxy propionate.	UCC.
2-(2-Ethoxyethoxy)ethyl acetate-----	EKT, UCC.
2-Ethoxyethyl acetate-----	UCC.
Ethylene glycol diacetate-----	EKT, UCC.
Ethylene glycol dimercaptoacetate-----	EVN.
Ethylene glycol dimethacrylate-----	SAR.
Ethylene glycol hydroxyacetate-----	CCA.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol trimethacrylate.	SAR.
Glyceryl diacetate (Diacetin)-----	ARC, HAL.
Glyceryl monoacetate (Monoacetin)-----	ARC, HAL.
Glyceryl monothioglycolate-----	EVN.
Glyceryl triacetate (Triacetin)-----	EKT, UCC.
Glycol adipate-----	X.
1,6-Hexanediol diacrylate-----	SAR.
Hexylene glycol diacetate-----	UCC.
Hydroxyethyl acrylate-----	DOW.
Hydroxypropyl acrylate-----	DOW.
Lanolin alcohol acetate-----	TCH.
2-Methoxyethyl acetate-----	UCC.
2-Methoxyethyl carbamate-----	VAL.
Neopentyl glycol diacrylate-----	SAR.
Pentaerythritol stearate-----	GLY.
Pentaerythritol tetraacrylate-----	SAR.
Pentaerythritol tetrakis(3-mercaptopropionate)-----	EVN.
Polyethylene glycol dimethacrylate-----	SAR.
Polymercaptopolyesters-----	CCW.
Sucrose octa-acetate-----	HFT, PD.
2-Sulfoethyl methacrylate-----	DOW.
Tetraethylene glycol diacrylate-----	AAE, SAR.
Tetraethylene glycol dimethacrylate-----	SAR.
Triethylene glycol diacetate-----	UCC.
Triethylene glycol diacrylate-----	AAE.
Triethylene glycol dimethacrylate-----	SAR.
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate-----	EKX.
Trimethylolpropane triacrylate-----	AAE, SAR.
Trimethylolpropane tri-(3-mercaptopropionate)-----	EVN.
Trimethylolpropane trimethacrylate-----	SAR.
All other-----	ALD, EK, EVN, PG, PLB, PVO, RH, SAR, SBC, SHC, TXT, UCC, USB.
*Polyhydric alcohol ethers:	
Allyloxy polyethylene glycol-----	UCC.
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl ether).	UCC.
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether).	UCC.
Bis(hydroxyethyl)ether butynediol-----	GAF.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether).	ASL.
Bis(2-methoxyethyl) ether (Diethylene glycol dimethyl ether).	ASL.
*2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	CEL, DOW, EKX, JCC, OMC, SHC, UCC.
*2-(2-Butoxyethoxy)ethanol (Diethylene glycol monoiso-butyl ether).	DOW, EKX, JCC, OMC, SHC, UCC.
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether).	DOW, OMC, UCC.
1-Butoxyethoxy-2-propanol-----	UCC.
Butoxypropanol-----	UCC.
N-Butoxypropanol polyalkylene glycol-----	UCC.
Diethoxytetraglycol-----	UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Polyhydric Alcohols and Their Esters and Ethers--Continued</i>	
*Polyhydric alcohol ethers--Continued	
*Diethylene glycol-----	
Diethylene glycol, borated-----	BAS, CEL, DIX, DOW, EKX, JCC, NWP, OMC, PPG, SHC, UCC.
Diethylene glycol monobutyl ether-----	GLY.
Dimethoxyethane (Ethylene glycol dimethyl ether)-----	OMC.
*Dipropylene glycol-----	ASL.
Di-tributyletherethylene glycol-----	DOW, JCC, OCC, OMC, UCC.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	EKX.
*2-[2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)]-----	CEL, DOW, EKX, JCC, OMC, SHC, UCC. DOW, EKX, JCC, OMC, SHC, UCC.
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether).-----	DOW, OMC, UCC.
Ethylene glycol monoisobutyl ether-----	EKX.
Glycerol tri(polyoxypropylene) ether-----	BAS, UCC.
2-(Hexyloxy)ethanol-----	UCC.
2-[2-(Hexyloxy)ethoxy]ethanol-----	UCC.
2-Isobutoxyethanol-----	UCC.
1-Isobutoxy-2-propanol (Propylene glycol isobutyl ether).-----	DOW.
*2-Methoxyethanol (Ethylene glycol monomethyl ether)-----	DOW, EKX, JCC, OMC, PPG, SHC, UCC.
*2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether).-----	DOW, EKX, JCC, OMC, PPG, SHC, UCC.
*2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether).-----	DOW, OMC, UCC.
2-(2-Methoxyethoxy)ethyl-2-methoxyethyl ether (Triethylene glycol dimethyl ether).-----	ASL.
Methoxypolyethylene glycol-----	
1-Methoxy-2-propanol-----	UCC.
3-(3-Methoxypropoxy)propanol-----	DOW, UCC.
3-[3-(3-Methoxypropoxy)propoxy]propanol-----	DOW.
Polyethoxyethylsorbitol-----	UCC.
Polyethoxypolypropoxy butanol-----	JCC.
Polypropoxypolypropoxy ether-----	DA, JCC.
*Polyethylene glycol-----	BAS, DA, DOW, DUP, GAF, HDG, JCC, OMC, TCH, UCC.
Polyoxypropylene polyoxyethylene glycol, mixed-----	JCC.
*Polypropylene glycol-----	BAS, DOW, JCC, HDG, NLC, OMC, UCC.
Polypropylene glycol monobutyl ether-----	UCC.
Polytetramethylene ether glycol-----	DUP, QKO.
Propoxypropanol-----	UCC.
*Tetraethylene glycol-----	DOW, EKX, OMC, UCC.
1,1,3,3-Tetramethoxypropane-----	KF.
2,2'-Thiodiethanol (Thiodiglycol)-----	UCC.
*Triethylene glycol-----	CEL, DIX, DOW, EKX, JCC, OMC, PPG, SHC, UCC.
Tripolypropylene glycol-----	DOW, HDG, UCC.
All other-----	ALD, CAU, DOW, EKX, GAF, GLY, ICI, JCC, NLC, SAR, x.
<i>Esters of Monohydric Alcohols</i>	
Allyl methacrylate-----	JCC, SAR.
Amyl acetates, 90%:	
Isopentyl acetate (Isoamyl acetate)-----	UCC.
n-Pentyl acetate-----	PFW, PUB.
Butyl acetates:	
Iso-----	EKX, ENJ, UCC.
Normal-----	CEL, CPS, EKT, PUB, SHC, UCC.
Secondary-----	EK, EKT, ENJ.
*Butyl acrylate-----	CEL, DBC, RH, UCC.
Butyl chloroacetate-----	MON.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Esters of Monohydric Alcohols</i> --Continued	
Butyl formate-----	CPS.
Butyl lactate-----	COM.
Butyl maleate, mono-----	TCH.
Butyl methacrylate-----	X.
tert-Butyl peroxyacetate-----	AZT, WTL.
*tert-Butyl peroxy-2-ethylhexanoate-----	AZT, WTC, WTL.
tert-Butyl peroxyisobutyrate-----	AZT, WTL.
tert-Butyl peroxyisopropylcarbonate-----	AZT, PPG, WTL.
tert-Butyl peroxyneodecanoate-----	WTL.
*tert-Butyl peroxypropionate-----	AZT, WTC, WTL.
tert-Butyl peroxy-3,5-trimethyl cyclohexane-----	WTL.
Cetyl lactate-----	VND.
Diallyl maleate-----	FMP.
Di(sec-butyl) chloroformate-----	WTL.
Diethyl fumarate-----	MON, RCI, USS.
*Dibutyl maleate-----	HN, MON, RCI, USS.
Di(sec-butyl) peroxydicarbonate-----	WTL.
Dicyclohexyl peroxydicarbonate-----	WTL.
Diethyl sec-butylethylmalonate-----	ABB.
Diethyl sec-butylmalonate-----	ABB.
Diethyl carbonate (Ethyl carbonate)-----	CTN, FMP.
Diethyl diethylmalonate (Diethyl malonic ester)-----	LIL.
Diethyl (ethoxymethylene)malonate-----	KF.
Diethyl ethyl(1-methylbutyl)malonate-----	ABB.
Di(2-ethylhexyl) chloroformate-----	WTL.
*Di(2-ethyl-1-hexyl) maleate-----	CHP, DAN, HRT, RUB.
Di(2-ethyl-1-hexyl) peroxydicarbonate-----	WTL.
Diethyl maleate-----	ACY.
Diethyl malonate (Malonic ester)-----	ABB, KF.
Diethyl (1-methylbutyl)malonate-----	ABB, LIL.
Diethyl oxalate (Ethyl oxalate)-----	CDY, FMP.
Diisobutyl maleate-----	RUB.
Diisodecyl maleate-----	RUB.
Diisononyl maleate-----	RUB.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)-----	PPG.
Dilauryl maleate-----	EFH.
*Dilauryl 3,3'-thiodipropionate-----	ACY, CCW, EVN.
Dimethyl carbonate-----	CTN.
2,5-Dimethylhexane-2,5-diperoctoate-----	WTC.
Dimethyl maleate-----	AAC.
Dimethyl malonate-----	KF.
Di-(4-methyl-2-pentyl)maleate-----	RUB.
Dimyristyl 3,3'-thiodipropionate-----	EVN.
*Diocetyl maleate-----	MON, RCI, USS.
Di-n-propyl peroxydicarbonate-----	WTL.
*Distearyl 3,3'-thiodipropionate-----	ACY, CCW, EVN.
Dithiobis(stearyl propionate)-----	EVN.
Ditridodecyl maleate-----	RUB.
Di(tridecyl) 3,3'-thiodipropionate-----	ACY, EVN.
*Ethyl acetate (85%)-----	CEL, EKT, EKX, ENJ, MON, PUB, UCC.
Ethyl acetoacetate-----	EKT.
*Ethyl acrylate-----	CEL, DBC, RH, UCC.
Ethyl-2-bromopropionate-----	BAX.
Ethyl chloroacetate-----	DOW.
Ethyl chloroformate-----	CTN, FMP, OTC.
Ethyl chlorothiolformate-----	SFA.
Ethylene carbonate-----	JCC.
2-Ethyl-1-hexyl acetate-----	EKT, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Esters of Monohydric Alcohols--Continued</i>	
*2-Ethyl-1-hexyl acrylate-----	CEL, DBC, UCC.
2-Ethyl-1-hexyl methacrylate-----	x.
Ethyl sulfate (Diethyl sulfate)-----	UCC.
Ethyl thioglycolate-----	EVN.
Fatty acid esters, not included with plasticizers or surface-active agents:	
Butyl nalmitate-----	AAE, CBY.
tert-Butylperoxy neodecanoate-----	WTC.
Butyl stearate-----	CHP.
Dimethyl brassylate-----	EMR.
2-Ethylhexyl oleate-----	CHP.
Ethylhexyl stearate-----	TCH.
Isononyl ester of lanolin-----	CRN.
Isopropyl linoleate-----	VND.
Lanolin acetate-----	CRN.
Methyl esters of coconut oil-----	PG.
Methyl esters of cottonseed oil-----	BFR.
Methyl esters of tallow-----	CHL, HUM, PG.
Methyl 12-hydroxystearate-----	HUM, NTL.
Methyl myristate-----	HUM, PG.
Myristyl myristate-----	VND.
Myristyl stearate-----	CHP.
Propyloleate-----	CPS, DA, EVN, HUM, LIL, MRV, ROB, TCH.
All other-----	AAE.
Glycidyl acrylate-----	AAE.
Glycidyl methacrylate-----	CPS.
Hexyl acetate-----	LIL.
Isoamyl ethylmalonate-----	CEL, CTN, UCC.
Isobutyl acrylate-----	OTC.
Isobutyl chloroformate-----	EXX.
Isobutyl isobutyrate-----	EVN.
Isodecyl thioglycolate-----	CCW, EVN.
Iso-octyl mercaptoacetate-----	EVN.
Iso-octyl-3-mercantonronionate-----	CEL, EKT, ENJ, UCC.
*Isopropyl acetate-----	CTN, PPG.
Isopropyl chloroformate-----	VND.
Isostearyl neonentanoate-----	VND.
Lauryl lactate-----	x.
Lauryl methacrylate-----	GAF.
Maleic esters and copolymers-----	RDA.
Methallylidene diacetate-----	EK, GRD, MON, UCC.
*Methyl acetate-----	EKT.
Methyl acetacetate-----	CEL, RH.
Methyl acrylate, monomer-----	SFS.
Methyl borate-----	DOW.
Methyl chloroacetate-----	CTN, FMP.
Methyl chloroformate-----	CEL, DUP.
Methyl formate-----	ACY, DUP, RH.
*Methyl methacrylate, monomer-----	SHC, UCC.
4-Methyl-2-pentyl acetate-----	DUP.
Methyl sulfate (Dimethyl sulfate)-----	UCC.
Methyl vinyl acetate-----	VND.
Myristyl lactate-----	
*Phosphorus acid esters:	
Bis(2-chloroethyl)-2-chloroethylphosphonate-----	x.
Bis(2-ethylhexyl) hydrogen phosphate-----	UCC.
Bis(2-ethylhexyl) hydrogen phosphite-----	SM.
Butyl hydrogen phosphates-----	SM.
Dibutyl butylphosphonate-----	SM.
Dibutyl hydrogen phosphite-----	SM.
Didodecyl hydrogen phosphonate-----	DUP.
Diethyl ethylphosphonate-----	SM.
Diethyl hydrogen phosphite-----	SM.
Diethyl phosphorochloridothionate-----	SFA.
Dimethyl hydrogen phosphite-----	SM.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Esters of Monohydric Alcohols</i> --Continued	
*Phosphorus acid esters--Continued	
Dimethyl methylphosphonate-----	SM.
Dimethyl phosphorochloridothionate-----	SFA.
Dioleyl hydrogen phosphite-----	SM.
2-Ethylhexyl hydrogen phosphate-----	SM.
Methyl dihydrogen phosphate-----	HK.
Iso-octyl hydrogen phosphate-----	SM.
Oleyl hydrogen phosphate-----	SM.
Trialkyl phosphites-----	MCB.
Tri(butoxyethyl)phosphate-----	HN.
Tributyl phosphate-----	FMP.
Tributyl phosphite-----	SM.
Triethyl phosphite-----	SFA, SFS, SM.
Triiso-octyl phosphite-----	SM.
Triisopropyl phosphite-----	SFA, SFS, SM.
Trimethyl phosphite-----	SM.
Tris(2-chloroethyl) phosphite-----	DOW, MCH.
Tris(2,3-dibromopropyl) phosphate-----	MCH, SM.
All other-----	DUP.
Polymethacrylic acid esters-----	CEL, EKT, UCC.
*Propyl acetate-----	JCC.
Propylene carbonate-----	x.
Stearyl methacrylate-----	UCC.
Tetraethyl silicate-----	WTL.
1,1,3,5-Tetramethyl butylhydroperoxide-----	MON.
Tetraoctyl orthosilicate-----	
Titanic acid esters:	
Tetrabutyl titanate-----	DUP.
Tetraisopropyl titanate-----	DUP.
Tetrakis(2-ethylhexyl) titanate-----	DUP.
Other-----	EK, KF.
Triethyl orthoacetate-----	KF.
Triethyl orthoformate-----	KF.
Triethyl orthopropionate-----	KF.
Triisodecyl orthoformate-----	KF.
Trimethyl orthoformate-----	BOR, CEL, DUP, NSC, UCC, USI.
*Vinyl acetate, monomer-----	ALD, CPS, CRN, CTN, DAN, DUP, EFH, EK, EKX, EMR, EVN,
All other-----	KF, RH, SAR, SBC, TCH, TNI, UCC, USS, VND, WTL.
<i>Halogenated Hydrocarbons</i>	
1-Bromobutane (n-Butyl bromide)-----	MCH.
2-Bromobutane (sec-Butyl bromide)-----	ABB.
Bromochloromethane-----	DOW.
1-Bromo-3-chloropropane (Trimethylenechlorobromide)-----	MCH.
2-Bromo-2-chloro-1,1,1-trifluoroethane-----	ICI.
Bromoethane (Ethyl bromide)-----	DOW, GTL, MCH.
1-Bromo-3-methyl-2-butene-----	SDW.
2-Bromopentane (1-Methylbutyl bromide)-----	ABB.
1-Bromopropane (n-Propyl bromide)-----	EK, SDW.
Bromotrichloromethane-----	MCH.
Bromotrifluoromethane-----	DUP.
*Carbon tetrachloride-----	ACS, DA, DOW, DUP, FMB, FRO, SFI.
Carbon tetrachloride crude-----	TNA.
*Chlorinated paraffins:	
Less than 35% chlorine-----	DA, HK.
*35%-64% chlorine-----	CCH, DA, DVC, HPC, ICI, NEV.
65% or more chlorine-----	DA, DVC, NEV.
2-Chloro-1,3-butadiene-----	DUP.
1-Chlorobutane (n-Butyl chloride)-----	PUB, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Halogenated Hydrocarbons--Continued</i>	
*Chloroethane (Ethyl chloride)-----	AME, DOW, DUP, HPC, PPG, SHC, TNA.
*Chloroform-----	ACS, ALD, DA, DOW, DUP, FRO, SFI.
2-Chloro-3-hexyne-----	LIL.
*Chloromethane (Methyl chloride)-----	ACS, CO, DCC, DOW, DUP, FRO, TNA, UCC.
1-Chloro-3-methyl-3-butene-----	RDA.
2-Chloro-2-methylpropane (tert-Butyl chloride)-----	EK.
3-Chloro-2-methylpropene (Methylallyl chloride)-----	FMP.
3-Chloropropene (Allyl chloride)-----	DOW, SHC.
*1,2-Dibromoethane (Ethylene dibromide)-----	DOW, GTL, MCH, PPG, TNA.
Dibromomethane (Methylene bromide)-----	DOW.
1,4-Dibromopentane-----	PD.
Dichlorobutadiene-----	DUP.
1,4-Dichlorobutene-----	DUP, PTT.
*1,2-Dichloroethane (Ethylene dichloride)-----	ACS, AME, BAS, BFG, CO, DA, DOW, FRO, PPG, SHC, TNA, UCC.
*Dichloromethane (Methylene chloride)-----	ACS, DA, DOW, DUP, FRO, SFI.
*1,2-Dichloropropane (Propylene dichloride)-----	BAS, DOW, JCC, OMC, UCC.
2,3-Dichloropropene-----	DOW.
Diiodomethane (Methylene iodide)-----	ALD, NTB, SDW.
*Fluorinated hydrocarbons:	
1-Chloro-1,1-difluoroethane-----	DUP, PAS.
*Chlorodifluoromethane-----	ACS, DUP, KAI, PAS, RCN, UCC.
Chlorodifluoromethane and chloropentafluoroethane, mixture.	UCC.
Chloropentafluoroethane-----	DUP.
Chlorotrifluoroethylene (Trifluorovinyl chloride)-----	ACS, MMM.
Chlorotrifluoromethane-----	DUP.
1,2-Dibromo-1,1,2,2-tetrafluoroethane-----	DUP.
*Dichlorodifluoromethane-----	ACS, DUP, KAI, PAS, RCN, UCC.
Dichlorodifluoromethane and 1,1-difluoroethane, mixture.	UCC.
Dichlorotetrafluoroethane-----	ACS, DUP, PAS, UCC.
1,1-Difluoroethane-----	ACS, DUP.
Difluorotetrachloroethane-----	DUP.
Fluorinated ethylene propylene-----	DUP.
Hexafluoro-2-propane-----	DUP.
Hexafluoropropylene, monomer-----	DUP, PAS.
1-Iodoperfluorohexane-----	DUP.
Octafluorocyclobutane-----	DUP.
Terfluoroalkyl iodides-----	TKL.
*Tetrafluoroethylene, monomer-----	ACS, DUP, ICI, TKL.
Tetrafluoromethane-----	DUP.
*Trichlorofluoromethane-----	ACS, DUP, KAI, PAS, RCN, UCC.
Trichlorotrifluoroethane-----	ACS, UCC, x.
Vinyl fluoride-----	DUP.
Vinylidene fluoride-----	DUP, PAS.
Iodoethane (Ethyl iodide), tech-----	FMT, RSA.
Iodomethane (Methyl iodide)-----	FMT, RSA.
n-Octyl bromide-----	MCH.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)-----	DOW.
*Tetrachloroethylene (Perchloroethylene)-----	DA, DOW, FRO, HK, PPG, SFI, TNA.
*1,1,1-Trichloroethane (Methyl chloroform)-----	DOW, FRO, PPG, TNA.
1,1,2-Trichloroethane (Vinyl trichloride)-----	DOW.
*Trichloroethylene-----	DA, DOW, HK, PPG, TNA.
1,2,3-Trichloropropane-----	DOW, SHC.
1,2,3-Trichloropropene-----	DOW.
Vinyl bromide (Bromoethylene)-----	DOW, TNA.
*Vinyl chloride, monomer (Chloroethylene)-----	ACS, AME, BFG, CO, DOW, GP, HN, MNO, PPG, SHC, TNA, USR.
Vinylidene chloride, monomer (1,1-Dichloroethylene)-----	DOW, FRO.
All other-----	ALD, EK, GAF, HMY, NTB, RSA.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>All Other Miscellaneous Acyclic Chemicals</i>	
Acetyl peroxide-----	WTL.
Aluminum isopropoxide (Aluminum isopropylate)-----	CHT, KCH.
*2-Butanone peroxide-----	AZT, CAD, NOC, RCI, WTC, WTL.
tert-Butyl hydroperoxide-----	AZT, CAD, OCC, WTC, WTL.
*tert-Butyl peroxide (Di-tert-butyl peroxide)-----	AZT, CAD, SHC, WTC, WTL.
Butyrolactone-----	GAF.
2-Butyrolactone-----	GAF.
Caprolactone-----	UCC.
*Carbon disulfide-----	ACS, FMB, PAS, PPG, SFI.
2-Chloroethanol (Ethylene chlorohydrin)-----	UCC.
Decanoyl peroxide-----	WTC, WTL.
Dextran-----	PHR.
Dialdehyde starch-----	MLS.
2,3-Dibromopropanol-----	GTL, MCH.
2,5-Dimethyl-2,5-bis(2-ethyl-1-hexanoylperoxy)hexane-----	WTL.
2,5-Dimethyl-2,5-bis(tert-butylperoxy)hexane-----	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3-----	WTL.
Ditertiary nonyl polysulfide-----	PAS.
<i>*Epoxides, ethers, and acetals:</i>	
Acetone dimethylacetal (2,2-Dimethoxypropane)-----	DOW.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)-----	ACC.
Allyloxymethoxytriglycerol-----	ARA.
Bis(2-chloroethoxy)methane (Dichloroethylformal)-----	TKL.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether).-----	DOW, JCC.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)-----	DOW.
Butylene oxide-----	DOW.
Butyl ether (Di-n-butyl ether)-----	PUB.
Butyl vinyl ether-----	GAF.
2-Chloroethyl vinyl ether-----	ACC.
Chloromethyl methyl ether-----	RH.
2,2-Dichloro-1,1-difluoroethyl methyl ether-----	DOW.
1,2,7,8-Diepoxyoctane-----	ALD.
Dimercaptodiethyl ether-----	EVN, USR.
Dimethyl chloroacetal-----	LIL, UCC.
Epiclorohydrin-----	DOW, SHC, x.
1,2-Epoxyhexadecane-----	UCC.
1,2-Epoxytetradecane / 1,2-Epoxyhexadecane, mixture-----	UCC.
*Ethylene oxide-----	BAS, CAU, CEL, DOW, EKX, JCC, NWP, OMC, PPG, SHC, SNO, UCC.
<i>Ethyl ether:</i>	
Absolute-----	MAL, USI.
*Tech-----	EKK, ENJ, HPC, USI.
U.S.P-----	MAL, OMS, USI.
Ethyl vinyl ether-----	GAF.
Glycidol (2,3-Epoxy-1-propanol)-----	DIX.
Isobutyl vinyl ether-----	GAF.
*Isopropyl ether-----	ENJ, SHC, UCC.
Methylal-----	CEL.
Methyl ether (Dimethyl ether)-----	DUP.
Methyl vinyl ether-----	GAF.
Octadecyl vinyl ether-----	GAF.
Polyacrylated linseed oil epoxide-----	UCC.
*Propylene oxide-----	BAS, DOW, JCC, OCC, OMC.
Triglycol dichloride-----	RH.
Other-----	ALD, EK, GAF, x.
Epoxy curing agents-----	SHC.
Ethanethiol-----	EK.
2-(Ethylmercapto)ethanol-----	PLC.
Ethylphosphorous thiodichloride-----	TNA.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>All Other Miscellaneous Acyclic Chemicals--Continued</i>	
Fats and oils, chemically modified-----	DOM, SDW.
Fatty acids, hydrogenated-----	GLY.
Fatty acids, non-hydrogenated-----	GLY.
Glucono-delta-lactone-----	PFZ.
Glutaraldehyde bis(sodium bisulfite)-----	EK, FMT.
n-Hexadecyl disulfide-----	PAS.
Hydrocarbons:	
n-Decane-----	HMY, PLC.
n-Dodecane-----	HMY, PLC.
1-Dodecene-----	HMY.
n-Eicosane-----	HMY.
Hexadecane-----	HMY.
n-Hexane-----	HMY.
Myrcene-----	IFF, GLD, NCI.
n-Nonane-----	HMY, PLC.
n-Octadecane-----	HMY.
n-Octane-----	HMY, PLC.
1(and 2)-Octene-----	HMY, PLC.
Terpine hydrocarbons-----	CBY.
Other-----	HMY, PLC.
Hydrogenated tallow glycerides-----	CHI, GLY.
Hydroxypropyl methacrylate-----	CPV.
2-Mercaptoethanol-----	TCH.
Methyl sulfide (Dimethyl sulfide)-----	CRZ.
Methyl sulfoxide-----	ALD, CRZ.
Organic-aluminum compounds:	
Diethylaluminum chloride-----	TNA, TSA.
Diethylaluminum ethoxide-----	TSA.
Diethylaluminum iodide-----	TSA.
Diisobutylaluminum chloride-----	TNA, TSA.
Ethylaluminum chlorides-----	TNA, TSA.
Ethylaluminum sesquichloride-----	TNA, TSA.
Isopropenylaluminum-----	TSA.
Methylaluminum sesquichloride-----	TNA.
Sodium aluminum chlorohydroxylactate complex-----	REH.
Sodium aluminum hydroxylactate complex-----	REH.
Triethylaluminum-----	TNA, TSA.
Triisobutylaluminum-----	TNA, TSA.
Organic-boron compounds:	
Boron fluoride - ethyl ether complex-----	ACS.
1,3-Butylene glycol diborate / hexylene glycol boric anhydride.	USB.
Hexylene glycol boric anhydride-----	USB.
Triethylborane-----	TSA.
Trimethyl borate-----	MHI.
Other-----	HSH.
Organic-lead compounds:	
Mixed lead alkyls-----	TNA.
*Tetraethyllead-----	DUP, PPG, TNA.
Tetramethyllead-----	DUP, NLC, PPG, TNA.
Tetra(methyl-ethyl)lead-----	DUP, PPG.
Organic-lithium compounds:	
n-Butyllithium-----	FTE.
sec-Butyllithium-----	FTE.
Organic-magnesium halides-----	ARA.
*Organic-silicon compounds:	
Aminopropyltriethoxysilane-----	UCC.
Chloropropyltrimethoxysilane-----	UCC.
α -Chloropropyltrichlorsilane-----	UCC.
Chlorotrimethylsilane-----	DCC, UCC.
Dichlorodimethylsilane-----	DCC, UCC.
Dichloromethylsilane-----	DCC, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED,
IDENTIFIED BY MANUFACTURER, 1974--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All Other Miscellaneous Acyclic Chemicals--Continued	
Organosilicon compounds--Continued	
Silicone greases-----	DCC, SPD, SWS.
Ethyl silicate-----	SFS.
Mercaptopropyltrimethoxysilane-----	UCC.
α -Methacryloxypropyltrimethoxy silane-----	UCC.
Methyltriethoxysilane-----	UCC.
Polyoxyalkylenes silicone-----	UCC.
*Silicone fluids-----	DCC, ORO, SPD, SWS, UCC.
Trichloromethylsilane-----	DCC.
Trichlorovinylsilane-----	UCC.
Vinyl(tris-2-methoxyethoxy)silane-----	UCC.
Other organo-silicon compounds-----	ALD, PLC, UCC.
Organotin compounds:	
Bis-mercaptolauric acid, dibutyltin salt-----	x.
Bis(tributyltin) oxide-----	CCW, x.
Dibutyltin bis (isoctyl maleate)-----	x.
Dibutyltin bis (isoctylthioglycolate)-----	CCW, x.
Dibutyltin bis (isopropylmaleate)-----	x.
Dibutyltin bis (laurylmaleate)-----	x.
Dibutyltin bis (mercaptopropionate polymer)-----	x.
Dibutyltin bis (stearylmaleate)-----	x.
Dibutyltin diacetate-----	CCW, x.
Dibutyltin dichloride-----	CCW, x.
Dibutyltin dilaurate-----	CCA, x.
Dibutyltin maleate-----	CCA, x.
Dibutyltin methoxide-----	CCA.
Dibutyltin oxide-----	CCA.
Dibutyltin sulfide-----	CCW.
Organo-tin mercaptide-----	PCW, x.
Tributyltin chloride-----	x.
Tributyltin fluoride-----	CCA, x.
Other-----	TSA.
Organozinc compounds-----	ALX.
Oxidized hydrocarbon mixtures-----	SFC.
Perchlorothiomethane (Perchloromethyl mercaptan)-----	ACS, CTN, DUP, MOB, OMC, OTC, PPG, RUC, UPJ, UCC.
*Phosgene (Carbonyl chloride)-----	CBY, GLD, NCI.
Pine oil, synthetic-----	UCC, x.
Propanone peroxide-----	CEL.
β -Propiolactone-----	PFN, RSA.
Rare sugars-----	FMP.
Sodium ethoxide-----	EK, WAY.
Sodium formaldehyde bisulfite-----	DA, RH.
Sodium formaldehyde sulfoxylate-----	WAY.
Sodium glutaraldehyde bis bisulfite-----	DA, HSH, OMC, RBC.
*Sodium methoxide (Sodium methylate)-----	x.
Sodium succinaldehyde bisulfite-----	WTL.
Succinyl peroxide-----	HK.
Tetrakis(hydroxymethyl)phosphonium chloride-----	ALD, ALX, BAX, CCW, CDY, CEL, DUP, EK, EKX, FER, FRS, GNM, HMY, HSH, ICI, KCH, LIL, MON, PD, PIC, PLC, RSA, SAR, SFS, SM, TNA, TSA, USO, WAY, x.
Other-----	

MISCELLANEOUS CHEMICALS

233

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1974

ALPHABETICAL DIRECTORY BY CODE

[Names of miscellaneous chemical manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 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 Chemical Corp.	CHN	Cherokee Nitrogen Co.
AAE	American Aniline & Extract Co., Inc.	CHP	C. H. Patrick & Co., Inc.
ABB	Abbott Laboratories	CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.
ABC	Balchem Corp.	CLK	Clark Chemical Corp.
ACN	Allied Chemical Corp.:	CLN	Standard Brands, Inc., Clinton Corp. Processing Co. Div.
	Union Texas Petroleum Div., Agricultural Dept.	CNC	Columbia Nitrogen Corp.
ACS	Specialty Chemicals Div.	CNP	Nipro Inc.
ACY	American Cyanamid Co.	CO	Continental Oil Co.
AGY	Agway, Inc., Olean Nitrogen Complex	COL	Collier Carbon & Chemical Corp.
AIP	Air Products & Chemicals, Inc.	COM	Commercial Solvents Corp.
AKL	Gardinier Big River, Inc.	CP	Colgate-Palmolive Co.
AKS	Arkansas Co., Inc.	CPS	Chemical & Pollution Sciences, Inc.
ALB	Ames Laboratories, Inc.	CPV	Cook Paint & Varnish Co., Inc.
ALC	Alco Chemical Corp.	CRN	CPC International, Inc.
ALD	Aldrich Chemical Co., Inc.	CRT	Crest Chemical Corp.
ALF	Allied Chemical Corp., Fibers Div.	CRZ	Crown Zellerbach Corp., Chemical Products Div.
ALL	Alliance Chemical, Inc.	CTN	Chemetron Corp., Chemical Products Div.
ALX	Alox Corp.	CWN	Upjohn Co., Fine Chemical Div.
AMB	American Bio-Synthetic Corp.	DA	Diamond Shamrock Corp.
AMF	Stauffer Chemical Co., Polymers West	DAN	Dan River, Inc.
APD	Atlas Powder Co., Subsidiary of Tyler Corp.	DBC	Dow Badische Co.
ARA	Arapahoe Chemicals, Inc. Sub/Syntex Corp. (U.S.A)	DCC	Dow Corning Corp.
ARC	Armak Co.	DFX	Dexter Chemical Corp.
ARM	USS Agri-Chemicals Div. of U. S. Steel Corp.	DIX	Dixie Chemical Co.
ARS	Arsyncro, Inc.	DLI	Dawe's Laboratories, Inc.
ARZ	Arizona Chemical Co.	DOL	Castle & Cooke, Inc., Castle & Cooke Foods, Hawaii Region
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	DOM	Dominion Products, Inc.
ASL	Ansol Chemical Co.	DOW	Dow Chemical Co.
ATR	Atlantic Richfield Co., ARCO Div.	DUP	E. I. DuPont de Nemours & Co., Inc.
AV	FMC Corp., Fiber Div.	DVC	Dover Chemical Corp.
AZT	Dart Industries, Inc., Catalyst Div.		
BAS	BASF Wyandotte Corp.	EFH	E. F. Houghton & Co.
BAX	Baxter Laboratories, Inc.	EK	Eastman Kodak Co.:
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	EKT	Tennessee Eastman Co. Div.
BFR	Pace National Corp.	EKK	Texas Eastman Co. Div.
BKC	J. T. Baker Chemical Co.	ELP	El Paso Products Co.
BKL	Millmaster Onyx Corp., Millmaster Chemical Co. Div., Berkeley Chemical Dept.	EMR	Emery Industries, Inc.
BOR	Borden Co., Borden Chemical Co. Div.	ENJ	Exxon Chemical Co. U.S.A.
BPC	Stauffer Chemical Co., Specialty Chemical Div., Benzol Products	ESA	East Shore Chemical Co., Inc.
BRD	Lonza, Inc.	FVN	Evans Chemetics, Inc.
BUK	Buckeye Cellulose Corp.		
CAD	Noury Chemical Corp.	PCA	C. F. Industries, Inc.
CAU	Calcasieu Chemical Corp.	POC	Handschy Chemical Co., Farac Oil & Chemical Div.
CBD	Chembond Corp.	FER	Ferro Corp.:
CBY	Crosby Chemicals, Inc.		Ferro Chemical Div.
CCA	Interstab Chemical, Inc.		Grant Chemical Div.
CCH	Pearsall Chemical Corp.	FIN	Fine Organics, Inc.
CCW	Cincinnati Milacron Chemicals, Inc.	FMB	FMC Corp.:
CDY	Chemical Dynamics Corp.	FMP	Industrial Chemical Div.
CEL	Celanese Corp.:	FMS	Industrial Chemical Div.
	Celanese Chemical Co.	FMT	First Mississippi Corp.
	Celanese Fibers Co.	FRF	Fairmount Chemical Co., Inc.
CFA	Cooperative Farm Chemicals Association	FRO	Firestone Tire & Rubber Co., Firestone Synthetic Fibers Co.
CGY	Ciba-Geigy Corp.	FTE	Vulcan Materials Co., Chemicals Div.
CHH	Charles Hansen's Laboratory, Inc.	FTX	Foote Mineral Co.
CHL	Chemol, Inc.		CF Industries, Inc., Fremont Nitrogen Complex

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1974--CONTINUED

Code	Name of company	Code	Name of company
GAF	GAF Corp., Chemical Div.	MNR	Monroe Chemical Co.
GAN	Gane's Chemical Works, Inc.	MOB	Mobay Chemical Co.
GCC	W. R. Grace & Co., Agricultural Chem. Group	MON	Monsanto Co.
GFS	G. Frederick Smith Chemical Co.	MOR	Marathon Morco, Co.
GIV	Givaudan Corp.	MRK	Merck & Co., Inc.
GLD	SCM Corp. Glidden-Durkee Div.	MRT	Morton Chemical Co., Div. of Morton-Norwich Products, Inc.
GLY	Glyco Chemicals, Inc.	MRV	Marlowe-Van Loan Corp.
GLX	Glasflex Corp.	MSC	Mississippi Chemical Corp.
GNM	General Mills Chemicals, Inc.	MTO	Montrose Chemical Corp. of California
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.	NCI	Union Camp Corp., Chemical Div.
GP	Georgia-Pacific Corp. and Rebecca Plant	NEP	Nepera Chemical Co.
GRD	W. R. Grace & Co., Polymers & Chemicals Div.	NFS	Nease Chemical Co., Inc.
GRH	W. R. Grace & Co., Hatco Chemical Div.	NEV	Neville Chemical Co.
GTL	Great Lakes Chemical Corp.	NLC	Nalco Chemical Co.
GYR	Goodyear Tire & Rubber Co.	NOC	Norac Co., Inc. and Mathe Chemical Co. Div.
HAL	C.P. Hall Co. of Illinois	NOR	Norwich Pharmacal Co.
HDG	Hodag Chemical Corp.	NPI	Stephan Chemical Co., Polychem Dept.
HEX	Hexagon Laboratories, Inc.	NSC	National Starch & Chemical Corp.
HFT	Syntex Agribusiness, Inc., Nutrition & Chemical Div.	NTB	National Biochemical Co.
HK	Hooker Chemicals & Plastic Corp.: Durez Div.	NTL	NL Industries, Inc.
HKD	Hawkeye Chemical Co.	NWP	Northern Petrochemicals Co.
HKY	W. R. Grace & Co., Dewey & Almy Chemical Div., Organic Chemical	OCC	Oxirane Chemical Co.
HMY	Humphrey Chemical Co.	OH	Airco, Inc., Ohio Medical Products Div.
HN	Tenneco Chemicals, Inc.	OMC	Olin Corp.
HPC	Hercules, Inc.	OMS	E. R. Squibb & Sons, Inc.
HRT	Hart Products Corp.	ONX	Millmaster Onyx Corp., Onyx Chemical Co.
HSH	Harshaw Chemical Co. Div. of Kewanee Oil Co.	OPC	Orbis Products Corp.
HST	American Hoechst Corp.	ORO	Chevron Chemical Co.
HUM	Kraftco Corp., Humko Products Chemical Div.	ORT	Roehr Chemicals, Inc.
ICI	ICI United States, Inc., Specialty Chemical Group	OTC	Story Chemical Corp.
IFF	International Flavors & Fragrances, Inc.	OXC	Oxochem Enterprises
IOC	Ionac Chemical Co. Div. of Sybron Corp.	PAR	Pennzoil Co., Pennco Div.
JCC	Jefferson Chemical Co., Inc.	PAS	Pennwalt Corp.
JNC	Nipak, Inc.	PCW	Pfister Chemical Works
JFR	George A. Jeffrey's & Co., Inc.	PD	Parke, Davis & Co.
JOR	Jordan Chemical Co.	PEN	CPC International, Inc., S. B. Penick Div.
KAI	Kaiser Aluminum & Chemical Corp., Kaiser Chemicals Div.	PFN	Pfanstiehl Laboratories, Inc.
KCC	Kennecott Copper Corp., Chino Mines Div.	PPW	Polak's Frutal Works, Inc.
KCH	Joseph Ayers, Inc.	PFZ	Pfizer, Inc.
KCU	Kennecott Copper Corp., Utah Copper Div.	PG	Procter & Gamble Co.
KF	Kay-Fries Chemicals, Inc.	PHR	Pharmachem Corp.
KON	H. Kohnstamm & Co., Inc.	PIC	Pierce Chemical, Inc.
KPT	Koppers Co., Inc., Organic Materials Div.	PLB	P-L Biochemicals, Inc.
LAK	Lakeway Chemical, Inc.	PLC	Phillips Petroleum Co.
LAM	LaMotte Chemical Products Co.	PLS	Plastics Engineering Co.
LEM	Napp Chemicals, Inc.	PMP	Premier Malt Products, Inc.
LIL	Eli Lilly & Co., Inc.	PNA	Pan American Chemical Corp.
LUB	Lubrizol Corp.	PPC	Premier Petrochemical Co.
MAL	Mallinckrodt Chemical Works	PPG	Pittsburgh Plate Glass Co.
MCB	Borg-Warner Corp., Borg-Warner Chemicals Div.	PRD	Productol Chemical Co., Inc.
MCH	Michigan Chemical Corp.	PTT	Petro-Tex Chemical
MCI	Mooney Chemicals, Inc.	PUB	Publicker Industries, Inc.
MHI	Ventron Corp.	PVO	PVO International, Inc.
MLS	Miles Laboratories, Inc., Marschall Div. & Summer Div.	QCP	Quaker Chemical Corp.
MMM	Minnesota Mining & Manufacturing Co.	QKO	Quaker Oats Co.
MNO	Monochem, Inc.	RBC	Fike Chemicals, Inc.
		RCI	Peichhold Chemicals, Inc.
		RCN	Racon, Inc.
		RDA	Rhodia, Inc.
		REH	Reheis Chemical Co. Div. of Armour Pharmaceutical Co.
		REM	Remington Arms Co., Inc.
		RH	Rohm & Haas Co.
		ROB	Robeco Chemicals, Inc.

MISCELLANEOUS CHEMICALS

235

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1974--CONTINUED

Code	Name of company	Code	Name of company
RPC	Millmaster Onyx Corp., Refined-Onyx Div.	TCC	Tanatex Chemical Corp.
RSA	R.S.A. Corp.	TCH	Emery Industries Inc., Trylon Chemicals Div.
RUB	Hooker Chemical Corp., Ruco Div.	TER	Terra Chemicals International, Inc.
RUC	Rubicon Chemicals, Inc.	TID	Getty Oil Co. (Eastern Operations, Inc.)
S	Sandoz, Inc.	TKL	Thiokol Chemical Corp.
SAR	Sartomer Industries, Inc.	TNA	Ethyl Corp.
SBC	Scher Bros.	TNI	The Gillette Co., Chemical Div.
SCP	Henkel, Inc.	TRI	Triad Chemicals
SDC	Martin-Marietta Corp., Sodeyco Div.	TRO	Troy Chemical Corp.
SDH	Sterling Drug, Inc.:	TSA	Texas Alkyls, Inc.
SDW	Hilton-Davis Chemical Co. Div.	TX	Texaco, Inc.
	Winthrop Laboratories Div.	TXT	Textilana Corp.
	Stauffer Chemical Co.:	TZC	Magnesium Elektron, Inc.
SFA	Agricultural Div.	UCC	Union Carbide Corp.
SFC	Calhio Chemicals, Inc. Div.	UOP	Universal Oil Products Co., UOP Chemical Div.
SFI	Industrial Div.	UPJ	Upjohn Co.
SFS	Specialty Chemical Div.	UPM	Universal Oil Products Co.
SHA	Shanco Plastics & Chemicals, Inc.	USB	U.S. Borax Research Corp.
SHC	Shell Oil Co., Shell Chemical Co. Div.	USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.
SHF	Kraftco Corp., Humko Sheffield Div.	USO	U.S. Oil Company
SHP	Shepherd Chemical Co.	USR	Uniroyal, Inc., Chemical Div.
SK	Smith, Kline & French Laboratories	USS	USS Chemicals Div. of U.S. Steel Corp.
SKG	Sunkist Growers, Inc.	VAL	Valchem
SKO	Skelly Oil Co.	VEL	Velsicol Chemical Corp., Inc.
SM	Mobil Oil Corp., Mobil Chemical Co., Chemical Coatings Div.	VGC	Virginia Chemicals, Inc.
SNI	Kaiser Aluminum & Chemical Corp., Kaiser Agricultural Chemicals Div.	VLN	Valley Nitrogen Producers, Inc.
SNO	SunOlin Chemical Co.	VND	Van Dyk & Co., Inc.
SNW	Sun Chemical Corp., Chemical Div.	WAG	West Agro Chemical, Inc.
SOC	Standard Oil Co. of California, Chevron Chemical Co.	WAY	Phillip A. Hunt Chemical Corp., Wayland Chemical Div.
SOH	Vistron Corp.	WBC	Worthington Biochemical Corp.
SPD	General Electric Co., Silicone Products Dept.	WBG	White & Bagley Co.
STC	Sou-Tex Chemical Co., Inc.	WLC	Agricco Chemical Co.
STP	Stepan Chemical Co.	WM	Inolex Corp.
SW	Sherwin-Williams Co.	WMP	Essex International, Inc.
SWS	Stauffer Chemical Co., SWS Silicones Div.	WTC	Witco Chemical Co., Inc.
SYP	Dart Industries, Inc., Synthetic Products Co. Div.	WTH	Union Camp Corp., Harchem Div.
TAE	Chemetron Corp., Medical Products Div.	WTL	Pennwalt Corp., Lucidal Div.
		WYC	Wycon Chemical Co.
		ZGL	Carolina Processing Corp.

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



APPENDIX



DIRECTORY OF MANUFACTURERS

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1974

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. International Trade Commission for 1974 are listed below alphabetically, together with their identification codes as used in table 2 of the 14 individual sections of this report]

Identifi- cation code	Name of company	Office address
AEP	A & E Plastic Pak Co., Inc-----	14505 E. Proctor Ave., Industry, CA 91749.
AZS	AZS Corp.: AZ Products Co. Div----- Lancaster Chemical Co. Div-----	2525 So. Combee Rd., Eaton Park, FL 33840. 762 Marietta Blvd., Atlanta, GA 30313
ABB	Abbott Laboratories-----	14th St. and Sheridan Rd., N. Chicago, IL 60064.
ABS	Abex Corp., Friction Products Group-----	2401 S. Loudoun St., Winchester, VA 22601.
WLC	Agrico Chemical Co-----	P. O. Box 3166, Tulsa, OK 74101.
AGY	Agway, Inc., Olean Nitrogen Div-----	1446 Buffalo St., Olean, NY 14760.
OH	Airco, Inc., Ohio Medical Products Div-----	3030 Airco Dr., Madison, WI 53701.
AIP	Air Products & Chemicals, Inc., Chemicals Group.	636 E. Swedesford Rd, #5 Executive Mall, Wayne, PA 19087.
ALC	Alco Chemical Corp.-----	Trenton Ave. and William St., Philadelphia, PA 19134.
AAC	Alcolac, Inc-----	3440 Fairfield Rd., Baltimore, MD 21226.
ALD	Aldrich Chemical Co., Inc-----	940 W. St. Paul Ave., Milwaukee, WI 53233.
ALL	Alliance Chemical Co., Inc-----	33 Avenue P, Newark, NJ 07105.
ASC	Allied Chemical Corp.-----	Columbian Rd., Morristown, NJ 07960.
ALF	Fibers Div-----	1 Times Square, New York, NY 10036.
ACS	Specialty Chemicals Div-----	P. O. Box 1087-R and P. O. Box 1219-R, Morristown, NJ 07960.
ACU	Union Texas Petroleum Div-----	P. O. Box 2120, Houston, TX 77001.
ACN	Agricultural Dept-----	P. O. Box 2120, Houston, TX 77001.
ALX	Alox Corp-----	3943 Buffalo Ave., Niagara Falls, NY 14303.
ALP	Alpha Laboratories, Inc-----	1685 S. Fairfax St., Denver, CO 80222.
AMC	Amchem Products, Inc. Div. of Rorer- Amchem, Inc.	Brookside Ave., and Spring Garden St., Ambler, PA 19002.
AES	Amerace Corp., Penetone Div-----	750 Hudson Ave., Tenafly, NJ 07670.
AAE	American Aniline & Extract Co., Inc-----	Venango and F Sts., Philadelphia, PA 19134.
AMB	American Bio-Synthetics Corp-----	710 W. National Ave., Milwaukee, WI 53204.
MAR	American Can Co-----	American Lane, Greenwich, CT 06830.
AC	American Color & Chemical Corp-----	P. O. Box 51, 1729 N. 11th St., Reading, PA 19604.
ACY	American Cyanamid Co-----	Wayne, NJ 07470.
HST	American Hoechst Corp-----	129 Quidnick St., Coventry, RI 02816.
AMO	American Oil Co. (Texas)-----	200 Randolph Dr., Chicago, IL 60680.
APF	American Petrofina Co. of Texas-----	P. O. Box 849, Port Arthur, TX 77604.
ASY	American Synthetic Rubber Corp-----	P. O. Box 360, 4500 Camp Ground Rd., Louisville, KY 40201.
ALB	Ames Laboratories, Inc-----	200 Rock Lane, Milford, CT 06460.
ACC	Amoco Chemical Corp-----	200 E. Randolph Dr., Chicago, IL 60601.
SOI	Amoco Oil Co. (Maryland)-----	200 E. Randolph Dr., Chicago, IL 60680.
PAN	Amoco Production Co-----	P. O. Box 591, Tulsa, OK 74102.
ASL	Ansul Chemical 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 Corp. (U.S.A.).	2855 Walnut St., Boulder, CO 80302.
KPP	ARCO/Polymer, 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-----	Wayne, NJ 07470.
AKS	Arkansas Co., Inc-----	185 Foundry St., Newark, NJ 07101.
ARC	Armax Co-----	300 S. Wacker Dr., Chicago, IL 60606.
AGP	Armour-Dial, Inc-----	2000 Oucutt Rd., Montgomery, IL 60538.
ARP	Armour Pharmaceutical Co-----	111 W Clarendon Ave., Greyhound Tower, Phoenix, AZ 85077.
ARK	Armstrong Cork Co-----	Liberty and Charlotte 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.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
ASH	Ashland Oil, Inc----- Ashland Chemical Co. Div-----	1401 Winchester Ave., Ashland, KY 41101 and P. O. Box 2458, Columbus, OH 43316.
BLA	Astor Products, Inc., Blue Arrow Div-----	5200 Blazer Pkwy., Dublin, OH 43017.
AST	Astra Pharmaceutical Products, Inc-----	5244 Edgewood CT., Jacksonville, FL 32205.
ATL	Atlantic Chemical Corp-----	Neponset St., Worcester, MA 01606.
ATR	Atlantic Richfield Co-----	10 Kingsland Rd., Nutley, NJ 07110.
APD	Atlas Powder Co. Sub. of Tyler Corp-----	515 S. Flower St., Los Angeles, CA 90071.
APR	Atlas Processing Co-----	P. O. Box 87, Joplin, MO 64801.
KCH	Joseph Ayers, Inc-----	P. O. Box 9389, 3546 Midway St., Shreveport, LA 71109. Route #2, Bethlehem, PA 18017.
BAS	BASF Wyandotte Corp-----	100 Cherry Hill Rd., Parsippany, NJ 07054.
BRP	BP Oil, Inc-----	270 Midland Bldg., Cleveland, OH 44115.
BKC	J. T. Baker Chemical Co-----	222 Red School Lane, Phillipsburg NJ 08865.
ABC	Balchem Corp-----	Intersections 6 and 284, Slate Hill, NY 10973.
BAL	Baltimore Paint & Chemical Corp-----	2325 Hollins Ferry Rd., Baltimore, MD 21230.
BAX	Baxter Laboratories, Inc-----	6301 Lincoln Ave., Morton Grove, IL 60053.
BAO	Bayoil Co., Inc-----	2 Union St., Peabody, MA 01960.
BEE	Beecham, Inc-----	65 Industrial S., Clifton, NJ 07012.
BCM	Belding Chemical Industries-----	1430 Broadway, New York, NY 10018.
BLP	Belpoint Co., Inc-----	553 Dawson Dr., Camarillo, CA 93010.
BME	Bendix Corp., Friction Materials Div-----	P. O. Box 238, Troy, NY 12180.
BEN	Bennett's-----	2131 S. 30th St., Salt Lake City, UT 84115.
BDO	Benzoid Organics, Inc-----	P. O. Box 157, Bellingham, MA 02019.
PDC	Berncolors-Poughkeepsie, Inc-----	75 N. Water St., Poughkeepsie, NY 12602.
BOC	Biocraft Laboratories, Inc-----	12 Industrial Way, Waldwick NJ 07463.
BOR	Borden, Inc. Borden Chemical Div----- Printing Ink Div-----	180 E. Broad St., Columbus, OH 43215. 630 Glendale-Milford Rd., Cincinnati, OH 45215. P. O. Box 1868, Parkersburg, WV 26101, and 103 Spring Valley Rd., Montvale, NJ 07645. 18th and Kansas Avenue, Kansas City, KS 66105. P. O. Box 657, E. Syracuse, NY 13057.
MCB	Borg-Warner Corp., Borg-Warner Chemicals---	52d St. and Grays Ave., Philadelphia, PA 19143. 2899 Jackson Ave., Memphis, TN 38108. 1256 N. McLean Blvd., Memphis, TN 38108. 1953 S. Harvey St., Muskegon, MI 49442. 3030 Cornwallis Rd., Research Triangle Park, NC 27709.
BFP	Breddo Food Products Corp-----	P. O. Box 87, Harrison, TN 37341.
BRS	Bristol-Meyers Co., Bristol Laboratories Div.	P. O. Box 68, RFD #3, Fremont, NB 68025. International Plaza, Englewood Cliffs, NJ 07632. 1401 Circle Avenue, Forest Park, IL 60130. 1050 Wall St., W., Lyndhurst, NJ 07071. One Union St., Boston, MA 02108.
BRU	M. A. Bruder & Sons, Inc-----	P. O. Box 1522, Lake Charles, LA 70601.
BUK	Buckeye Cellulose Corp-----	P. O. Box 477, Niagara Falls, NY 14302.
BKM	Buckman Laboratories, Inc-----	Cargill Bldg., Minneapolis, MN 55402.
BJL	Burdick & Jackson Laboratories, Inc-----	P. O. Box 161, Severn, NC 27877. 1500 8th St., LaSalle, IL 61301.
BUR	Burroughs Wellcome Co-----	650 Iwilei Rd., Honolulu, HI 96817.
FCA	CF Industries, Inc-----	1211 Avenue of Americas, New York, NY 10036.
FTX	Fremont Nitrogen Complex-----	P. O. Box 1863, Louisville, KY 40201.
CRN	CPC International, Inc-----	P. O. Box 1414, Charlotte, NC 28232.
ACR	Acme Resin Co. Div-----	550 Broad St., Newark, NJ 07102.
PEN	S. B. Penick Co-----	Route 22 & Harding Terrace, Hillside, NJ 07205.
CBT	Samuel Cabot, Inc-----	P. O. Box 9176, Corpus Christi, TX 78408.
CAU	Calcasieu Chemical Corp-----	
CBM	Carborundum Co-----	
CGL	Cargill, Inc-----	
ZGL	Carolina Processing Corp-----	
CRS	Carus Corp., Carus Chemical Co. Div-----	
DOL	Castle & Cooke, Inc., Castle & Cooke Foods, Hawaii Region.	
CEL	Celanese Corp.: Celanese Chemical Co----- Celanese Coatings & Specialties Co. and Wica Plant	
	Celanese Fibers Co-----	
	Celanese Plastics Co-----	
CPR	Certified Processing Corp-----	
GRS	Champlin Petroleum Co-----	

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
CPP	Charmin Paper Products Co-----	6000 Center Hill Rd., Cincinnati, OH 45224.
SOG	Charter International Oil Co-----	P. O. Box 5008, Houston, TX 77012.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.	1715 W. 38th St., Chattanooga, TN 37409.
CBD	Chembond Corp-----	P. O. Box 270, Springfield, OR 97477.
	Chemed Corp.:-----	
GRC	Dubois Chemicals Div-----	Dubois Tower, Cincinnati, OH 45202.
GRL	Vestal Laboratories Div-----	4963 Manchester Ave., St. Louis, MO 63110.
CTN	Chemetron Corp.:-----	
TAE	Chemical Products Div-----	P. O. Box 63 White Pine, TN 37890.
HSC	Medical Products Div-----	1801 Lilly St., St. Louis, MO 63110.
CI	Pigments Div-----	491 Columbia Ave., Holland, MI 49423.
CDY	Chem-Fleur, Inc-----	200 Pulaski St., Newark, NJ 07105.
CHF	Chemical Dynamics Corp-----	P. O. Box 395, 3001 Hadley Rd., S. Plainfield, NJ 07080.
CPS	Chemical Formulators, Inc-----	P. O. Box 26, Nitro, WV 25143.
CKL	Chemical & Pollution Sciences, Inc-----	P. O. Box 162, Old Bridge, NJ 08857.
CHL	Chemlek Laboratories, Inc-----	4040 W. 123d St., Alsip, IL 60658.
CPX	Chemol, Inc-----	P. O. Box 20687, Greensboro, NC 27420.
CHN	Chemplex Co-----	3100 Golf Rd., Rolling Meadows, IL 60008.
ORO	Cherokee Nitrogen Co-----	P. O. Box 429, Pryor, OK 74361.
CPC	Chevron Chemical Co-----	200 Bush St., San Francisco, CA 94120.
CHC	Childs Pulp Colors, Inc-----	5 Albany St., Springfield, MA 01101.
	Choate Chemical Co., Div. of E.R. Carpenter.	P. O. Box 27205, Richmond, VA 23261.
CHH	CHR. Hansen's Laboratory, Inc-----	9015 W. Maple St., West Allis, WI 53214.
CGY	Ciba-Geigy Corp-----	556 Morris Ave., Summit, NJ 07901 and 444 Saw Mill River Rd., Ardsley, NY 10502.
CCW	Agricultural Div-----	P. O. Box 11422, Greensboro, NC 27409.
CIN	Cincinnati Milacron Chemicals, Inc-----	West St., Reading, OH 45215.
	Cindet Chemicals, Inc-----	2408 Doyle St., Greensboro, NC 27406.
CBN	Cities Service Co.:-----	
TEN	Columbian Div. and Plastics Div-----	G. P. O. Box 300, Tulsa, OK 74102.
CSO	Copperhill Operations-----	Copperhill, TN 37317.
CBN	Cities Service Oil Co-----	P. O. Box 300, Tulsa, OK 74102.
CLK	Petrochem Operations-----	P. O. Box 1522, Lake Charles, LA 70601.
CLY	Clark Chemical Corp-----	131st St. & Kedzie Ave., Blue Island, IL 60406.
CLI	W. A. Cleary Corp-----	P. O. Box 10, Somerset, NJ 08873.
CSP	Clintwood Chemical Co-----	4342 S. Wolcott Ave., Chicago, IL 60609.
CP	Coastal States Petrochemical Co-----	P. O. Drawer 521, Corpus Christi, TX 78403.
COL	Colgate-Palmolive Co-----	300 Park Ave., New York, NY 10022.
CLD	Collier Carbon & Chemical Corp-----	P. O. Box 60455, Los Angeles, CA 90017.
CNC	Colloids, Inc-----	394 Frelinghuysen Ave., Newark, NJ 07114.
CMP	Columbia Nitrogen Corp-----	P. O. Box 1483, Augusta, GA 30903.
COM	Commercial Products Co., Inc-----	117 Ethel Ave., Hawthorne, NJ 07506.
COR	Commercial Solvents Corp-----	245 Park Ave., New York, NY 10017.
CPI	Commonwealth Oil Refining Co., Inc-----	Petrochemical Complex, Ponce, PR 00731.
CNI	Commonwealth Petrochemicals, Inc-----	Petrochemical Complex, Ponce, PR 00731.
	Conap, Inc-----	1405 Buffalo St., Olean, NY 14760.
SED	Conchemco, Inc:-----	
CNE	Colony Paint Div-----	18th & Garfield Sts., Kansas City, MO 64127.
CON	Conchemco Coatings-----	P. O. Box 778, Baltimore, MD 21230.
CWP	Concord Chemical Co., Inc-----	17th & Federal Sts., Camden, NJ 08105.
CTL	Consolidated Papers, Inc-----	231 1st Ave N., Wisconsin Rapids, WI 54494.
CO	Continental Chemical Co-----	270 Clifton Blvd., Clifton, NJ 07015.
CPV	Continental Oil Co-----	Park Eighty Plaza East, Saddle Brook, NJ 07662.
CFA	Cook Paint & Varnish Co-----	P. O. Box 389, Kansas City, MO 64141.
COO	Cooperative Farm Chemicals Association-----	P. O. Box 308, Lawrence, KS 66044.
COP	Cooper Polymers, Inc-----	820 Woburn St., Wilmington, MA 01887.
	Coopers Creek Chemical Corp-----	River Rd., W. Conshohocken, PA 19428.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
CPY	Copolymer Rubber & Chemical Corp-----	P. O. Box 2591, Baton Rouge, LA 70821.
SWC	Corco Cyclohexane, Inc-----	Petrochemicals Complex, Ponce, PR 00731.
CSD	Cosden Oil & Chemical Co-----	P. O. Box 1311, Big Spring, TX 79720.
CRT	Crest Chemical Corp-----	225 Emmet St., Newark, NJ 07114.
CRD	Croda, Inc-----	51 Madison Ave., New York, NY 10010.
ALT	Crompton & Knowles Corp., Dyes & Chemical Div.	500 Pear St., Reading, PA 19603.
CBY	Crosby Chemicals, Inc-----	P. O. Box 460, Picayune, MS 39466.
CCP	Crown Central Petroleum Corp-----	1 N. Charles St., Baltimore, MD 21201.
MRA	Crown Metro, Inc-----	P. O. Box 5695, Greenville, SC 29606.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	Camas, WA 98607.
CTR	Customs Resins, Inc-----	P. O. Box 933, Henderson KY 42420.
DAN	Dan River, Inc-----	P. O. Box 261, Danville, VA 24541.
	Dart Industries, Inc.:-----	
AZT	Catalyst Div-----	555 Garden St., Elyria, OH 44035.
RCC	Rexene Polymers Co. Div-----	W. 115 Century Rd., Paramus, NJ 07652.
SYP	Synthetic Products Co. Div-----	1636 Wayside Rd., Cleveland, OH 44112.
DYS	Davies-Young Co-----	2700 Wagner Place, Maryland Heights, MO 63043.
DLI	Dave's Laboratories, Inc-----	450 State St., Chicago Heights, IL 60411.
DGO	Day-Glo Color Corp-----	4732 St. Clair Ave., Cleveland, OH 44103.
SYL	Deering Milliken, Inc., Milliken Chemical Div.	P. O. Box 817, Inman, SC 29349.
DEG	Degen Oil & Chemical Co-----	200 Kellogg St., Jersey City, NJ 07305.
DNS	Dennis Chemical Co-----	2701 Papin St., St. Louis, MO 63103.
DEP	DePaul Chemical Co., Inc-----	44-27 Purvis St., Long Island City, NY 11101.
DSO	DeSoto, Inc-----	1700 S. Mt. Prospect Ave., Des Plaines, IL 60018.
DEX	Dexter Chemical Corp-----	845 Edgewater Rd., Bronx, NY 10474.
HYC	Hysol Div-----	211 Franklin St., Olean, NY 14760.
MID	Midland Div-----	P. O. Box 1020, Waukegan, IL 60085.
DA	Diamond Shamrock Corp-----	1100 Superior Ave., Cleveland, OH 44114.
PLN	Disogrin Industries Corp-----	Perimeter Rd.-Grenier Field, Manchester, NH 03130.
DIX	Dixie Chemical Co-----	3635 W. Dallas Ave., Houston, TX 77019.
DPP	Dixie Pine Products Co., Inc-----	P. O. Box 470, Hattiesburg, MS 39401.
DOM	Dominion Products, Inc-----	882 3d Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Co-----	W. 15th and Davis Sts., Dover, OH 44622.
DBC	Dow Badische Chemical Co-----	602 Copper Rd., Freeport, TX 77541.
DOW	Dow Chemical Co-----	2020 Dow Center, Midland, MI 48640.
DCC	Dow Corning Corp-----	P. O. Box 1592, Midland, MI 48640.
DUP	E. I. duPont de Nemours & Co., Inc-----	DuPont Bldg., Wilmington, DE 19898.
DSC	Dye Specialties, Inc-----	26 Journal Sq., Jersey City, NJ 07306.
EPI	Eagle Pitcher Industries, Inc., Ohio Rubber Co. Div.	P. O. 1398 Denton, TX 76201.
EGR	Eagle River Chemical Corp-----	P. O. Box 2648, W. Helena, AR 72390.
ECC	Eastern Color & Chemical Co-----	35 Livingston St., Providence, RI 02904.
EK	Eastman Kodak Co-----	343 State St., Rochester, NY 14650.
EKT	Tennessee Eastman Co. Div-----	P. O. Box 511, Kingsport, TN 37662.
EKX	Texas Eastman Co. Div-----	P. O. Box 7444, Longview, TX 75601.
ESA	East Shore Chemical Co., Inc-----	1221 E. Barney Ave., Muskegon, MI 49443.
ECL	Eastside Chemical Laboratory-----	12880 NE Bellevue-Redmond Rd., Bellevue, WA 98005.
ELN	Elan Chemical Co-----	268 Doremus Ave., Newark, NJ 07105.
ELP	El Paso Products Co-----	P. O. Box 3986, Odessa, TX 79760.
EMR	Emery Industries, Inc-----	1300 Carew Tower, Cincinnati, OH 45202.
TCH	Trylon Chemicals Div-----	P. O. Box 628, Mauldin, SC 29662.
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.
EPC	Epoxylite Corp-----	1901 Via Burton, Anaheim, CA 92806.
ESS	Essential Chemicals Group-----	28391 Essential Rd., Merton, WI 53056.
WMP	Essex International, Inc-----	1601 Wall St., Fort Wayne, IN 46804.
TNA	Ethyl Corp-----	330 S. 4th St., Richmond, VA 23231.
EVN	Evans Chemetics, Inc-----	90 Tokeneke Rd., Darien, CT 06820.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
ENJ	Exxon Chemical Co. U.S.A.-----	P. O. Box 3272, Houston, TX .77001.
FMC	FMC Corp.: Agricultural Chemical Div-----	100 Niagara St., Middleport, NY 14105.
AV	Fiber Div-----	1617 John F. Kennedy Blvd., Philadelphia, PA 19103.
FMB	Industrial Chemical Div-----	2000 Market St., Philadelphia, PA 19103 and Sawyer Ave. & River Rd., Town of Tonawanda, NY 14150.
FMP	Industrial Chemical Div-----	2000 Market St., Philadelphia, PA 19103.
FRP	FRP Co-----	P. O. Box 349, Baxley, GA 31513.
FAB	Fabricolor Manufacturing Corp-----	24-1/2 Van Houten St., P. O. Box 2398, Paterson. NJ 07509.
FMT	Fairmount Chemical Co., Inc-----	117 Blanchard St., Newark, NJ 07105.
KNG	Far-Best Corp., O. L. King Div-----	640 Gilman St., Berkeley, CA 94710.
FEL	Felton International, Inc-----	599 Johnson Ave., Brooklyn, NY 11237.
FER	Ferro Chemical Corp.: Ferro Chemical Div-----	P. O. Box 46349, 7050 Krick Rd., Bedford, OH 44146.
	Grant Chemical Div-----	P. O. Box 263, Baton Rouge, LA 70821.
	Ottawa Chemical Div-----	700 N. Wheeling St., Toledo, OH 43605.
RBC	Fike Chemicals, Inc-----	P. O. Box 546, Nitro, WV 25143.
FIN	Fine Organics, Inc-----	205 Main St., Lodi, NJ 07644.
FIR	Firestone Tire & Rubber Co.: Firestone Plastics Co. Div-----	P. O. Box 699, Pottstown, PA 19464.
FRF	Firestone Synthetic Fibers Co-----	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.
FMS	First Mississippi Corp-----	656 N. State St., P. O. Box 1249, Jackson, MS 39205.
FLM	Fleming Laboratories, Inc-----	P. O. Box 10372, Charlotte, NC 28201.
FLO	Florasynth Inc-----	900 Van Nest Ave., Bronx, NY 10462.
FTE	Foote Mineral Co-----	Route 100, Exton, PA 19341.
FOM	Formica Corp-----	120 E. 4th St., Cincinnati, OH 45202.
FG	Foster Grant Co., Inc-----	289 N. Main St., Leominster, MA 01453.
FRE	Freeman Chemical Corp-----	222 E. Main St., Port Washington, WI 53074.
FB	Fritzsche Dodge & Olcott, Inc-----	76 9th Ave., New York, NY 10011.
FLH	H. B. Fuller Co-----	2400 Kasota Ave., St. Paul, MN 55108.
FLW	Fuller-O'Brien Corp-----	450 E. Grand Ave., S. San Francisco, CA 94080.
GAF	GAF Corp: Chemical Div-----	P. O. Box 6037, Chattanooga, TN 37401.
GAN	Gane's Chemical Works, Inc-----	P. O. Box 12, Linden, NJ 07036.
AKL	Gardinier Big River, Inc-----	535 5th Ave., New York, NY 10017.
GE	General Electric Co-----	P. O. Box 825, Helena, AK 72342.
GEI	Insulating Materials Dept-----	1 Plastics Ave., Pittsfield, MA 01201 and So. Second St., Coshocton, OH 43812.
SPD	Silicone Products Dept-----	1 Campbell Rd., Schenectady, NY 12306.
GNF	General Foods Corp., Maxwell House Div-----	Mechanicville Rd., Waterford, NY 12188.
GLC	General Latex & Chemical Corp-----	1125 Hudson St., Hoboken, NJ 07030.
GNM	General Mills Chemicals, Inc-----	666 Main St., Cambridge, MA 02139.
GPM	General Plastics Manufacturing Co-----	4620 W. 77th St., Minneapolis, MN 55435.
GNT	General Tire & Rubber Co., Chemical/ Plastics Div.	3481 S. 35th St., Tacoma, WA 98409.
GRG	P. D. George Co-----	1 General St., Akron, OH 44329.
GP	Georgia-Pacific Corp-----	5200 N. 2d St., St. Louis, MO 63147.
PSP	Bellingham Div-----	900 S.W. 5th Ave., Portland, OR 97204
GP	Rebecca Chemical Div-----	P. O. Box 1236, Bellingham, WA 98225.
TID	Getty Oil Co. (Eastern Operations, Inc.)	P. O. Box 629, Plaquemine, LA 70764.
TNI	The Gillette Co., Chemical Div-----	Delaware, DE 19706.
GIL	Gilman Paint & Varnish Co-----	3500 W. 16th St., N. Chicago, IL 60064.
		216 W. 8th St., Chattanooga, TN 37402.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
GIV	Givaudan Corp-----	100 Delawanna Ave., Clifton, NJ 07014.
GLX	Glasflex Corp-----	P. O. Box 66, Stirling, NJ 07980.
GLY	Glyco Chemicals, Inc-----	51 Weaver St., Greenwich, CT 06830.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	6100 Oak Tree Blvd., Cleveland, OH 44131.
GYR	Goodyear Tire & Rubber Co-----	1144 E. Market St., Akron, OH 44316.
GOR	Carl Gordon Industries, Inc., Gordon Chemical Co. Div	1001 Southbridge St., Worcester, MA 01610.
W.R.G	W. R. Grace & Co.:-----	
GCC	Agricultural Chemicals Group-----	P. O. Box 277, Memphis, TN 38101.
HMP	Dewey & Almy Chemical Div., Organic Chemicals.	Poisson Ave., Nashua, NH 03060.
GRH	Hatco Chemical Div-----	King George Post Rd., Fords, NJ 08863.
MRO	Marco Chemical Div-----	1711 W. Elizabeth Ave., Linden, NJ 07036.
GRD	Polymers & Chemicals Div-----	55 Hayden Ave., Lexington, MA 02173.
GPR	Grain Processing Corp-----	1600 Oregon St., Muscatine, IA 52761.
GRA	Great American Chemical Corp-----	650 Water St., Fitchburg, MA 01420.
GTL	Great Lakes Chemical Corp-----	P. O. Box 2200, West Lafayette, IN 47906.
GRW	Great Western Sugar Co-----	P. O. Box 5308, Terminal Annex, Denver, CO 80217.
GRV	Guardsman Chemical Coatings, Inc-----	1350 Steele Ave., S.W., Grand Rapids, MI 49502, and 1350 S. 15th St., Louisville, KY 40210.
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co. - U. S.	P. O. Box 2100, Houston, TX 77001.
GTH	Guth Corp-----	P. O. Box 302, Naperville, IL 60540.
HNC	H & N Chemical Co-----	90 Maltese Dr., Totowa, NJ 07512.
HLI	Haag Laboratories, Inc-----	14010 S. Seeley Ave., Blue Island, IL 60406.
HAL	C. P. Hall Co. of Illinois-----	7300 S. Central Ave., Chicago, IL 60638.
FOC	Handschy Chemical Co., Farac Oil and Chemical Div.	13601 S. Ashland Ave., Riverdale, IL 60627.
HAN	Hanna Chemical Coatings Corp-----	P. O. Box 147, Columbus, OH 43216.
HDM	Hardman, Inc-----	600 Cortlandt St., Belleville, NJ 07109.
HSH	Harshaw Chemical Co. Div. of Kewanee Oil Co.	1945 E. 97th St., Cleveland, OH 44106.
HRT	Hart Products Corp-----	173 Sussex St., Jersey City, NJ 07302.
HVG	Haveg Industries, Inc-----	900 Greenback Rd., Wilmington, DE 19808.
HKY	Hawkeye Chemical Co-----	P. O. Box 899, Clinton, IA 52733.
SCP	Henkel, Inc-----	480 Alfred Ave., Teaneck, NJ 07666.
HCR	Hercor Chemical Corp-----	Petrochemical Complex, Ponce, PR 00731.
HPC	Hercules, Inc-----	910 Market St., Wilmington, DE 19899.
HER	Heresite & Chemical Co-----	822 S. 14th St., Manitowoc, WI 54220.
HES	Hess Oil Virgin Islands Corp-----	Kingshill P. O. Box 127, St. Croix, VI 00850.
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-----	3536 Peartree Ave., Bronx, NY 10475.
REZ	Hexcel Corp., Rezolin Div-----	20701 Nordhoff St., Chatsworth, CA 91311.
HDG	Hodag Chemical Corp-----	7247 N. Central Park Ave., Skokie, IL 60076.
HOF	Hoffmann-LaRoche, Inc-----	324-424 Kingsland St., Nutley, NJ 07110.
HK	Hooker Chemicals & Plastics Corp-----	MPO Box 8, Niagara Falls, NY 14302.
HKD	Durex Div-----	Walck Rd., N. Tonawanda, NY 14211.
RUB	Ruco Div-----	P. O. Box 456, Burlington, NJ 08016.
EPH	E. F. Houghton & Co-----	303 W. Lehigh Ave., Philadelphia, PA 19133.
HMY	Humphrey Chemical Co-----	Devine St., North Haven, CT 06473.
WAY	Philip A. Hunt Chemical Corp., Organic Chemical Div.	P. O. Box 4249 E. Providence, RI 02914.
HNT	Huntington Laboratories, Inc-----	P. O. Box 710, Huntington, IN 46750.
HUS	Husky Industries, Inc-----	62 Perimeter Center E., Atlanta, GA 30346.
HYN	Hynson, Westcott & Dunning, Inc-----	Charles and Chase Sts., Baltimore, MD 21201.
ICI	ICI United States, Inc., Specialty Chemical Group,	Wilmington, DE 19899.
RAY	ITT Rayonier, Inc-----	605 3d Ave., New York, NY 10016.
INP	Indpol, Inc-----	8434 Rochester Ave., Cucamonga, CA 91730.
INL	Inland Steel Co., Inland Steel Container Co.	4300 W. 130th St., Chicago, IL 60658.

APPENDIX

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
ICF	Inmont Corp-----	5935 Milford Ave., Detroit, MI 48210.
ICC	Color Systems Group-----	150 Wagaraw Rd., Hawthorne, NJ 07506.
WM	Inolex Corp-----	Jackson & Swanson Sts., Philadelphia, PA 19148.
WIL	Inolex Pharmaceutical Div-----	2600 Bond St., Park Forest South, IL 60466.
FSH	Insilco Corp., Frisch & Co. Div-----	88 E. 11th St., Paterson, NJ 07524.
IFF	International Flavors & Fragrances, Inc-----	521 W. 57th St., New York, NY 10019.
IPC	Interplastic Corp-----	2015 NE. Broadway St., Minneapolis, MN 55413.
CCA	Interstab Chemical, Inc-----	500 Jersey Ave., New Brunswick, NJ 08903.
IOC	Ionac Chemical Co. Div. of Sybron Corp-----	Birmingham, NJ 08011.
IRI	Ironsides Resins, Inc-----	270 W. Mound St., Columbus, OH 43216.
JCC	Jefferson Chemical Co., Inc-----	P. O. Box 53300, 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., Haledon, NJ 07508.
JNS	S. C. Johnson & Son, Inc-----	1525 Howe St., Racine, WI 53403.
JOB	Jones-Blair Co-----	2728 Empire Central, Dallas, TX 75235.
JOR	Jordan Chemical Co-----	1830 Columbia Ave., Folcroft, PA 19032.
JUL	Julian Associates, Inc-----	9352-58 W. Grand Ave., Franklin Park, IL 60136.
SNI	Kaiser Aluminum & Chemical Corp.: Kaiser Agricultural Chemicals Div-----	P. O. Box 246, Savannah, GA 31402.
KAI	Kaiser Chemicals-----	P. O. Box 337, Gramercy, LA 70052.
KLM	Kalama Chemical Co-----	P. O. Box 427, Kalama, WA 98625.
KF	Kay-Fries Chemicals, Inc-----	360 Lexington Ave., New York, NY 10017.
KMP	Kelly-Moore Paint Co-----	1015 Commercial St., San Carlos, CA 94070.
KCC	Kennecott Copper Corp.: Chino Mines Div-----	Hurley, MN 88043.
KCU	Utah Copper Div-----	P. O. Box 11299, Salt Lake City, UT 84111.
AMP	Kerr-McGee Chemical Corp-----	Kerr-McGee Bldg., Oklahoma, OK 73102.
KYS	Keyson Century 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.
KND	Knoedler Chemical Co-----	650 Lafayette St., Lancaster, PA 17604.
KMC	Kohler-McLester Paint Co-----	P. O. Box 546, Denver, CO 80201.
KON	H. Kohnstamm & Co., Inc-----	161 Avenue of the Americas, New York, NY 10013.
KPT	Koppers Co., Inc-----	Koppers Bldg., Pittsburgh, PA 15219.
	Organic Materials Div-----	Koppers Bldg., Pittsburgh, PA 15219.
	Roads Materials Div-----	Koppers Bldg., Pittsburgh, PA 15219.
HUM	Krafto Corp.: Humko Products Div-----	P. O. Box 398, Memphis, TN 38101.
SHF	Humko Sheffield Chemicals-----	1099 Wall St., Lyndhurst, NJ 07071.
KYN	Kyanize Paints, Inc-----	2d and Boston Sts., Everett, MA 02149.
LKL	Lakeside Laboratories Div. of Richardson- Merrill, Inc-----	1707 E. North Ave., Milwaukee, WI 53201.
LYK	Lake States Div. of St. Regis Paper Co-----	603 W. Davenport St., Rhinelander, WI 54501.
LAK	Lakeway Chemicals Inc-----	5025 Evanston Ave., Muskegon, MI 49443.
LAM	LaMotte Chemical Products Co-----	Chestertown, MD 21620.
LUR	Laurel Products Corp-----	2600 E. Tioga St., Philadelphia, PA 19134.
LEA	Leatex Chemical Co-----	2722 N. Hancock St., Philadelphia, PA 19133.
LEV	Lever Brothers Co-----	390 Park Ave., New York, NY 10022.
LVR	C. Lever Co., Inc-----	736 Dunks Ferry Rd., Cornwells Hgts, PA 19020.
BLS	Life Savers, Inc-----	Church St., Canajoharie, NY 13317.
LIL	Eli Lilly & Co-----	307 E. McCarty St., Indianapolis, IN 46206 and G.P.O. Box 4388, San Juan, PR 00936.
BRD	Lonza, Inc-----	22-10 Route 208, Fair Lawn, NJ 07410.
LUB	Lubrizol Corp-----	29400 Lakeland Blvd., Wickliffe, OH 44092.
TZC	Magnesium Elektron, Inc-----	P. O. Box 202-1, Flemington, NJ 08822.
MGR	Magruder Color Co., Inc-----	1 Virginia St., Newark, NJ 07114.
MAL	Mallinckrodt Chemical Works-----	3600 N. 2d St., St. Louis, MO 63147.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
TRD	Manufacturing Enterprises, Inc., Squibb Manufacturing, Inc., Trade Enterprises, Inc.	P. O. Box 609, Humacao, PR 00661.
MOR	Marathon Morco Co-----	P. O. Drawer C, Dickinson, TX 77539.
MOC	Marathon Oil Co., Texas Refining Div-----	P. O. Box 1191, Texas City, TX 77590.
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-----	1511 Joshua Circle, High Point, NC 27261.
SDC	Martin-Marietta Corp., Sodyeco Div-----	P. O. Box 10098, Charlotte, NC 28237.
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, Inc-----	52 Amsterdam St., Newark, NJ 07105.
MCC	McCloskey Varnish Co-----	7600 State Rd., Philadelphia, PA 19136.
MGK	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., Rahway, NJ 07065.
MER	Merichem Co-----	1914 Haden Rd., Houston, TX 77015.
MCH	Michigan Chemical Corp-----	2 N. Riverside Plaza, Chicago, IL 60606.
PFP	Midwest Manufacturing Corp-----	Oak St. and Bluff Rd., Burlington, IA 52601.
MLS	Miles Laboratories, Inc., Marschall Div. and Summer Div.	1127 Myrtle St., Elkhart, IN 46514.
GRO	Millmaster Onyx Corp.: A. Gross & Co. Div-----	652 Doremus Ave., Newark, NJ 07105.
BKL	Millmaster Chemical Div., Berkely Chemical Dept.	99 Park Ave., New York, NY 10016.
ONX	Onyx Chemical Co. Div-----	190 Warren St., Jersey City, NJ 07302.
RPC	Refined-Onyx Div-----	624 Schuyler Ave., Lyndhurst, NJ 07071.
MMM	Minnesota Mining & Manufacturing Co-----	3M Center, St. Paul, MN 55101.
MIR	Miranol Chemical Co., Inc-----	660 Stuyvesant Ave., Irvington, NJ 07111.
MSC	Mississippi Chemical Corp-----	P. O. Box 388, Yazoo City, MS 39194.
MOB	Mobay Chemical Co-----	Penn Lincoln Parkway, W. Pittsburgh, PA 15205.
CHG	Mobay Chemical Corp.: Chemagro Agricultural Div-----	P. O. Box 4913, Station "F", Kansas City, MO 64120.
VPC	Verona Div-----	Iorio Ct., Union, NJ 07083.
SM	Mobil Oil Corp-----	P. O. Box 900, Dallas, TX 75221.
	Mobil Chemical Co-----	P. O. Box 3868, Beaumont, TX 77704, and P. O. Box 26683, Richmond, VA 23261.
	Chemical Coatings Div-----	1024 South Ave., Plainfield, NJ 07062.
MOA	Mona Industries, Inc-----	65 E. 23d St., Paterson, NJ 07524.
MNO	Monochem, Inc-----	P. O. Box 488, Geismar, LA 70734.
MNR	Monroe Chemical Co-----	Eddystone, PA 19013.
MON	Monsanto Co-----	2710 Lafayette St., Santa Clara, CA 95050 and 800 N. Lindbergh Blvd., St. Louis, MO 63166.
	Bircham Bend Plant-----	190 Grochmal Ave., Indian Orchard, MA 01151.
	Chocolate Bayou Plant-----	P. O. Box 711, Alvin, TX 77511.
	Plastics Div-----	5100 W. Jefferson Ave., Trenton, MI 48183; River Rd., Addyston, OH 45001 and P. O. Box 1311, Texas City, TX 77590.
	Springfield Plant-----	730 Worcester St., Indian Orchard, MA 01151.
	Textiles Div-----	800 N. Lindbergh Blvd., St. Louis, MO 63166.
MTO	Montrose Chemical Corp. of California-----	3250 Wilshire Blvd, Suite 1800, Los Angeles, CA 90010.
MCI	Mooney Chemicals, Inc-----	2301 Scranton Rd., Cleveland, OH 44113.
MCP	Moretex Chemical Products, Inc-----	314 W. Henry St., P. O. 1799, Spartanburg, SC 29301.
MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.	110 N. Wacker Dr., Chicago, IL 60606.
MOT	Motomco, Inc-----	89 Terminal Ave., Clark, NJ 07066.
PNX	Murphy-Phoenix Co-----	9505 Cassius Ave., Cleveland, OH 44105.
NTL	NL Industries, Inc-----	111 Broadway, New York, NY 10006.
NLC	Nalco Chemical Co-----	2901 Butterfield Rd, Oak Brook, IL 60521.
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 & Chemical Corp., U.S. Industrial Chemicals Co. Div.	99 Park Ave., New York, NY 10016.

APPENDIX

247

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
NMC	National Milling & Chemical Co-----	4601 Flat Rock Rd., Philadelphia, PA 19127.
USI	National Petro Chemical Corp-----	99 Park Ave., New York, NY 10016.
NSC	National Starch & Chemical Corp-----	10 Finderne Ave., Bridgewater, NJ 08876.
NES	Nease Chemical Co., Inc-----	P. O. Box 221, State College, PA 16801.
NEP	Nepera Chemical Co., Inc-----	Route 32, Harriman, NY 10926.
NEV	Neville Chemical Co-----	Neville Island P. O., Pittsburgh, PA 15225.
NLO	Niklor Chemical Co-----	2060 E. 220th St., Long Beach, CA 90810.
NIL	Nilok Chemicals, Inc-----	2235 Langdon Farm Rd., Cincinnati, OH 45230.
JDC	Nipak, Inc-----	301 S. Harwood St., Dallas, TX 75221.
CNP	Nipro, Inc-----	P. O. Box 1483, Augusta, GA 30903.
NOC	Norac Co., Inc-----	405 S. Motor Ave., Azusa, CA 91703.
	Mathe Chemical Co. Div-----	169 Kennedy Dr., Lodi, NJ 07644.
NEO	Norda, Inc-----	475 10th Ave., New York, NY 10001.
NPV	Norris Paint & Varnish Co-----	P. O. Box 2023, Salem, OR 97308.
LMI	North American Chemical Co-----	19 Chestnut St., Cambridge, MA 02139.
ATP	Northern Fine Chemicals, Inc-----	93 Main St., Franklin, NJ 07416.
NWP	Northern Petrochemical Co-----	2350 Devon Ave., Des Plaines, IL 60018.
NW	Northwestern Chemical Co-----	120 N. Aurora St., W. Chicago, IL 60185.
NPC	Northwest Petrochemical Corp-----	P. O. Box 99, Anacortes, WA 98221.
NOR	Norwich Pharmacal Co-----	17 Eaton Ave., Norwich, NY 13815.
NCW	Nostrip Chemical Works, Inc-----	P. O. Box 160, Pedricktown, NJ 08067.
CAD	Noury Chemical Corp-----	2153 Lockport-Olcott Rd., Burt, NY 14028.
NVT	Novamont Corp., Neal Works-----	P. O. Box 189, Kenova, WV 25530.
CMG	Nyanza, Inc-----	Maguno Rd., Ashland, MA 01721.
OBC	O'Brien Corp-----	2001 W. Washington Ave., South Bend, IN 46627.
OMC	Olin Corp-----	120 Long Ridge Rd., Stamford, CT 06904, and Box 991, Little Rock, AR 72203.
OPC	Orbis Products Corp-----	475 10th Ave., New York, NY 10008.
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., Houston, TX 77062.
OXC	Oxochem Enterprise-----	P. O. Box 27, King George Post Rd., Fords, NJ 08863.
PLB	P L Biochemicals, Inc-----	1037 W. McKinley Ave., Milwaukee, WI 53205.
PPG	PPG Industries, Inc-----	1 Gateway Center, Pittsburgh, PA 15222.
PVO	PVO International, Inc., Chemical Specialties Div.	416 Division St., Boonton, NJ 07005.
BFR	Pace National Corp-----	500 7th Ave., S., Kirkland, WA 98033.
AMR	Pacific Resins & Chemicals, Inc-----	1754 Thorne Rd., Tacoma, WA 93421.
PNA	Pan American Chemical Corp-----	21 Stable Ave., Wilmington, DE 19803.
PNT	Pantaseo Co. of New York, Inc-----	26 Jefferson St., Passaic, NJ 07056.
PD	Parke, Davis & Co-----	Jos. Campau at the River, Detroit, MI 48232.
PSC	Passaic Color & Chemical Co-----	28-36 Paterson St., Paterson, NJ 07501.
KAL	Pathan Chemical Co-----	427 Moyer St., Philadelphia, PA 19125.
CHP	C. H. Patrick & Co., Inc-----	P. O. Box 2526, Greenville, SC 29602.
CCH	Pearssall 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 Ave., Detroit, MI 48204.
PEL	Pelron Corp-----	7847 W. 47th St., Lyons, IL 60534.
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.
UDI	Petrochemicals Co., Inc-----	P. O. Box 2199, Fort Worth, TX 76101.
PTT	Petro-Tex Chemical Corp-----	8600 Park Place Blvd., Houston, TX 77017.
PFN	Pfanzlöhle 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, Barcelonita, PR 00617.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
PHR	Pharmachem Corp-----	719 Stefko Blvd., Bethlehem, PA 18018.
PLC	Phillips Petroleum Co-----	16D2 Phillips Bldg., Bartlesville, OK 74003.
PPR	Phillips Puerto Rico Corp, Inc-----	GPO Box 4129, San Juan, PR 00936.
PIC	Pierce Chemical Co-----	3747 N. Meridian Rd., Rockford, IL 61103.
PIL	Pilot Chemical Co-----	11756 Burke St., Santa Fe Springs, CA 90670.
PPL	Pioneer Plastics Corp-----	Pionite Rd., Auburn, ME 04210.
PIT	Pitt-Consol Chemical Co-----	Park Eighty Plaza East, Saddle Brook, NJ 07662.
PLS	Plastics Engineering Co-----	P. O. Box 758, Sheboygan, WI 53081.
PMC	Plastics Manufacturing Co-----	2700 S. Westmoreland Ave., Dallas, TX 75224.
PLX	Plex Chemical Corp-----	1205 Atlantic St., Union City, CA 94487.
PFW	Polak's Frutal Works, Inc-----	33 Sprague Ave., Middletown, NY 10940.
POL	Polymer Corp-----	2120 Fairmont Ave., Reading, PA 19603.
PYZ	Polyrez Co., Inc-----	S. Columbia St. & Railroad, Woodbury, NJ 08096.
PVI	Polyvinyl Chemical Ind. Div. of Beatrice Foods Co.	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.
PPC	Premier Petrochemical Co-----	530 N. Witter, Pasadena, TX 77501.
PCR	Princeton Chemical Research, Inc-----	P. O. Box 651, Princeton, NJ 08540.
PG	Procter & Gamble Co., Procter & Gamble Mfg. Co.	301 E. 6th St., Cincinnati, OH 45202.
PC	Proctor Chemical Co., Inc-----	P. O. Box 399, Salisbury, NC 28144.
PRD	Productol Chemical Co., Inc-----	13215 E. Penn St., Whittier, CA 90602.
PRC	Products Research & Chemical Corp-----	2919 Empire Ave., Burbank, CA 91505.
PUB	Publicker Industries, Inc-----	1429 Walnut St., Philadelphia, PA 19102.
PTO	Puerto Rico Chemical Co., Inc-----	P. O. Box 496, Arecibo, PR 00613.
PUE	Puerto Rico Olefins-----	Firm Delivery, Ponce, PR 00731.
PRX	Purex Corp-----	5101 Clark Ave., Lakewood, CA 90712 and 2258 Elston Ave., Chicago, IL 60614.
QCP	Quaker Chemical Corp-----	Lime & Elm Sts., Conshohocken, PA 19428.
QKO	Quaker Oats Co-----	345 Merchandise Mart Plaza, Chicago, IL 60654.
QUN	K. J. Quinn & Co., Inc-----	195 Canal St., Malden, MA 02148.
RSA	R.S.A. Corp-----	690 Sawmill 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-Manhattan, Inc-----	74 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.	111 W. Clarendon Greyhound Tower, Phoenix, AZ 85077.
RCI	Reichhold Chemicals, Inc-----	525 N. Broadway, White Plains, NY 10602.
RIL	Reilly Tar & Chemical Corp-----	1615 Merchants Bank, Indianapolis, IN 46204.
REL	Reliance Universal, Inc. of Texas Resin Div-----	6901 Cavalcade St., Houston, TX 77001. P. O. Box 21423, Louisville, KY 40221.
REM	Remington Arms Co., Inc-----	939 Barnum Ave., Bridgeport, CT 06602.
RSY	Resyn Corp-----	1401 W. Blancke St., Linden, NJ 07036.
RDA	Rhodia, Inc-----	120 Jersey Ave., New Brunswick, NJ 08903.
RCD	Richardson Co. Polymeric Systems Div-----	2400 E. Devon Ave., Des Plaines, IL 60018. 15 Miegs Ave., Madison, CT 06443.
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	F. Ritter & Co-----	4001 Goodwin Ave., Los Angeles, CA 90039.
RIV	Riverdale Chemical Co-----	220 E. 17th St., Chicago Heights, IL 60411.
ROB	Robeco Chemicals, Inc-----	51 Madison Ave., New York, NY 10010.
RBT	Robintech, Inc-----	1407 Texas St., Fort Worth, TX 76102.
MFG	Rockwell International Corp., Automotive Products Group, Resin Plant.	4501 Benefit Ave., Ashtabula, OH 44004.
ORT	Roehr Chemicals Div of Aceto Industrial Chemical Co.	52-20 37th St., Long Island City, NY 11101.
RGC	Rogers Corp-----	Rogers, CT 06263.
RH	Rohm & Haas Co-----	Independence Mall West, Philadelphia, PA 19105.

APPENDIX

249

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
RUC	Rubicon Chemicals, Inc-----	P. O. Box 517, Geismar, LA 70734.
GLD	SCM Corp., Glidden-Durkee Div-----	900 Union Commerce Bldg., Cleveland, OH 44115, and 2333 Logan Blvd., Chicago, IL 60647.
NPR	Safeway Stores, Inc-----	8390 Capwell Dr., Oakland, CA 94604.
SLM	Salem Oil & Grease Co-----	60 Grove St., Salem, MA 01970.
SAL	Salsbury Laboratories-----	2000 Rockford Rd., Charles City, IA 50616.
S	Sandoz, Inc.: Crop Protection Dept----- Sandoz Color & Chemicals Div-----	P. O. Box 357, Fair Lawn, NJ 07410. P. O. Box 207, Wasco, CA 93280.
SAR	Sartomer Industries, Inc-----	Route #10, P. O. Box 11, E. Hanover, NJ 07936. Gov. Printz Blvd. & Wanamaker Ave., Essington, PA. 19029.
SCN	Schenectady Chemicals, Inc-----	P. O. Box 1046, Schenectady, NY 12301.
SBC	Scher Bros., Inc-----	P. O. Box 538, Allwood Station, Clifton, NJ 07012.
SCR	R. P. Scherer Corp-----	9425 Grinnell Ave., Detroit, MI 48213.
SCH	Schering Corp-----	Galloping Hill Rd., Kenilworth, NJ 07033.
SCO	Schoeller Bros., Inc-----	Collins and Westmoreland Sts., Philadelphia, PA 19134.
SPR	Scientific Protein Labs., Inc-----	P. O. Box 1409, Madison, WI 53701.
SPA	Scott Paper Co-----	106 Central Ave., Oconto Falls, WI 54154.
SEA	Seaboard Chemicals, Inc-----	30 Foster St., Salem, MA 01970.
SRL	G. D. Searle & Co-----	P. O. Box 5110, Chicago, IL 60680.
SEY	Seydel-Woolley & Co. div of AZS Corp-----	762 Marietta Blvd., NW, Atlanta, GA 30318.
SKP	Shakespeare Co., Monofilament Div-----	6111 Shakespare Rd., Columbia, SC 29240.
SHA	Shanco Plastics & Chemicals, Inc-----	111 Wales St., Tonawanda, NY 14150.
SHO	Shell Oil Co-----	P. O. Box 2463, Houston, TX 77001.
SHC	Shell Chemical Co. Div-----	One Shell Plaza, P. O. Box 2463, Houston, TX 77001.
SHP	Shepherd Chemical Co-----	4900 Beech St., Cincinnati, OH 45212.
SW	Sherwin-Williams Co-----	101 Prospect Ave., NW Cleveland, OH 44115.
SID	George F. Siddall Co., Inc-----	P. O. Box 925, Spartanburg, SC 29301.
SIM	Simpson Timber Co., Chemicals Div-----	2301 N. Columbia Blvd., Portland, OR 97217.
SKC	Sinclair-Koppers Chemical Co-----	P. O. Box 12188, Houston, TX 77012.
SPC	Sinclair Paint Co., Div. of Insilco Corp-----	3960 E. Washington Blvd., Los Angeles, CA 90023.
AMS	Sinclair & Valentine Co., Inc----- Ridgway Color & Chemical	75 Front St., Ridgway, PA 15853.
SKO	Skelly Oil Co-----	P. O. Box 1650, Tulsa, OK 74102.
GFS	G. Frederick Smith Chemical Co-----	867 McKinley Ave., Columbus, OH 43223.
SK	Smith, Kline & French Laboratories-----	1500 Spring Garden St., Philadelphia, PA 19101.
SBN	Sobin Chemical Co-----	P. O. Box 149, Orrington, ME 04474.
MTR	Sobin Chemicals, Inc., Montrose Div-----	100 Listen Ave., Newark, NJ 07105.
SOL	Solar Chemical Corp-----	29 Fuller St., Leominster, MA 01453.
SLT	Soltex Polymer Corp-----	550 Broad St., Newark, NJ 07102.
SLC	Soluol Chemical Co., Inc-----	Green Hill and Market Sts., W. Warwick, RI 02893.
STC	Sou-Tex Chemical Co., Inc-----	E. Catawba Ave., P. O. Box 866, Mount Holly, NC 28120.
SAC	Southeastern Adhesives Co-----	P. O. Box 791, Lenoir, NC 28645.
SOP	Southern Chemical Products Co., Inc-----	430 Lower Boundary St., Macon, GA 31202.
SOS	Southern Sizing Co-----	1550 E. Taylor Ave., East Point, GA 30344.
SPL	Spaulding Fibre Co., Inc-----	310 Wheeler St., Tonawanda, NY 14150.
OMS	E. R. Squibb & Sons, Inc-----	Georges Rd., Brunswick, NJ 08903.
STA	A. E. Staley Manufacturing Co----- Staley Chemicals Div-----	2200 Elorado St., Decatur, IL 62525.
UBS	Textile Div-----	320 Schuyler Ave., Kearny, NJ 07032.
CCL	Standard Brands, Inc., Clinton Corn Processing Co. Div-----	P. O. Box 948, Charlotte, NC 28231.
CLN	Standard Brands Chemical Industries, Inc-----	1251 Beaver Channel Parkway, Clinton, IA 52733.
SBI	Standard Oil Co. of California, Chevron Chemical Co.	P. O. Drawer K, Dover, DE 19901.
SOC	Standard Oil Co. of Ohio-----	200 Bush St., San Francisco, CA 94126.
SIO	Stange Co-----	Midland Bldg., Cleveland, OH 44115.
STG		342 N. Western Ave., Chicago, IL 60612.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
SFA	Stauffer Chemical Co.:	
SFC	Agricultural Div-----	636 California St., San Francisco, CA 94119.
SFF	Calhio Chemicals, Inc-----	636 California St., San Francisco, CA 94119.
SFI	Food Ingredients Div-----	636 California St., San Francisco, CA 94119.
SFP	Industrial Div-----	636 California St., San Francisco, CA 94119.
AME	Plastics Div-----	636 California St., San Francisco, CA 94119.
SFS	Polymers West-----	2112 E. 223d St., P. O. Box 1110 Long Beach, CA 90801.
BPC	Specialty Div-----	636 California St., San Francisco, CA 94119.
SWS	Benzol Products-----	Meadow Rd., Edison, NJ 08817.
SH	SWS Silicones Div-----	636 California St., San Francisco, CA 94119.
STP	Stein Hall & Co., Inc-----	P. O. Box 1154, Louisville, KY 40201.
MYW	Stepan Chemical Co-----	RR #1, Elwood, IL 60421.
NPI	Maywood Div-----	100 West Hunter Ave., Maywood, NJ 07607.
	Polychem Dept-----	51 Eames St., Wilmington, MA 01887.
SDG	Sterling Drug, Inc.:	
SDH	Glenbrook Laboratories Div-----	90 Park Ave., New York, NY 10016.
TMS	Hilton-Davis Chemical Co. Div-----	2235 Langdon Farm Rd., Cincinnati, OH 45237.
SDW	Thomasset Colors Div-----	120 Lister Ave., Newark, NJ 07105.
SLV	Winthrop Laboratories Div-----	90 Park Ave., New York, NY 10016.
OTC	Sterwin Chemicals, Inc-----	Military Rd., Rothschild, WI 54474.
STY	Story Chemical Corp-----	500 Agard Rd., Muskegon, MI 49945.
SBP	Styrochem Corp-----	Petrochemical Complex, Ponce, PR 00731.
	Sugar Beet Products Co-----	P. O. Box 1387, Saginaw, MI 48605.
SNW	Sun Chemical Corp.:	
SNA	Chemical Div-----	P. O. Box 70, Chester, SC 29706.
SKG	Pigments Div-----	441 Tompkins Ave., Staten Island, NY 10305.
SUN	Sunkist Growers, Inc-----	P. O. Box 7888, Valley Annex, Van Nuys, CA 91409.
SNO	Sun Oil Co-----	240 Radnor-Chester Rd., St. Davids, PA 19087.
SNT	SunOlin Chemical Co-----	P. O. Box F, Claymount, DE 19703.
SWT	Suntide Refining Co-----	P. O. Box 2608, Corpus Christi, TX 78403.
	Swift Specialty Chemicals Products of Unitich Chemical, Inc.	115 W. Jackson Blvd., Chicago, IL 60604.
BUC	Synalloy Corp., Blackman-Uhler Chemical Div.	P. O. Box 5627, Spartanburg, SC 29301.
FAR	Syncon Resins, Inc-----	77 Jacobus Ave., S. Kearny, NJ 07032.
FCD	Synres Chemical Corp-----	209 N. Michigan Ave., Kenilworth, NJ 07033.
HFT	Syntex Agribusiness, Inc., Nutrition & Chemical Div.	P. O. Box 1246 SSS, Springfield, MO 65805.
TCC	Tanatex Chemical Corp-----	
CST	Charles S. Tanner Co-----	P. O. Box 388, Lyndhurst, NJ 07071.
TEK	Teknor Apex Co-----	1310 Barcelona Dr., Greenville, SC 29606.
HN	Tenneco Chemicals, Inc-----	505 Central Ave., Pawtucket, RI 02662.
CIK	Cal/Ink Div-----	Park Eighty Plaza West-One, Saddle Brook, NJ 07662.
TOC	Tenneco Oil Co-----	600 California St., San Francisco, CA 94104.
TVA	Tennessee Valley Authority-----	P. O. Box 2511, Houston, TX 77001.
TER	Terra Chemicals International, Inc-----	Muscle Shoals, AL 35660.
TX	Texaco, Inc-----	507 6th St., Sioux City, IA 51121.
TSA	Texas Alkyls, Inc-----	135 E. 42 St., New York, NY 10017.
TUS	Texas-U.S. Chemical Co-----	P. O. Box 600, Deer Park, TX 77536.
TXC	Tex Chem Co., Inc-----	P. O. Box 667, Port Neches, TX 77651.
TCI	Texize Chemicals, Co-----	20-21 Wagaraw Rd., Fair Lawn, NJ 07410.
TXT	Textilana Corp-----	P. O. Box 368, Greenville, SC 29602.
TXN	Textilana Nease, Inc-----	12607 Cerise Ave., Hawthorne, CA 90250.
SKT	Textron, Inc., Spencer Kellogg Div-----	12607 Cerise Ave., Hawthorne, CA 90250.
TKL	Thiokol Corp-----	120 Delaware Ave., Buffalo, NY 14240.
SOR	Thomason Industries, Inc., Southern Resin Div.	P. O. Box 27, Bristol, PA 19007.
TMH	Thompson-Hayward Chemical Co-----	P. O. Drawer 1600, Fayetteville, NC 29302.
TRC	Toms River Chemical Corp-----	5200 Speaker Rd., Kansas City, MO 66110 and 2 E. Madison St., Waukegan, IL 60085.
ACT	Arthur C. Trask Co-----	P. O. Box 71, Toms River, NJ 08753. 7666 W. 63d St., Summit, IL 60501.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
TRI	Triad Chemical-----	P. O. Box 310, Donaldsonville, LA 70346.
TRO	Troy Chemical Co-----	One Avenue L, Newark, NJ 07105.
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 15219.
UHL	Paul Hulich & Co., Inc-----	90 West St., New York, NY 10006.
UNG	Ungerer & Co-----	161 Avenue of the Americas, New York, NY 10013.
NCI	Union-Camp Corp-----	P. O. Box 6170, Jacksonville, FL 32205.
WTH	Harchem Div-----	P. O. Box 220, Dover, OH 44622.
UCC	Union Carbide Corp-----	270 Park Ave., New York, NY 10017.
UOC	Union Oil Co. of California-----	200 E. Gulf Rd., Palatine, IL 60067.
USR	Uniroyal, Inc., Chemical Div-----	Emic Bldg., Naugatuck, CT 06770.
UNN	United Chemical Corp. of Norwood-----	Endicott St., Norwood, MA 02062.
UNP	United Chemical Products Corp-----	472 York St., Jersey City, NJ 07302.
UNO	United-Erie, Inc-----	438 Huron SE., Erie, PA 16512.
ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.	749 Quequechan St., Fall River, MA 02721.
USB	U.S. Borax Research Corp-----	3075 Wilshire Blvd., Los Angeles, CA 90005.
HLM	U.S. Industries, Inc., E. Helman Co. Div-----	P. O. Box 5129, Akron, OH 44313.
USO	U.S. Oil Co-----	P. O. Box 4228, E. Providence, RI 02914.
UPF	U.S. Pipe & Foundry Co-----	3300 1st Ave., N., Birmingham, AL 35202.
UPL	U.S. Plywood-----	Anderson, CA 96007.
UPM	Universal Oil Products Co-----	10 UOP Plaza, Algonquin & Mt. Prospect Rds., Des Plains, IL 60016.
UOP	UOP Chemical Div-----	State Highway 17, E. Rutherford, NJ 07073.
UPJ	Upjohn Co-----	7000 Portage Rd., Kalamazoo, MI 49002.
CWN	Fine Chemical Div-----	410 Sackett Point Rd., North Haven, CT 06473.
VAL	Valchem Chemical Div. of United Merchants & Manufacturers, Inc.	1407 Broadway, New York, NY 10018.
VSV	Valentine Sugars, Inc-----	726 Whitney Bldg., New Orleans, LA 70130.
VLN	Valley Nitrogen Producers, Inc-----	1221 Van Ness Ave., Fresno, CA 93717.
MNP	The Valspar Corp-----	1101 S. 3d St., Minneapolis, MN 55415.
VNC	Vanderbilt Chemical Corp-----	31 Taylor Ave., Bethel, CT 06801.
VND	Van Dyk & Co., Inc-----	Main & Williams Sts., Belleville, NJ 07109.
VEL	Velsicol Chemical Corp-----	341 E. Ohio St., Chicago, IL 60611.
MHI	Ventron Corp-----	12-16 Congress St., Beverly, MA 01915.
VTC	Vertac Consolidated, Vicksburg Chemical Co.-	P. O. Box 3, Vicksburg, MS 39180
VIK	Viking Chemical Co-----	915 Midland Bank Bldg., Minneapolis, MN 55401.
VIN	Vineland Chemical Co-----	W. Wheat Rd., Vineland, NJ 08360.
VCC	Vining's Chemical Co-----	2555 Cumberland Pkwy., Suite 200, Atlanta, GA 30339.
VGC	Virginia Chemicals, Inc-----	3340 W. Norfolk Rd., Portsmouth, VA 23703.
SOH	Vistron Corp-----	Midland Bldg., Cleveland, OH 44115.
SIC	Silmar Div-----	12333 S. Van Ness Ave., Hawthorne, CA 90250.
VTM	Vitamins, Inc-----	401 N. Michigan Ave., Chicago, IL 60611.
FRO	Vulcan Materials Co., Chemicals Div-----	P. O. Box 545, Wichita, KS 67201.
WJ	Warner-Jenkinson Manufacturing Co-----	2526 Baldwin St., St. Louis, MO 63106.
WAG	West Agro-Chemicals, Inc-----	1900 W 47th Pl., Suite 324, Westwood, KS 66204.
WCA	West Coast Adhesives Co-----	11104 NW. Front Ave., Portland, OR 97231.
EW	Westinghouse Electric Corp., Industrial Plastics Div., Chemical Products Plant.	Manor, PA 15665.
WVA	Westvaco Corp., Polychemicals Dept-----	P. O. Box 5208, N. Charleston, SC 29406.
WRD	Weyerhaeuser Co-----	118 S. Palmetto Ave., Marshfield, WI 54449.
WBG	White & Bagley Co-----	P. O. Box 706, Worcester, MA 01613.

SYNTHETIC ORGANIC CHEMICALS, 1974

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS,
BY COMPANY, 1974--CONTINUED

Identifi- cation code	Name of company	Office address
WHI	White & Hodges, Inc-----	576 Lawrence St., Lowell, MA 01853.
WHL	Whitmoyer Laboratories, Inc-----	19 N. Railroad St., Myerstown, PA 17067.
WHC	Whittaker Corp.: Research & Development Div-----	3540 Aero Ct., San Diego, CA 92123.
APT	Whittaker Coatings & Chemicals Mol Rez Resins	3134 California St., NE., Minneapolis, MN 55418.
WHW	Whittemore-Wright Co., Inc-----	62 Alford St., Boston, MA 02129.
WLN	Wilmington Chemical Corp-----	P. O. Box 66, Wilmington, DE 19899.
WTC	Witco Chemical Co., Inc-----	P. O. Box 305, Paramus, NJ 07652.
WAW	W. A. Wood Co-----	108 Spring St., Everett, MA. 02149.
WBC	Worthington Biochemical Corp-----	Halls Mills Rd., Freehold, NJ 07728.
WYC	Wycon Chemical Co-----	5 Greenway Plaza East, Houston, TX 77046.
WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.	P. O. Box 831, Paoli, PA 19301.

APPENDIX

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 589.5 million pounds with a foreign invoice value of \$555.5 million in 1974 compared with 390.6 million pounds with a foreign invoice value of \$300.0 million in 1973.

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 or 402a Tariff Act of 1930, as amended. The competitive status of benzenoid imports in 1973 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, 28.7 percent of all the benzenoid imports under part 1B in 1974 came from West Germany; 26.3 percent, from Japan; 8.4 percent, from the United Kingdom; and 7.1 percent from Italy.

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 23.3 percent of all finished benzenoid imports under part 1C in 1974 came from West Germany; 20.0 percent, from Japan; 16.2 percent, from the United Kingdom; and 12.4 percent from Switzerland.

¹ *Imports of Benzenoid Chemicals and Products, 1974*, TC Publication 762, 1976 [processed].

SYNTHETIC ORGANIC CHEMICALS, 1974

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, 1974

Part and competitive status	Number of items	Quantity	Percent of total quantity	Foreign invoice value	Percent of foreign value	Unit foreign value
<u>Schedule 4, Part 1B</u>		<u>1,000 pounds</u>		<u>1,000 dollars</u>		<u>Per pound</u>
Total ¹ -----	876	395,342	100.0	231,211	100.0	\$0.59
Competitive:						
Duty based on ASP ² -----	434	351,042	88.7	172,642	74.7	.49
Noncompetitive:						
Duty based on U.S. value-----	260	17,579	4.5	25,185	10.9	1.43
Duty based on export value-----	169	23,148	5.9	29,361	12.7	1.27
Competitive status not available-----	13	3,572	.9	4,024	1.7	1.13
<u>Schedule 4, Part 1C</u>						
Total ¹ -----	2,082	194,151	100.0	324,290	100.0	1.67
Competitive:						
Duty based on ASP ² -----	661	84,608	43.6	145,610	45.0	1.72
Noncompetitive:						
Duty based on U.S. value-----	1,090	32,486	16.7	76,616	23.6	2.36
Duty based on export value-----	278	34,973	18.0	65,637	20.2	1.88
Competitive status not available-----	53	42,084	21.7	36,428	11.2	.87
<u>Summary (Schedule 4, Parts 1B and 1C)</u>						
Total ¹ -----	2,958	589,493	100.0	555,502	100.0	.94
Competitive:						
Duty based on ASP ² -----	1,095	435,650	73.9	318,252	57.3	.73
Noncompetitive:						
Duty based on U.S. value-----	1,350	50,065	8.5	101,801	18.3	2.03
Duty based on export value-----	447	58,121	9.9	94,998	17.1	1.63
Competitive status not available-----	66	45,656	7.7	40,452	7.3	.89

¹ Detail may not add to total due to rounding.² American selling price.

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

Note:--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 statistical coverage in 1974 varies from a low of 82 percent for pigments to almost complete coverage of intermediates, flavors and perfumes, and medicinals.

APPENDIX

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

Common name	Standard (Chemical Abstracts) name
1,2,4-Acid-----	4-Amino-3-hydroxy-1-naphthalenesulfonic acid.
Acid yellow 9-----	6-Amino-3,4'-azodibenzenesulfonic acid.
p-Aminobenzenesulfonic acid-----	Sulfanilic acid and salt.
Amino G acid-----	7-Amino-1,3-naphthalenedisulfonic acid.
Amino I 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.
Benzal chloride-----	α,α -Dichlorotoluene.
Benzanthrone-----	7H-Benz[de]anthracen-7-one.
Benzotrichloride-----	α,α,α -Trichlorotoluene.
Bisphenol A-----	4,4'-Isopropylidenediphenol.
B.O.N-----	3-Hydroxy-2-naphthoic acid.
Bromobenzanthrone-----	3-Bromo-7H-benz[de]anthracene-7-one.
Broenner's acid-----	6-Amino-2-naphthalenesulfonic acid.
C acid-----	3-Amino-1,5-naphthalenedisulfonic acid.
Chlorobenzanthrone-----	Chloro-7H-benz[de]anthracen-7-one.
Chromotropic acid-----	4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
Chrysazin-----	1,8-Dihydroxyanthraquinone.
2-Cyanopyridine-----	Picolinonitrile.
3-Cyanopyridine-----	Nicotinonitrile.
Cyanuric chloride-----	2,4,6-Trichloro-s-triazine.
DADI-----	Dianisidine diisocyanate.
DBB-----	p-Dibutoxybenzene.
Decacyclene-----	Diacenaphtho[1,2-j:1,2'-l]fluoranthene.
Developer Z-----	3-Methyl-1-phenyl-2-pyrazolin-5-one.
o-Dianisidine-----	3,3'-Dimethoxybenzidine.
1,1'-Dianthrimeide-----	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.
Durene-----	1,2,4,5-Tetramethylbenzene.
Fast Red G base-----	2-Nitro-p-toluidine [NH ₂ =1].
Fast Scarlet R base-----	5-Nitro-o-anisidine [NH ₂ =1].
G salt-----	7-Hydroxy-1,3-naphthalenedisulfonic acid.
Gamma acid-----	6-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt.
Gold salt-----	9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt.
H acid-----	4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid.
Hellimellitene-----	1,2,3-Trimethylbenzene.
J acid-----	7-Amino-4-hydroxy-2-naphthalenesulfonic acid, sodium salt.
J acid urea-----	7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid].
Koch's acid-----	8-Amino-1,3,6-naphthalenetrisulfonic acid.
MEP-----	5-Ethyl-2-picoline
Mesitylene-----	1,3,5-Trimethylbenzene.
Methane base-----	4,4'-Methylenebis[N,N-dimethylaniline].
Michler's hydrol-----	4,4'-Bis(dimethylamino)benzhydrol.
Michler's ketone-----	4,4'-Bis(dimethylamino)benzophenone.

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

Common name	Standard (Chemical Abstracts) name
Naphthionic acid-----	4-Amino-1-naphthalenesulfonic acid.
o-Naphthionic acid-----	1-Amino-2-naphthalenesulfonic acid.
β -Naphthol-----	2-Naphthol, tech.
Naphthol AS-----	3-Hydroxy-2-naphthanilide.
α -Naphthylamine-----	1-Naphthylamine.
Neville & Winther's acid-----	4-Hydroxy-1-naphthalenesulfonic acid.
Pentaanthrimide-----	1,4,5,8-Tetrakis(1-anthaquinonyl amino)anthraquinone.
Phenylbiphenyl-----	Terphenyl.
N-Phenyl diethanolamine-----	2,2'-(Phenyl imino)diethanol.
Phenyl J acid-----	7-Anilino-4-hydroxy-2-naphthalenesulfonic acid.
Phenyl peri acid-----	8-Anilino-1-naphthalenesulfonic acid.
POPOP-----	1,4-Bis[2-(5-phenyloxazolyl)]benzene.
Pseudocumene-----	1,2,4-Trimethylbenzene.
Pyrazoleanthrone-----	Anthra[1,9-cd]pyrazol-6(2H)-one.
Pyrazoleanthrone yellow-----	[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione.
Pyrazolone T-----	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
Quinizarin-----	1,4-Dihydroxyanthraquinone.
2-Quinizarinsulfonic acid-----	9,10-Dihydro-1,4-dihydroxy-9,10-di oxo-2-anthracene-sulfonic acid.
Quinoline yellow base-----	Quinophthalone.
R salt-----	3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt.
Schaffer's acid-----	6-Hydroxy-2-naphthalenesulfonic acid.
Silver salt-----	9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt.
Solvent Yellow 1-----	p-Phenylazoaniline and hydrochloride.
Solvent Yellow 3-----	4-(o-Tolylazo)-o-toluidine.
o-Sulfonylbenzaldehyde-----	o-Formylbenzenesulfonic acid.
Thiosalicylic acid-----	o-Mercaptobenzoic acid.
Tobias acid-----	2-Amino-1-naphthalenesulfonic acid.
TODI-----	Bitolylene diisocyanate.
o-Tolidine-----	3,3'-Dimethylbenzidine.
α -Toluic acid-----	Phenylacetic acid.
α -Tolunitrile-----	Phenylacetonitrile.
4-m-Tolylendiamine-----	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.
Vinyltoluene-----	ar-Methylstyrene.

Library Cataloging Data

U.S. International Trade Commission.

Synthetic organic chemicals.

United States production and sales,
1974. [Washington, 1976]

256 p. 27 cm. annual.
(USITC Pub. 776)

1. Dyes and dyeing--U.S.
 2. Coal-tar products.
 3. Tar.
 4. Petroleum industry and trade--U.S.--Statistics.
 5. Gas, Natural--U.S.--Statistics.
 6. Color.
 7. Drugs.
 8. Perfumes, Synthetic.
 9. Flavoring essences.
 10. Elastomers.
 11. Plastics industry and trade--U.S.
- I. Title.

